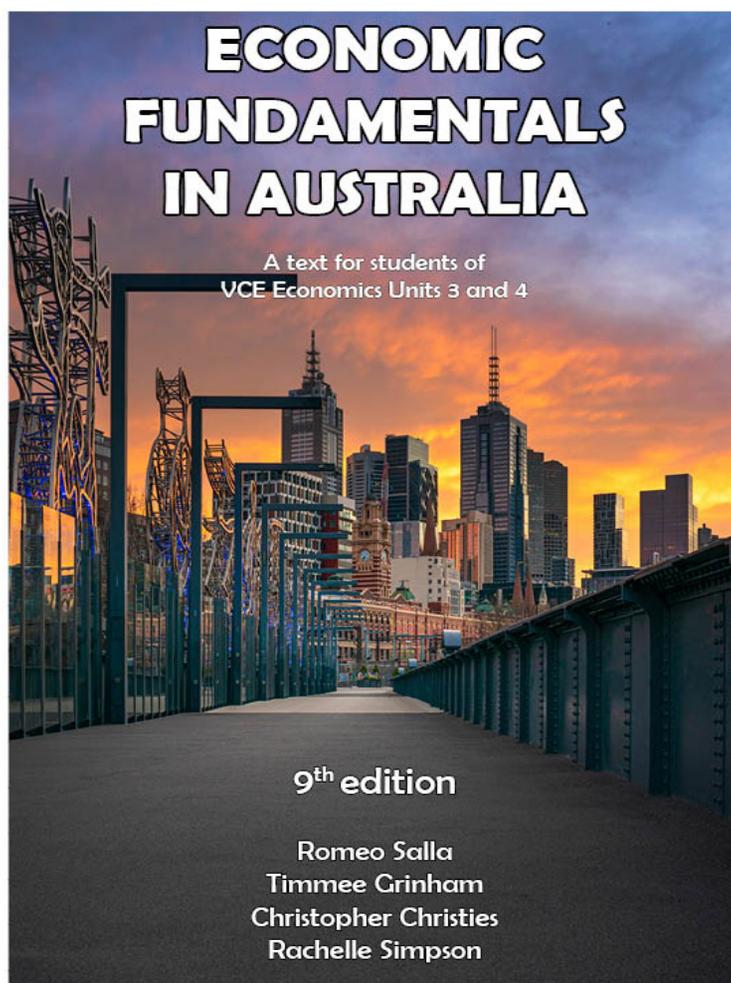


ECONOMIC FUNDAMENTALS IN AUSTRALIA

A text for students of VCE Economics Units 3 and 4
9th edition



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Disclaimers

Every attempt has been made by the authors to ensure that the content contained in this publication is consistent with the Economics VCE Study Design (accreditation period 2023-2027) produced by the Victorian Curriculum and Assessment Authority (VCAA). The publisher and authors assert that there is no direct connection between this publication and the VCAA.

Students and teachers are urged to supplement the use of this text with the official Economics VCE Study Design and other resources, including internet sites referred to within the text, other texts, print and electronic media. All internet sites referred to were operational at the time of going to print. The CPAP Study Guide to VCE Economics is a companion resource to this text and is updated annually.

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A note to teachers and students

The authors have written this text to closely reflect the requirements of the study as outlined in the VCAA VCE Economics Study Design (2023-2027). The Study Design can be downloaded at www.vcaa.vic.edu.au/vce/studies and it contains information about the required content for a course of study in VCE Units 3 and 4 Economics. Unit 3 comprises three areas of study (AOS) - AOS 1, 2 and 3, while Unit 4 comprises two areas of study - AOS 1 and 2. For each AOS, students are required to demonstrate an understanding of each of the dot points contained under the heading 'key knowledge.' They should also be able to demonstrate the 'key skills' for each AOS. The 'key knowledge' (and 'key skills') dot points are included in the tables below, where each key knowledge point is cross referenced to the relevant section in the text. It will therefore provide a useful guide for teachers when preparing assessment tasks or exercises and a handy guide for students when preparing for assessment tasks, including the end of year exam.

Unit 3 Australia's living standards			
Area of Study 1: An introduction to microeconomics: the market system, resource allocation and government intervention			
	Key knowledge	Chapter references	Tick when learned
1	the concept of relative scarcity, including needs, wants, resources, opportunity cost and the production possibility frontier (PPF) model, and the three basic economic questions	1.1 - 1.5	
2	the meaning and significance of economic efficiency, including allocative efficiency, productive efficiency, dynamic efficiency and intertemporal efficiency and their relationship to the PPF model	1.5 - 1.6	
3	the conditions for a free and perfectly competitive market	2.2	
4	the law of demand and the theory of the law of demand, including the income effect and the substitution effect	2.3	
5	the demand curve, including movements along and shifts of the demand curve	2.3	
6	non-price factors likely to affect demand and the position of the demand curve, including changes in disposable income, the prices of substitutes and complements, preferences and tastes, interest rates, population demographics and consumer confidence	2.4	
7	the law of supply and the theory of the law of supply, including the profit motive	2.5	
8	the supply curve, including movements along and shifts of the supply curve	2.5	
9	non-price factors likely to affect supply and the position of the supply curve, including changes in the costs of production, number of suppliers, technology, productivity and climatic conditions	2.6	
10	the effects of changes in supply and demand on equilibrium prices and quantity traded	2.7 - 2.8	
11	the meaning and significance of price elasticity of demand and supply	2.10 + 2.12	
12	factors affecting price elasticity of demand, including degree of necessity, availability of substitutes, proportion of income and time	2.11	
13	factors affecting price elasticity of supply, including spare capacity, production period and durability of goods	2.13	
14	the role of relative prices in the allocation of resources	2.9	
15	the role of free and competitive markets in promoting an efficient allocation of resources and improved living standards	3.1 + 3.2	
16	types of market failure, including public goods, externalities, asymmetric information and common access resources	3.3	
17	the role and effect of indirect taxation, subsidies, regulations, advertising and direct provision as forms of government intervention in the market to address market failure	3.3	
18	one example of a government intervention in markets that unintentionally leads to a decrease in one of allocative, productive, dynamic or intertemporal efficiency	3.4	

Unit 3 Australia's living standards		Tick when mastered
Area of Study 1: Key Skills		
define key economic concepts and terms and use them appropriately		
construct and interpret demand and supply diagrams and a PPF model		
interpret and analyse statistical and graphical data		
gather, synthesise and use economic data and information from a wide range of sources to analyse economic issues		

analyse how the forces of demand and supply effect equilibrium price and quantity traded	
analyse the responsiveness of the quantity demanded and the quantity supplied to changes in price	
evaluate the role of free and competitive markets in achieving an efficient allocation of resources	

Unit 3 Australia's living standards Area of Study 2: Domestic macroeconomic goals			
Key knowledge		Chapter references	Tick when learned
<i>The purpose of economic activity</i>			
19	the difference between material and non-material living standards and factors that may affect living standards, including access to goods and services, environmental quality, physical and mental health, crime rates and literacy rates	4.1 - 4.2	
20	the five-sector circular flow model of income, including the role of households, businesses, government, financial institutions and the external sector in an open contemporary macroeconomy	4.3	
21	the business cycle and its causes	4.4	
22	the meaning and importance of aggregate demand and the factors that may affect the level of aggregate demand in the economy, including disposable income, interest rates, consumer confidence, business confidence, the exchange rate and rates of economic growth overseas	4.5 - 4.6	
23	the meaning and importance of aggregate supply and the factors that may affect the level of aggregate supply in the economy, including quantity and quality of the factors of production, costs of production, technological change, productivity growth, exchange rates and climatic conditions, and other events including government regulations and disruptions to international supply chains	4.7	
<i>The Australian Government's domestic macroeconomic goals</i>			
24	the meaning of the goal of strong and sustainable economic growth	5.1	
25	measurement of the rate of economic growth using growth in real Gross Domestic Product (GDP)	5.2	
26	consequences of not achieving the goal of strong and sustainable economic growth and its effect on living standards, including environmental degradation, external pressures, high inflation if growth is too high, and high unemployment if growth is too low	5.3	
27	the meaning of the goal of full employment, including the NAIRU (natural rate of unemployment)	5.4	
28	classifications within the labour force, including employed, unemployed, hidden unemployed, long-term unemployed, underemployed and frictional unemployment	5.5	
29	measurement of the labour force, including the participation rate, the unemployment rate and the labour force under-utilisation rate	5.5	
30	the difference between cyclical and structural unemployment	5.6	
31	the consequences of not achieving the goal of full employment and its effect on living standards, including the impact on GDP and tax revenue if unemployment is too high and the effects on inflation if unemployment is too low	5.7	
32	the meaning of the goal of low and stable inflation (price stability)	5.8	
33	the distinction between inflation, disinflation and deflation	5.8	
34	measurement of the inflation rate using the Consumer Price Index (CPI), including the difference between the headline and underlying (core) rate of inflation	5.9	
35	causes of inflation, including demand inflation and cost inflation	5.10	
36	consequences of not achieving the goal of low and stable inflation (price stability) and its effect on living standards, including erosion of purchasing power, development of a wage-price spiral, distortion of spending and investment decisions, lower returns on investment, loss of international competitiveness if it is too high, and delayed consumption and unemployment if it is too low	5.11	
37	aggregate demand and aggregate supply factors that have affected the level of achievement or non-achievement of the goals of strong and sustainable economic growth, full employment and low and stable inflation over the past two years	6.1 - 6.2	

Unit 3 Australia’s living standards Area of Study 2: Key Skills		Tick when mastered
define key economic concepts and terms and use them appropriately		
calculate relevant economic indicators using real or hypothetical data		
construct, interpret and apply economic models including the five-sector circular flow model of income and the business cycle		
explain and interpret trends and patterns in economic data and other information		
gather, synthesise and use economic data and information from a wide range of sources to analyse economics issues		
apply economic concepts to analyse economic relationships and make predictions		
evaluate the extent to which the economy has achieved the domestic macroeconomic goals over the past two years and discuss the effect of this on living standards		

Unit 3 Australia’s living standards Area of Study 3: Australia and the international economy			
Key knowledge		Chapter references	Tick when learned
38	the gains from international trade, including lower prices, greater choice, access to resources, economies of scale, and increased competition and efficiency	7.1	
39	the balance of payments and its components	7.2	
40	cyclical and structural influences on Australia’s current account balance	7.3	
41	the composition and cause of net foreign debt and net foreign equities	7.4	
42	the exchange rate, its meaning and measurement and the factors affecting its value, including relative interest rates, commodity prices and the terms of trade, demand for exports and imports, foreign investment, relative rates of inflation, credit ratings and speculation	7.6 - 7.7	
43	the terms of trade, its meaning and measurement and the factors that may affect the terms of trade, including commodity prices and production costs in trading partners	7.5	
44	international competitiveness and the factors that may affect international competitiveness, including productivity, production costs, availability of natural resources, exchange rates and relative rates of inflation	7.8	
45	the effect of movements in the terms of trade and the exchange rate, and changes in international competitiveness on the domestic macroeconomic goals and living standards	7.8 - 7.9	

Unit 3 Australia’s living standards Area of Study 3: Key Skills		Tick when mastered
define key economic concepts and terms and use them appropriately		
explain key international economic relationships		
explain and interpret trends and patterns in economic data and other information		
apply economic concepts to analyse economic relationships and make predictions		
calculate relevant international economic indicators using real or hypothetical data		
gather, synthesise and use economic data and information from a wide range of sources to analyse and discuss economic issues		

Unit 4 Managing the economy
Area of Study 1: Aggregate demand policies and domestic economic stability

Key knowledge		Chapter references	Tick when learned
46	the need for aggregate demand policies, including monetary policy and budgetary policy in terms of stabilising the business cycle	8.1/2 + 8.10 + 9.1 - 9.2	
Monetary policy			
47	the role of the RBA with respect to monetary policy as outlined in its charter	9.2	
48	conventional monetary policy (cash rate target) and how it affects interest rates	9.3 + 9.5	
49	one example of the operation of an unconventional monetary policy tool from the past two years	9.4	
50	transmission mechanism of monetary policy and its effect on the level of aggregate demand, including the four channels of savings and investment, cash-flow, exchange rate, and asset prices and wealth	9.6	
51	the stance of monetary policy: expansionary (accommodative), contractionary (restrictive) or neutral	9.7	
52	the stance of monetary policy over the past two years and its likely effect on the achievement of the domestic macroeconomic goals and living standards	9.7 + 9.9 - 9.12	
53	the strengths and weaknesses of using monetary policy to affect aggregate demand and influence the achievement of the domestic macroeconomic goals and living standards	9.13	
Budgetary policy			
54	sources of government revenue, including direct and indirect taxation; progressive, regressive and proportional taxes; and revenue from government businesses and the sale of government assets	8.3	
55	types of government expenses, including government current and capital expenditure and transfer payments	8.3	
56	the budget outcome: balanced, deficit or surplus	8.4 + 8.12	
57	the underlying cash balance (budget outcome), including as a proportion of Gross Domestic Product (GDP)	8.4	
58	methods of financing a deficit or utilising a surplus	8.9	
59	the relationship between the budget outcome and the level of government (public) debt	8.9	
60	the role of automatic stabilisers (cyclical component of the budget) in influencing aggregate demand and stabilising the business cycle	8.5	
61	the role of discretionary stabilisers (structural component of the budget) in influencing aggregate demand and stabilising the business cycle	8.5	
62	the effect of automatic and discretionary changes in the budget on the budget outcome and government (public) debt	8.5 + 8.7 + 8.9	
63	the stance of budgetary policy: expansionary or contractionary	8.8 + 8.12	
64	the effect of the budgetary policy stance and budgetary initiatives over the past two years and their likely effect on the achievement of the domestic macroeconomic goals and living standards	8.10 - 8.11 + 8.13	
65	the strengths and weaknesses of using budgetary policy to affect aggregate demand and influence the achievement of the domestic macroeconomic goals and living standards	8.14	

Unit 4 Managing the economy Area of Study 1: Key Skills		Tick when mastered
define key economic concepts and terms and use them appropriately		
gather, synthesise and use economic data and information from a wide range of sources to analyse economic issues and form conclusions		
discuss the operation of aggregate demand policies		
analyse the effect of current factors on the setting of aggregate demand policies and living standards		
predict the impact of changes in aggregate demand policies on the achievement of the domestic macroeconomic goals and living standards		
analyse the strengths and weaknesses of aggregate demand policies in achieving the domestic macroeconomic goals and living standards		

Unit 4 Managing the economy Area of Study 2: Aggregate supply policies			
Key knowledge		Chapter references	Tick when learned
66	the use of aggregate supply policies to complement aggregate demand policies in promoting non-inflationary economic growth over time	10.1 - 10.2	
67	the operation of aggregate supply policies in improving supply-side conditions through their impact on the quantity and quality of the factors of production, the costs of production and productivity, and the effect on Australia's international competitiveness, productive capacity and aggregate supply	10.3	
68	how one of the following budgetary policies is designed to affect aggregate supply, Australia's international competitiveness, the achievement of domestic macroeconomic goals, and living standards:: <ul style="list-style-type: none"> • training and education • research and development • subsidies • infrastructure • tax reform 	10.4 - 10.5	
69	the effect of skilled immigration policy on population, productivity and participation and the subsequent effect on productive capacity, aggregate supply, international competitiveness, the achievement of domestic macroeconomic goals, and living standards	10.6	
70	trade liberalisation and its short-term and long-term effects on Australia's international competitiveness, the allocation of resources, aggregate supply, and the domestic macroeconomic goals and living standards	10.7	
71	one market-based environmental policy and its short-term and long-term effects on aggregate supply, intertemporal efficiency and living standards	10.8	

Unit 4 Managing the economy Area of Study 2: Key Skills	Tick when mastered
define key economic concepts and terms and use them appropriately	
gather, synthesise and use economic data and information from a wide range of sources to analyse economic issues and form conclusions	
discuss the operation of aggregate supply policies	
analyse the effect of budgetary, immigration and trade liberalisation policies on aggregate supply, international competitiveness, the achievement of the domestic macroeconomic goals and living standards	
analyse the effect of an environmental policy on aggregate supply and living standards over time	

Proposed timeline

Unit 3 – Australia's economic prosperity

Area of Study 1: approximately 6 - 7 weeks

Area of Study 2: approximately 6 - 7 weeks

Area of Study 3: approximately 3 - 4 weeks

Unit 4 – Managing the economy

Area of Study 1: approximately 8-9 weeks

Area of Study 2: approximately 6-7 weeks

Revision: 2 - 4 weeks.

Assessment

Teachers are required to provide a score for each outcome in each of Units 3 and 4, which represents an assessment of the student's achievement. The score must be based on the teacher's assessment of the level of performance of each student on the outcomes for the unit specified in the Study Design. These outcomes for each unit are linked to the key knowledge and skills as specified in the Study Design and re-produced on the previous pages.

Teachers must select two different types of assessment tasks from the designated list for each outcome published in the Study Design. School-assessed Coursework for the outcomes in Unit 3 will contribute 25 per cent to the student's study score. School-assessed Coursework for the outcomes in Unit 4 will contribute a further 25 per cent to the student's study score. The external examination will contribute the final 50 per cent to the student's study score.

Unit 3 Assessment		
Outcome statement	Marks allocated*	Assessment tasks
Outcome 1 <i>Analyse how markets operate to allocate resources and evaluate the role of markets and government intervention in achieving efficient outcomes.</i>	35	<i>The student's performance will be assessed using two or more of the following:</i> <ul style="list-style-type: none"> • a folio of applied economics exercises • an extended response • an essay • a report • a data analysis • a media analysis • a case study • structured questions
Outcome 2 <i>Analyse key contemporary factors that may have affected domestic macroeconomic goals over the past two years, evaluate the extent to which the goals have been achieved and discuss the effects on living standards.</i>	40	
Outcome 3 <i>Analyse the factors that may affect the exchange rate, terms of trade and Australia's international competitiveness, and discuss their impact on Australia's international transactions and the achievement of the domestic macroeconomic goals and living standards.</i>	25	
Total marks	100	

**School-assessed Coursework for Unit 3 contributes 25 per cent to the study score.*

Unit 4 Assessment		
Outcome statement	Marks allocated*	Assessment tasks
Outcome 1 <i>Discuss the operation of aggregate demand policies and analyse their intended effects on the achievement of the domestic macroeconomic goals and living standards.</i>	60	<i>The student's performance will be assessed using two or more of the following:</i> <ul style="list-style-type: none"> • a folio of applied economics exercises • an extended response • an essay • a report • a data analysis • a media analysis • a case study • structured questions.
Outcome 2 <i>Discuss the operation of aggregate supply policies and analyse the effect of these policies on the domestic macroeconomic goals and living standards.</i>	40	
Total marks	100	

**School-assessed Coursework for Unit 4 contributes 25 per cent to the study score.*

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Chapter 1

Fundamental Economic concepts

1.1 What is Economics all about?

Economics is a **social science** focusing on human behaviour and social interactions. Ultimately, it is about how individuals, groups and organisations choose to allocate their limited resources to achieve their goals and/or satisfy their needs and wants. It's about how these economic agents respond to various incentives and weigh up the costs and benefits associated with any course of action. At the core of Economics is the problem of **relative scarcity** [See Section 1.2], where our limited resources continually force us to make decisions about how they should or could be used. Importantly, the use of these relatively scarce resources is typically guided by considerations related to both efficiency and equity (fairness), and this changes over time as societies evolve.

Economics is all around us. Each person makes what might seem to be small and insignificant economic decisions, but when aggregated, these decisions are likely to have consequences that the original decision maker may not have considered. Economics therefore tries to explain the underlying factors that affect decision making, and analyses and evaluates the short-run and long-run consequences of these decisions. For example, one would hope that your on-going economics education will give you a better understanding of both the costs and benefits associated with your own decision making, as well as more insight into the different perspectives that can be held on various issues involving economic decision making.



As you continue to develop your knowledge of Economics, you may be faced with a number of key questions that economists have attempted to answer. Try to think deeply and creatively about possible solutions to some of these problems and create questions of your own. In some cases, the answers posited by economists may challenge your way of thinking. This is good for your learning and highlights the fact that economists often disagree, and are engaged in regular debate. By the time you have finished Units 3 and 4, you are likely to think differently about a number of issues and your decision making may be assisted as you develop a deeper understanding of the tools and theories used by economics.

Over time, economists have branched out into many areas of knowledge (some of which are beyond the scope of the VCE Economics course). Here is a sample of some of the questions and issues that economists have considered:

- How do people choose which goods and services that they consume?
- How do producers decide what they will produce and how they will produce it?
- How are these choices influenced by new discoveries and technological change?
- Why are some people paid significantly more than others?
- What factors influence the level of income earned and why do some people become unemployed?
- Why do prices change for goods and services?
- Why do governments intervene in markets and how are living standards affected by such intervention?
- What factors influence world trade and how does interaction with the rest of the world influence Australia's living standards?
- Why does poverty occur and why are some countries richer than others?
- How do government's respond to global economic shocks, such as the disruption caused by pandemics such as COVID-19?

Economics as a discipline often faces much criticism. The models developed by economists are often based on a number of simplifying assumptions and these lead to conclusions and decision-making that may, in some cases, not lead to the best outcomes for the majority of society. The economic theories that are presented throughout this book may sometimes conflict with your own experience and understanding of the world. You are encouraged to question the nature of these theories and the assumptions that underpin them. Unlike a traditional science subject, the outcomes are not, for the most part, absolute facts, and critical thought and creative thinking are therefore encouraged in the study of Economics.

Microeconomics vs Macroeconomics

Many economics courses are divided into the study of microeconomics and macroeconomics. **Microeconomics** is the study of the economic behaviour of individual consumers as well as businesses. The first area of study in the Unit 3 course has a microeconomics focus. In this area of study, the role of markets and the price mechanism is discussed as well as the factors that influence buying and selling decisions.

Macroeconomic analysis builds on this foundational knowledge developed in microeconomics and attempts to explain economy-wide phenomena. Our study will look at the government’s aggregate economic goals such as the rate of growth in the volume of production, the percentage of those who are considered unemployed and how quickly the general level of prices is rising. In Unit 4, the policy interventions used by the government will be considered in terms of their effects on the key macroeconomic goals.

Activity 1a: Macro or micro?

Complete the table to indicate whether the issue is predominantly a microeconomic or macroeconomic one:

Concepts/factors/events	Micro	Macro
The shortage of cars in the Australian market due to a lack of key resources		
The decision by the government to increase the assistance provided to first home buyers		
An increase in the inflation rate above the target of 2 to 3% on average over time		
The increasing number of workers who are employed as casuals		
A decision by the government to halve the excise tax on petrol		
A decision by the Russian Government to invade Ukraine		
A decrease in the total volume of production due to floods on the east coast		
A decrease in the price of Economics textbooks		
The closure of a local bookshop due to increased competition from online sellers		
An increase in the allocation of resources to the production of avocados due to their perceived health benefits		
The opening of new urgent care health clinics		

Why don't economists agree?

Economists often disagree on key economic relationships and how various events might affect individuals or groups in an economy. At the time of writing, the world economy was experiencing slower rates of economic growth, combined with strong growth in the general level of prices (and therefore the cost of living) caused by a range of factors. These factors included the ongoing global conflicts (such as the war in Ukraine and tensions in the middle east), global supply chain issues, higher international shipping costs, the transition away from fossil fuels, ongoing natural disasters and stronger growth in government spending. Not surprisingly, there was much disagreement about how to best tackle the combined effects of these, and other factors.



Despite the healthy debate amongst economists about a wide range of contentious issues, there does seem to be some agreement among the majority of economists with regard to some key principles. A number of these key principles were explicitly stated by Gregory Mankiw, a Harvard Professor and former adviser to George W. Bush. Mankiw is the author of the best-selling economics textbook in the world. These principles are related to how people make decisions (1 -4), how people interact (5 -7) and how the economy as a whole works (7 -10). These principles are summarised in Table 1.1 and become a useful starting point for any discussion about the economy. The principles outlined by Mankiw reflect a well-accepted view of key economic conclusions, but not all academics (Economic or otherwise) accept these principles. You are encouraged to revisit this table as your knowledge of economics deepens.

Table 1.1 Mankiw's "Ten Principles of Economics"

1	People face tradeoffs	In order to get something you like, you usually have to give up something else.
2	The cost of something is what you give up to get it	Whenever a decision is made the decision maker looks at the explicit costs but also include the value of what they have given up.
3	Rational people think at the margin	This is another way of saying that a rational person will do something if the extra benefit of doing so exceeds the extra cost associated with the action.
4	People respond to incentives	The behaviour of people will change when the costs and benefits associated with any action change.
5	Trade can make everyone better off	Trade allows people and countries to specialise in what they do best. By trading, a country's citizens are generally able to buy more goods and services and therefore increase living standards.
6	Markets are usually a good way to organise economic activity	In his 1776 book <i>An Inquiry into the Nature and Causes of the Wealth of Nations</i> , Adam Smith observed that households and firms interacting in a market act as if they are guided by an "invisible hand" that leads them to desirable market outcomes. Prices are generally seen as the way the invisible hand works its magic.
7	Governments can sometimes improve market outcomes	In some cases markets are unable to efficiently allocate resources (referred to as market failure). In these cases governments develop public policy to re-allocate resources to those areas that will maximise society's wellbeing.
8	A country's standard of living depends on its ability to produce goods and services	Income is derived from the production of goods and services, so producing a greater volume of goods and services will increase living standards. Increases in productivity will mean that more goods and services can be produced from a nation's resources thereby increasing income and living standards.
9	Prices rise when the government prints too much money	When the government creates large volumes of its money, its value will fall. If this is the case, and there are the same number of goods and services available, then it makes sense that more money will be needed to purchase a given good or service.
10	Society faces a short-term trade off between inflation and unemployment	Reducing inflation often results in a temporary increase in the unemployment rate because it may require policies that reduce the ability of consumers to spend.

As you proceed through this book and gain a deeper understanding of economics, keep Mankiw's principles in mind. Try to regularly reflect upon and question whether Mankiw's principles are able to accurately describe human behaviour and the economic outcomes you have observed yourself. For example, one notable ecological economist, Herman Daly, would argue that there is inadequate reference to the environment in **Mankiw's principles**, arguing that instead, these should be a key starting point for any discussion of Economics and economic decision making. Other economists, who question the **neoliberal model** presented by Mankiw, argue that his models oversimplify economic theory and omit the ways in which markets can degrade human well-being, undermine societies and threaten the planet. If you have studied Unit 1 Economics, you may also question the nature of the rationality principle as you will have investigated instances where humans make seemingly irrational choices (see Box 1.1).

One of the challenges associated with learning about Economics is that the media and politicians often misinterpret and deliberately distort elements of economic theory to present an argument that suits their agenda. Unfortunately, some of what you are presented with may in fact be 'econobabble', where aspects of economic theory have been conveniently manipulated (or ignored) to convince the public that their decisions/ideas are justified. This means that when you access any media report on Economics, it is important to consider the motivations of the writer and their level of understanding of key economic issues. Where possible, try to access an alternative viewpoint, especially when considering contentious issues. Be wary of simplistic (populist) solutions to complex problems. As a student of Economics, you have therefore chosen a path where the answers are not always obvious (and there may not always be a right answer) and you will need to reflect constantly on what you are learning. While this may appear challenging at first, the rewards will come as you develop a deeper understanding of the human condition and our role in the world.



You are therefore encouraged to begin your studies of Economics with an open mind. Future generations will need solutions to the challenges associated with managing the economy, such as how to promote long term economic growth that is also sustainable, how to address the issue of intergenerational equity, how to reduce the manipulation and exploitation of consumers, how to avoid a future economic crisis, how to deal with the challenges related to climate change, how to make property more affordable and how to reduce government debt.

Box 1.1 Economists make assumptions

When economists develop their models and theories, they often make simplifying assumptions about human behaviour and the way variables might interact with one another. As we progress through the textbook, it might be useful to reflect upon and regularly challenge these assumptions to deepen your understanding of the relevant theories. You may also gain some insight into why it is often difficult for economists to make accurate forecasts and predictions. Four of the key assumptions that economists make are outlined below.



1. Ceteris Paribus

Economists often want to know how one variable (such as price) affects another (such as the demand for a particular product). As you discover in the next chapter, economic theory suggests that an increase in price will result in a decrease in demand for the given product. This relationship is made using the assumption *ceteris paribus*, which means that all of the other factors that might affect the decision to buy the product at a point in time are held constant. The *ceteris paribus* assumption is unlikely to reflect the real world but it helps to isolate key economic relationships. Econometric programs can test the validity of economic theories by isolating the effect of the two (or more) relevant variables.

2. Rational economic decision making

Economists also assume that humans are rational decision makers. This assumes that whenever a decision needs to be made, an economic agent will consider all of the relevant information and weigh up the potential costs and benefits. This assumption inherently implies that consumers (in particular), have access to perfect information and know exactly what they are buying. It might also suggest that humans are devoid of emotions and that they can process the information necessary to make the decision. Behavioural economists have devoted years of research to the questioning of this key assumption.

3. Consumers are utility maximisers and firms are profit maximisers

Many of the established models of economic behaviour (one of which will be covered in the next chapter), assume that individuals seek to maximise their utility. This means that they will, for example, purchase those goods and services that they believe will generate the highest level of individual satisfaction. The models also assume that firms will make decisions that maximise their profits (which is equal to their revenue minus their expenses). Inherent in this assumption also is that economic agents are acting in their own self-interest.

4. Diminishing marginal utility

The consumer is assumed to benefit from greater (rather than less) consumption of a good or service. This is why products may be described as goods (rather than bads!). It is generally assumed, however, that each additional unit of a good does not necessarily generate the same degree of satisfaction. Economists argue that the more of a good or service that is consumed per period, the smaller the increase in total utility (satisfaction) that is generated from the last unit. This is referred to as *diminishing marginal utility*.

1.2 Relative Scarcity: needs and wants

If you ask someone who may have studied Economics what it is about, they may initially struggle to provide you with a concise explanation. As we have seen in Section 1.1, there are a vast array of issues that could be considered in an economics course. Economics is often described as a subject about incentives, choices, and consequences. It is essentially focused on the management of a society's scarce resources to maximise a society's wellbeing. Most economics courses therefore start from the premise of **relative scarcity**. Something is seen as scarce when it is desired but access to it is limited. We start by making the (perhaps challengeable) assumption that our collective needs and wants can never be fully satisfied (they are therefore considered **infinite**). In contrast, the resources needed to meet all of our needs and wants have physical limits (they are therefore **finite**).

Relative scarcity

Wants/needs



Resources



All economies face the problem of relative scarcity, no matter how wealthy or resource-rich they are. Therefore Economics studies how different **economic systems** attempt to allocate scarce resources (discussed in Section 1.3) to

meet the needs and wants of their people. In fact, one could argue that the problem of scarcity is likely to get worse over time as more and more of the world's finite resources are consumed and the size of the human population increases.

Economists often distinguish between needs and wants when they discuss relative scarcity. A **need** is seen as good or service that is deemed to be necessary for one's survival. As societies evolve over time, what is considered a need by some individuals (in rich industrialised nations like Australia) may be seen by others as a want (those who may be living in a less developed nation like Zimbabwe). A **want** is therefore a good or service that is not necessary for one's survival, but consumption of which adds to the quality of one's life. Most would accept that food, water, clothing and shelter are needed for survival, but what about telecommunications services, electricity and healthcare? Are these needs or wants? Like many areas of Economics, there is no definitive answer and each person will express a different opinion on how they perceive each of these 'products'. The economic models that are discussed throughout this book are based on another key economic assumption; households seek to maximise their needs and wants through their interactions in the economy and that for most people, these needs and wants cannot be fully satisfied. In other words, as one need or want is satisfied, another will emerge in its place. For example, you might be about to eat lunch, but you will need to access more resources tomorrow and the next day, etc.

Study tip

Many of the theories and models that will be investigated in this course will be based on key assumptions. Assumptions are often needed to develop a theory and to explain key relationships between economic variables. While it might seem like an obvious assumption that 'needs and wants can never be satisfied' there will be some theorists and some individuals around the world who would openly question the validity of such a viewpoint. Therefore, as you progress through the course, pay particular attention to the assumptions that are explicitly stated and how these might affect the validity of economic predictions. [Also see Box 1.1 'Economists make assumptions']

Economics as a discipline tries to improve the experience of humanity by seeking (constantly) to overcome the problems created by relative scarcity. Scarcity makes it necessary for economic decision making to allocate resources to best meet the needs and wants of society. Economic agents cannot have everything they want and usually have a limited income they can use to meet their desires. They also cannot work 24 hours per day and therefore need to allocate their scarce labour resource to that area of production that a) is within their skills set and b) will maximise their wellbeing (which may include, but is not totally limited to, the ability to purchase the goods and services that are available). Economics continually seeks to understand why humans make the choices they make and then tries to analyse the consequences of these choices for the economy as a whole and for a number of key stakeholders.

1.3 Resources and the key economic questions

An **economy** is a place where scarce resources are allocated among competing uses. Economists distinguish between three main types of **resources** that can be used to produce goods and services to meet the needs and wants of the people on the planet. For this reason, they are also referred to as **factors of production**, where the quantity and quality of these factors of production has a big impact on national living standards or welfare. The three factors of production are as follows:

- **Land or natural resources** refers to all those resources that occur in nature. These can be **utilised** in the production process to generate more elaborate products or consumed in their raw form. Examples of such resources include water, forests, minerals, land, animals, fruit and vegetables. It may seem obvious, but all production ultimately depends on natural resources.
- **Labour** refers to the mental and physical effort by humans in the production process. For example, your teacher is currently exerting effort to provide you with an education and your doctor has to think deeply when presented with the challenges associated with diagnosing a patient. A construction worker may be involved in more physical effort than some other professions. In some cases people will become unemployed or leave the labour force (covered in Chapter 5) and may therefore be unable (or unwilling) to contribute their labour resource to the production process.
- **Capital** refers to those resources that have been made by combining labour and natural resources to create a more sophisticated input in the production process. Capital goods are made with the intention of making more goods and services in the future, and generally these will increase the efficiency with which natural resources can be converted into end-use products for consumption. Examples of physical capital include machinery, tools, factories, infrastructure and artificial intelligence.

In some texts you will see reference to a fourth type of resource (or factor of production) referred to as **entrepreneurship** or **enterprise**. This refers to the skills of those individuals who combine resources to produce goods and services. They take financial risks to establish enterprises and are extremely important to wealth creation for every nation. They not

only include high profile entrepreneurs like Jeff Bezos, Gina Rinehart or Janine Allis, but include the owners of every small or medium-sized business in existence. This type of scarce resource typically forms part of 'labour resources,' given that entrepreneurs are providing their expertise or skills to the business sector of the economy.

Due to the existence of relative scarcity (limited resources and unlimited demands), all **economic agents** and all economies need to make choices. These choices can be guided by answering three key basic questions:

1. **What goods and services will be produced and in what quantities?**

All economies must decide on the different goods and services that should be produced. For example, the Australian economy produces more education services than it does television sets. Economic theories have been developed to explain why this occurs. In a predominantly market-based economy (such as Australia), the question of what and how much to produce is assumed to be answered through the interaction of demand and supply of independent self-interested consumers and producers. What to produce will also be affected by government decision making. For example, during the COVID-19 pandemic, the Australian Government purchased millions of faces masks to protect medical professionals, and later purchased millions of Rapid Antigen Tests to increase the likelihood that education services could continue to be provided. However, there were a host of temporary measures that were introduced which limited the production of goods and services, such as laws preventing live venues from opening and the forced closure of some 'high risk' manufacturing facilities (such as meat processing plants).

Study tip

A note about language. In Economics, you will come across a lot of new terms. One term you will see often is 'utilise'. Some students assume this is just a fancy way of saying 'use'. Technically, in Economics, we talk about 'utilising' our resources or 'capacity utilisation' to signify that we mean they are being used for some benefit or being used effectively.

Study tip

In Economics, we often use the expression 'economic agents' to refer to any entity (such as a person, household, government or business) that makes economic decisions.

2. **How will the goods and services be produced?**

This key economic question looks at the methods of production that are employed to meet the needs and wants of society. Producers need to decide on the degree to which the production process is labour intensive or how effective it might be to replace labour with technology, such as artificial intelligence. This decision is likely to be affected by the relative price of the resources. For example, some countries have an abundance of labour and lower wages which might encourage manufacturers to employ more people in the production process. Generally speaking, these decisions will be made by businesses to maximise their profits (another key assumption). How to produce will therefore be heavily influenced by the costs and benefits associated with different production methods. In some cases, the government will influence how goods and services are produced. For example, governments often require that firms alter their production processes to meet occupational health and safety standards. Alternatively, governments will typically legislate for minimum wages to apply across the country. These types of interventions will tend to increase the cost of labour relative to capital, and influence how firms produce goods and services.

3. **For whom will these goods and services be produced?**

The final key question that all economies must consider is associated with the **distribution** of the benefits derived from production. Once the goods and services have been produced and made available for consumers, how might an economy decide who gets to enjoy them? Should the decision be based on the ability to pay or should need or social standing be a relevant determinant? The approach taken by economies when answering this question is the cause of much debate, and like many areas of economics there is not a definitive solution that will satisfy all relevant economic agents.

In Australia, this question is largely answered based on who can afford to buy what is produced (which is affected by the value of their economic contribution to the production process). It is therefore heavily linked to markets. In most countries (and in varying degrees), the government will redistribute incomes (via taxes and transfers) to alter the access to goods and services as well as provide some essential items at reduced or zero prices.

As you will discover in Chapter 3, the government will produce those goods and services that benefit society but may not be profitable for businesses in a free market (i.e. one without government intervention).

Study tip

In the VCE 3/4 Economics course, we focus on the role of the Australian Federal Government and how it influences resource allocation. In reality, all levels of government (which includes State and Local governments) play an active role in re-allocating resources to areas considered to be in the national interest. They influence each of the key economic questions, which is further discussed in Activity 1b.

Activity 1b: Quick Thinking Activity?

Consider a dairy farm. Identify and classify factors of production that might be used to produce a range of dairy products.

Natural	Labour	Capital

Activity 1c: COVID-19, supply chain disruptions and scarcity

During the early stages of the COVID-19 pandemic, many goods and services experienced increased scarcity. This was evident in many supermarket aisles where there were empty shelves. Toilet paper, hand sanitiser and paper towels were virtually impossible to buy in some neighbourhoods. Once Rapid Antigen Tests (RATS) were made available, people would go to their local chemist and find that there were none available for purchase. This might be described as a situation where there is a temporary increase in the degree of scarcity, with most economists believing that it was unlikely to persist for an indefinite period. The scarcity encouraged economic agents to make choices. Some decided to drive around from pharmacy to pharmacy, some queued up for long periods, while others went in search of the tests from resellers (at inflated prices). Others simply chose to go without until they were more widely available. The government also intervened to reduce the degree of scarcity by providing free tests to all students and teachers.



The different approaches taken by governments to the COVID 19 pandemic also had an impact on relative scarcity around the world. Many governments imposed strict lockdowns, which reduced the availability of a wide range of products. However, as vaccines became available, most economies opened up and scarcity (while always present) was slowly reduced. After two years of the pandemic, Shanghai, a city of 26 million people was again forced to lockdown. This not only had repercussions for local citizens, who faced a scarcity of food and essential medicines, it also caused major disruptions to supply as factories were forced to close down and truck drivers were not available to transport products to ports. This resulted in supply disruptions around the world and highlighted the interconnectedness of nations and how government decisions in one country can affect scarcity in many others.

When scarcity for a product, or a range of products, increases, it means that needs and wants are increasingly being unmet. Some people may not be able to access those goods and services that meet their needs (they cannot, for example, purchase the food they need to survive). The supply chain disruptions also meant that car manufacturing was delayed (because key components are made in China). New car buyers had to wait for an extended period of time before their wants were met (so the increased degree of scarcity was temporary). When needs and wants cannot be met, markets do adjust. The most noticeable changes that both consumers and businesses saw was rising costs and prices. This helps to determine (at least in part) the answer to the third of the key economic questions – for whom to produce? The higher prices highlight how economies typically ration the scarce products, with those willing and able to pay the highest prices being the ones in the best position to enjoy the consumption of the relevant goods and services.

Questions

1. What is meant by the term relative scarcity?
2. Identify three products that have been increasingly scarce over the last two years.
3. Explain how government decisions in Australia may have temporarily increased the degree of relative scarcity in the economy.
4. With reference to a relevant example, explain the link between relative scarcity and the need for choice.
5. With reference to the above text, and your knowledge of economics, explore the possible consequences of increasing levels of scarcity.

1.4 Choice and opportunity cost

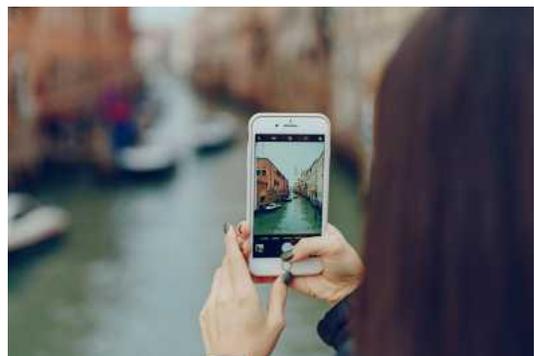
If scarcity is described as the basic economic problem, then it is evident that not every need and want of humans can be met. The problem of scarcity has not yet been solved, even in the richest economies.

Economists argue that every decision that humans make involves a cost. By devoting this minute to writing these words, the author is intrinsically sacrificing their ability to allocate their time to their second-best alternative. While the authors see the writing of this book as their best choice, they also acknowledge that there is a cost in doing so (which is how economists tend to think). For example, the second best choice might be the design of a highly engaging lesson plan.

Whenever you are faced with a choice, there may be a myriad of alternatives available to you. Consider the allocation of your time on Friday night. You may be able to go to the movies with your friends, chat with a potential love interest online, eat dinner with your parents or sit in your room and learn more about the interesting theories developed by economists on human behaviour. Once you have made a choice, you have essentially foregone (given up) the ability to undertake the alternatives. However, economists are only interested in the second-best alternative when considering the **opportunity cost**. It can be defined as the value (or net benefit) that is being sacrificed, or would have been enjoyed, if the next best alternative was selected.

Consider your decision to read this chapter in preparation for your first assessment task at school. Assume that you have wisely decided that this is the 'best' use of your time. While you might not agree, the fact that you are actually reading these words is evidence that you have made this your first choice. In doing so, you may have sacrificed many alternatives such as those mentioned in the previous paragraphs. Let's assume that you are reading this book late into the evening so your second best choice may be getting a good night's sleep so that you can concentrate better in class tomorrow. By choosing to read the book, you may in fact be foregoing the benefits that are associated with deep restorative sleep. This is your opportunity cost – the **value** of what you have given up in making your choice.

Opportunity cost can be measured in a number of ways. Let's consider the decision to buy a new iPhone (even though your old one might still be working). A person with no background in Economics may think that the cost of the purchase is the price paid. A person who has studied Economics, however, will realise that the opportunity cost has not been fully considered in this buying decision. The person who foregoes \$1500 to purchase the new phone may no longer be able to afford to take an overseas holiday. The benefits associated with this holiday is the real cost of the purchase, if this was indeed the next best alternative. If the person has a mortgage, then the opportunity cost might be the benefits associated with paying off their home loan sooner. It is important to remember that there can only be one opportunity cost, and that is the value or net benefits attached to the next best alternative that has been foregone.



Study tip

When students are asked about the opportunity cost of a particular decision, they sometimes create a list of all the possible alternatives. Remember that the opportunity cost is only referring to the value or net benefits that would have been enjoyed if the next best alternative was selected. There is no need to mention the 3rd, 4th or subsequent choices as part of the answer. It is also important to remember that the value of the choice foregone is not the choice itself, but rather the net benefit that would have been gained by making that choice.

1.5 The production possibility frontier

One way of illustrating the concept of opportunity cost and to show how an economy might allocate scarce resources, is to use a simple model of the economy called the **production possibility diagram** (or production possibility frontier or curve – PPF or PPC.) Given that an economy must decide what goods and service it will produce to satisfy its citizens' needs and wants, it would be reasonable to assume that there are an excessively large number of combinations of goods and services that could be produced in a nation. The combination that is ultimately chosen can be reflected using this simplified model. Whenever a combination of goods/services is produced using the available resources, it follows that another combination will no longer be achievable (i.e. there will be an opportunity cost).

Generally speaking, a production possibility diagram is a simplified model that looks at the **trade-off** between producing two particular goods or services. For example, we could assume that an economy could devote all of its resources to the production of goods or services (or a combination of both goods and services). The model could be simplified further

to show the decision to produce computers or guitars (or any other conceivable alternatives). The PPF could be used to illustrate a range of trade-offs including:

- The allocation of hours in a day between working and leisure activities
- How an economy allocates resources towards consumer versus capital goods (which might shift the PPF outwards)
- How a farmer allocates her scarce land between the production of strawberries and raspberries
- How an economy allocates its resources between goods that are harmful and those that promote wellbeing.

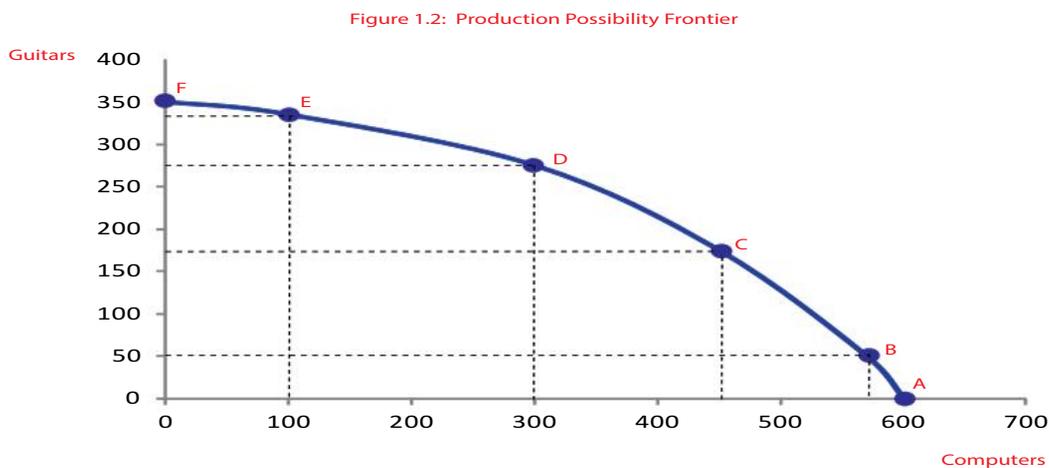
The simplest PPF model assumes that an economy can produce only two goods. When a PPF is constructed it is also assumed that:

- the economy has a fixed amount of land, labour and capital
- the resources are being used in the most efficient way to maximise production.

Production combinations	Production of computers (units per year - million)	Production of guitars (units per year - million)
A	600	0
B	570	50
C	450	175
D	300	275
E	100	335
F	0	350

If the data above is transferred to a Production Possibility Frontier (PPF), then it would appear like Figure 1.2, with the production of guitars on one axis (in this case the y-axis) and production of computers on the other axis (x-axis).

The PPF highlights a number of ways that the economy could allocate its scarce resources. The economy can choose, for example, to allocate all of its scarce resources to the production of computers (at which point they would produce 600 million computers and no guitars). If they were able to achieve this point along the PPF then it is said that they have efficiently allocated their resources (using one measure of efficiency called technical efficiency which will be discussed in Section 1.6).



The PPF indicates that any point could be chosen and in doing so there would always be trade-offs. Once a point on the PPF has been reached, the only way to move to another point is to give something up. For example, the economy could move from point A - where it was making only computers and the total output was therefore 600 computers- to point C - where it is now making 175 guitars, but only 450 computers. In making this shift – a reallocation of resources – the economy will gain 175 guitars, but in doing so it will no longer be able to produce 150 of the computers. This loss of 150 computers is the opportunity cost of producing the first 175 guitars. By producing more guitars and fewer computers, the economy has effectively changed its allocation of resources (there is a reallocation of resources because more land, labour and capital will be devoted to the production of guitars and less will be devoted to the production of computers when compared to point A). This could be due to a number of factors, many of which will be discussed in Chapter 2. In a **market capitalist economy**, the combination of guitars and computers that is chosen will usually be determined through

the interaction of demand and supply and therefore be heavily influenced by the needs and wants of consumers and the supply conditions that prevail in the market.

Important information to note about this PPF:

- A movement along the PPF to the right and downward means a country is allocating more to the production of computers and less to the production of guitars. To increase production of computers the economy must **sacrifice** the production of guitars. The opportunity cost of producing extra computers is therefore measured in terms of the lost production of guitars.
- Production points outside the PPF are not achievable today. This highlights the economic problem of relative scarcity and the need for choice. The economy simply does not have enough resources to reach a production point outside its PPF, since its PPF represents the maximum possible output using all its resources efficiently. However, an economy could manage to consume at a point outside its PPF if it chose to specialise in the production of one good, such as guitars and traded some of these in exchange for computers, which may be produced cheaper/more efficiently in another country. The economy may also choose to consume more than their economy is capable of producing through **external borrowing**, but this may be associated with lower consumption levels in the future. These options will be discussed further in Chapter 7.
- Over time, a country may expand its **productive capacity** and therefore the PPF will shift out and to the right. This would indicate that there can be an increase in output of *both* computers and guitars. This could be achieved if there are discoveries or availability of new resources that can be utilised in the production process (such as land, labour or capital), or people develop more efficient production techniques, whereby more output can be generated from the existing resources (the inputs). This will be discussed in Chapter 4.
- Points inside the current PPF indicate that the economy is not allocating its resources efficiently. It may also mean that some resources are either **underemployed** or **unemployed** (see Chapter 5) as the maximum potential production levels are not being attained.

In reality, no economy is likely to produce at a point on its PPF because all economies have some unemployment and labour (and other factors of production) will not always be utilised in the most efficient manner. The PPF can also be used to discuss the concept of efficiency and the different ways that economists can measure the efficiency of resource allocation. This is covered in Section 1.6 below.

Review Questions 1.4 - 1.5

1. Define the term opportunity cost and explain how it is intrinsically linked to the concept of relative scarcity.
2. Consider the decision to purchase a new car. Explain how an economist would include the concept of opportunity cost into their decision-making process. What might be the opportunity cost of such a decision?
3. Think of a critical choice you have made in the last week and describe the opportunity cost associated with making this decision.
4. Outline the possible opportunity costs associated with the following decisions:
 - purchasing a lottery ticket
 - eating an apple
 - going for a run
 - smoking a cigarette.
5. Explain how a production possibility diagram demonstrates the trade-off between producing two products. What are the key assumptions associated with the construction of such a model?
6. Refer to Figure 1.2, which highlights the production possibilities for a small hypothetical economy.
 - a. If the economy moves from point A to point B, they can produce 50 guitars that were not previously possible. What is the opportunity cost of this decision?
 - b. Describe the economic problem that might result if there was only demand for 100 computers and 200 guitars.
 - c. An economy seeks to achieve the most efficient allocation of resources. In your own words, describe what this would mean for the hypothetical economy shown in Figure 1.2.
 - d. If the people valued guitars and computers equally, what would be the most efficient allocation of resources for this economy?
 - e. If the consumers of the economy wished to consume 500 computers and 200 guitars, how could the economy consume this amount? What problem might this create?

1.6 The nature and types of economic efficiency

This first chapter has focused on the nature of the economic problem and how economies attempt to answer the three key economic questions of *what to produce, how to produce and for whom to produce*. Ultimately the economy will need to allocate its scarce resources to produce the goods and services that best meet the needs and wants of its citizens. The **allocation of resources** that is achieved is therefore a discussion of where land, labour and capital are utilised in the production process and which particular combination of goods and services are produced by the economy. Should the economy produce more guitars or computers? Is land allocated to the farming of beef or soybeans? Do more people work in medicine or the farming of the land? These are key questions for any economy and economists are also interested how efficiently resources are allocated. They want to know not only if production is being maximised, but also whether efforts are being made to maximise society's wellbeing. Is the economy able to respond quickly to changing preferences and circumstances and does an emphasis on meeting the needs and wants of current generations come at the expense of future generations? Each of these questions can be evaluated by looking at the different measures of **efficiency** discussed below.



Allocative efficiency

The **most efficient allocation of resources** will be one that is able to maximise the satisfaction of the needs and wants of society. If resources are allocated efficiently, the goods and services that people gain the highest level of utility from will be produced in the best possible way (i.e. the right goods and services will be produced, using the most efficient production methods). Goods and services will be made in the right quantities and will generally go to those people who value them the most.

When allocative efficiency occurs, no resources will be wasted, and it will be impossible to make someone better off without making someone else worse off. From a production point of view, the cost of producing a given output is minimised (or maximising the output from a given quantity of inputs) and from a consumption point of view, the goods and services produced by society will provide the highest level of 'collective' satisfaction.

While this ideal may never be achieved in reality, it is certainly possible to make assessments about whether resources are being allocated more efficiently over time. A reduction in waste or higher living standards for a society may be some of the indicators used to assess whether a society is allocating its resources more efficiently. It may also occur when markets clear and there is no shortages or surpluses of certain goods or services. With reference to Figure 1.2 earlier, only one point on the PPF will be considered **allocatively efficient**. This will occur when the allocation of resources chosen maximises society's wellbeing. In a market economy this will be determined through the interaction of demand and supply (which will be discussed in Chapter 2). Prices, which are assumed to be a measure of the additional benefits that consumers generate from each unit of consumption, provide producers with a valuable signal that can help determine where they allocate their scarce resources. It would be unrealistic to expect that any economy will be able to achieve allocative efficiency, but it provides a benchmark against which the current allocation may be measured.

Technical (or productive) efficiency

This type of efficiency is said to occur when it is not possible to increase output without increasing inputs (resources). Therefore the most **technically efficient** point of production occurs where productivity is at a maximum and where average costs are at a minimum. Technical efficiency could therefore be improved if workers are able to produce more goods or services per hour worked (an increase in labour productivity). With reference to Figure 1.2, it is assumed that all points on the PPF are technically efficient because all resources are fully employed and being utilised efficiently.

Dynamic efficiency

This refers to how quickly an economy can reallocate resources to achieve allocative efficiency or how quickly an economic entity can reallocate its resources from one activity to another. This type of efficiency therefore relates to the speed of adjustment and economists are interested in how quickly and how easily resources can be reallocated so that needs and wants can be maximised in any economy. With reference to the PPF, a dynamically efficient market would be one where the movement of resources from the production of guitars to computers could occur quickly if the demand for computers were to increase for some reason. This would require mobile resources and a flexible workforce whose skills are transferrable.

Because prices are often seen as **'sticky'** (i.e. slow to adjust) it takes some time before resources are reallocated to where they are best able to meet the needs and wants of society. For example, some markets may be dynamically inefficient because it is not possible to quickly reallocate resources. If there was a week of horrible weather that resulted in fewer people attending the movies, it would be very difficult for the movie theatre operators to change how they allocate their cinemas. They may still need to show the movie even if the cinema is half empty, which is not maximising output using available inputs. During the COVID-19 pandemic, it was evident that some businesses adapted much faster than others, switching from one area of production to another area that suddenly experienced an increase in demand. As mentioned earlier, some producers of alcohol were quickly able to alter their production process to meet the demand for hand sanitiser.

Successive Federal Governments from both sides of politics have encouraged flexibility in a range of markets to promote dynamic efficiency, for, by example, deregulating markets or removing subsidies that distort the price signals that alter the allocation of resources. Reforms to the way wages and conditions are determined in labour markets have also been designed to reduce rigidities that would otherwise slow down the rate at which organisations can respond to changing market conditions.

Inter-temporal efficiency

This type of efficiency focuses on balancing the allocation of resources between different time periods. Economic agents are increasingly concerned about how resources are managed not only now but whether they will be available to meet future needs and wants. If resources are consumed in excessive proportions by current generations then future generations may suffer a relative decrease in their living standards (therefore sacrificing allocative efficiency in the future). Alteration of the earth's delicate ecosystem due to our current actions, could also create greater problems associated with relative scarcity in the future. This may mean that a cost is being imposed on future generations and one could argue that this is not inter-temporally efficient.



An alternative way to look at inter-temporal efficiency is to look at the balance between the level of consumption and savings over a period of time. If inadequate savings are available in the current period, then investment opportunities may be sacrificed (the opportunity cost of excessive spending). Current investment is likely to create future consumption opportunities, so it is important for a country's long-term economic prosperity to maintain adequate levels of investment. If economic agents consume excessively in the current period by going into debt, then they may have to sacrifice future consumption because an increasing portion of their income will be devoted to servicing and paying off previously accumulated debt.

Given that the traditional economic models are based on rationality, one might also consider the consumption decisions made by individuals in terms of inter-temporal efficiency. A decision today to consume excessive volumes of alcohol (which might increase immediate utility) is likely to reduce utility in the future (both short run and long run). It might therefore be considered inter-temporally inefficient.

Study tip

When discussing the impact on efficiency of a change in economic conditions or government policy, try to focus on one or two of the types of efficiency discussed here.

Links between the different types of efficiency

There may in many cases be a complementary relationship between different types of efficiency. For example, if the economy is able to generate more goods and services at a lower cost, then it is likely that technical efficiency will be achieved. By producing more at the lowest possible cost, more goods and services can be attained which is likely to maximise society's needs and wants (i.e. improve allocative efficiency). A society that is dynamically efficient is also more likely to achieve allocative efficiency. When market conditions change, businesses need to respond quickly and if they are able to do so then they are more likely to maximise the needs and wants of society.

Achieving one type of efficiency, however, does not guarantee that another type will also be achieved. For example, an economy could be technically efficient by reducing costs and boosting productivity. But if this involves producing goods and services that nobody wants, then it will not be seen as allocatively efficient. Producing at the lowest cost might also mean taking shortcuts with safety and increasing the level of pollution that is emitted into the atmosphere. If more people are hurt in the workplace and there are higher levels of pollution, then this could be an indication that

society's collective satisfaction is not being maximised. Similarly a decision by the Federal Government to subsidise solar panels will help to promote inter-temporal efficiency because it will reduce greenhouse gases. Experts have agreed, however, that it might be one of the most inefficient ways for an economy to reduce carbon emissions. In this respect, the improvement in inter-temporal efficiency is not matched by an improvement in allocative efficiency.

Activity 1d: Types of efficiency

Examine the scenarios described in the left hand column. In the right hand columns, identify a kind of efficiency that is likely to be affected and identify if there is likely to be an improvement (↑) or a worsening (↓) of efficiency. In some cases, more than one type of efficiency will apply and you should be prepared to justify your choice(s).

Scenario	Efficiency type(s)	↑ or ↓
The government places an excise tax on all alcoholic beverages		
A factory replaces its workers with robots		
The RBA increases interest rates to slow down consumption demand		
Supply disruptions caused by government mandated lockdowns		
Students learn a range of competencies that allow them to work in a variety of workplaces.		
The government introduces a policy to make Rapid Antigen Tests free		
The Victorian Government bans the sale of puppies from “puppy farms”		
The Australian Government provides recommended daily water usage on water bills		
The government makes ‘HECS-HELP’ fees higher for Economics degrees and lower for Teaching degrees		
An increase in the number of fake news articles posted on social media		

Activity 1e: A link between food choices and efficiency

Much of the focus of Chapter 1 has been on the concepts of relative scarcity and choices. As we have seen, each choice we make usually has a number of consequences. Before any choice is made, economists might (unrealistically) assume that all of the consequences (including the opportunity cost) will be rationally considered. But how do our food choices affect our ability to achieve an efficient allocation of resources? To answer this question, we might want to look at some of the different ways we measure efficiency and find a link between each of these and our food choices.



To achieve allocative efficiency, it is assumed that the combination of goods and services that are produced and consumed will lead to a maximisation of society's wellbeing. Economists generally assume that the consumer knows what is best for them and therefore they have traditionally avoided making value judgements on the choices that are made. The economist usually concludes that the product has been made available because consumers demand it, and it may have been sold in the right quantities to the people who wanted it the most. It is assumed that the consumer has weighed up the costs and benefits using the available information. However, in the case of eating a bowl of ice-cream, the decision to consume the ice-cream may have been made without sufficient consideration of the costs and benefits and may not, in fact, be the most rational choice available to the consumer.

If they had reflected on their decision over a longer time frame (rather than acting on their immediate needs and wants), then they may have been able to make a better decision that could have enhanced wellbeing and led to a more allocatively efficient outcome. Ask yourself next time you are considering whether to eat a sugary treat whether you are maximising your wellbeing in the current period and whether your future wellbeing is factored into the decision making process. Is it allocatively efficient if scarce resources are being allocated to products that provide little nutrition and may cause harm in the long run?

While there is much debate about what is the most appropriate diet for humanity, there is some growing consensus that certain foods reduce human performance (including brain performance). If a consumer decides (especially over a period of time) to eat the ‘wrong’ types of foods then their cognitive function might decline and the number of sick days that he/she needs to take might increase. This will decrease their productivity in the workplace and result in a decline in technical efficiency over time, higher prices and fewer needs and wants being met (and hence the decline in technical efficiency is also associated with a decline in allocative efficiency).

The current consumption of the ‘wrong’ food could also be associated with a decline in inter-temporal efficiency. A decision to eat an excessive amount of sugar in the current period, for example, could be associated with an increase in the incidence of heart disease, diabetes and obesity in the future. This might impose a cost on future generations and governments, because they will need to spend more on medical expenses for the people who become unwell. Is it therefore inter-temporally inefficient for the consumer to focus on the consumption of those foods that provide the most immediate gratification, if, in the future, it is associated with a decline in human performance and increasing medical costs (which will be partially borne by all of society)?

Questions

1. How does allocative efficiency differ from technical efficiency?
2. With reference to the consumption of food, explain why choices made by individuals may lead to a decrease in technical efficiency. What food choices might enhance technical efficiency?
3. The definition of allocative efficiency makes reference to the idea of ‘maximising society's wellbeing’. Evaluate whether a free market society will arrive at an efficient allocation of resources when it comes to food consumption. (Note: to ‘evaluate’ means to weigh up arguments for and against the proposition.)
4. With reference to a particular type of food, explain how food choices in the current period might lead to a decline in inter-temporal efficiency.
5. Based on your own experience and your knowledge of efficiency, discuss whether the government should intervene in the market for food to influence the choices made by consumers. (This issue will be covered again in Chapter 3 and this will give you the opportunity to look back at your answer and modify/improve it).

Activity 1f: Should you go to university?

As a Year 11/12 student, you have probably noticed one of the many advertisements generated by the large number of universities in operation in Australia. In many cases, these universities promise their prospective students many benefits. The advertisements appeal to our inherent desire to achieve our human potential and the multitude of career opportunities that are available upon graduation.



Each year academics and journalists repeatedly ask 'Is going to university really worth it?' In 1971, only 2% of the population had a tertiary qualification, compared to nearly 50% today. With increasing numbers of people attending university and graduating (especially since the deregulation of the industry has led to an increase in the number of places available), there are potential benefits and costs that might be considered at the individual level and from the perspective of the whole economy.

One of the key attractions associated with a university education is that graduates receive, on average, higher salaries over their lifetime. For example, degrees in Medicine, Dentistry and Economics are usually associated with future employment in professions where the average income is significantly higher than most. Research conducted by The OECD has consistently shown that graduate salaries are well above the median for those without degrees and the scope for promotion and pay rises is enhanced. Another potential 'non-tangible' benefit is the personal fulfillment that comes from a job that is challenging and well-regarded by most in society. Time spent at university may also lead to the development of meaningful friendships and memorable experiences. The qualification could also reduce future anxiety because work security is likely to be higher. Research by the Grattan Institute indicates that the average lifetime earnings can be nearly double for a person with a bachelor degree compared to someone with a Year 12 qualification.

As you will discover in Chapter 3, universities also provide individuals and society with opportunities to innovate and undertake meaningful research. The knowledge gained is likely to boost productivity in the workplace and lead to the development of new ways of producing goods and services, such that, over time, the purchasing power of households increases.

It is rare, however, for university graduates to discuss all of the 'costs' that are associated with the extra years of learning. While at university, most students face very low upfront costs. The price of tuition can be deferred until the person starts work because the government essentially lends the student the money (usually through the various HELP schemes). Despite this ability for students to delay the costs until they are earning a salary, the OECD reports that tuition fees in Australia are some of the highest in the OECD.

How many students consider the opportunity cost of their decision to undertake University education? Whilst studying, the student gives up the opportunity to engage in full-time paid employment. Over the course of a standard three-year degree, this will amount to thousands of dollars. There may also be other costs (which are harder to quantify) such as the stress associated with meeting university deadlines and facing subject material that is initially difficult to grasp. At the end of the degree, the student ends up with a debt that is likely to be tens of thousands of dollars and needs to be paid back as soon as the graduate begins to earn an income of \$54,435 (the threshold income for repaying HELP debts). Starting one's working life with a large debt may inhibit the ability to borrow for other major purchases, such as a house.

Weighing up the costs and benefits in a rational manner may be difficult. There are no guarantees that the university qualification will lead to meaningful employment in one's chosen profession. In an era with rapid changes in technology and the introduction of more and more artificial intelligence, it could be argued that in some cases the skills learnt at university might be redundant by the time a person graduates. Bryan Caplan, author of *The Case Against Education*, argues that students learn very little which is of use in the workplace. It does, however, provide a signal to the labour market of their "intelligence, work ethic and conformity". He therefore argues that we, as a society, have allowed universities to become a potential gateway to a good career.

Following this logic, one might also conclude that resources are not being efficiently allocated because similar outcomes might be achieved through reduced spending on education. The government pays for part of the cost of university education but allows students to choose what they want to study (as long as they are able to meet the university criteria). This has, for example, led to an increase in the number of students graduating from law degrees, far outstripping the demand for law graduates in the labour market. In 2020, the Government announced that it would restructure the fees for certain courses with decreases in the costs associated with studying nursing and teaching and increases in fees for courses like law, commerce and the arts.

Questions

1. Define the term opportunity cost, with reference to a relevant example.
2. Identify and explain the opportunity costs that might be associated with a university education.
3. Create a T-table that identifies the potential cost and benefits associated with a university education (be as creative as you would like).
4. Evaluate the view that spending on certain areas of education may be seen as an inefficient allocation of resources.
5. Explain how spending on tertiary education may be associated with an increase in technical efficiency.
6. Explain how spending on tertiary education may be associated with an increase in dynamic efficiency.

Activity 1g: Applying opportunity cost in real life is challenging

One way of looking at the concept of opportunity cost is in terms of money (or your income). Some students of Economics might have a part-time job and are therefore likely to be paid by the hour. As you develop financial literacy skills and learn to manage your own money, remembering the concept of opportunity cost might be very valuable.



A key way to increase your savings (and therefore potentially improve the balance between consumption today and your ability to consume in the future) is to record every dollar that you spend. This is recommended in a book by Vicki Robin called *Your Money or Your Life*. App developers have picked up on this idea, so you can now track your spending easily. The strategy is designed to increase your awareness of the miscellaneous items that you purchase and which might add up to significant amounts each month.

One suggestion for how you calculate the opportunity cost for each item purchased, is to look at how many hours it takes you to earn the required amount. For example, if your wage is \$10 per hour and you have the option of going to the movies with friends on a Friday night, where you will spend \$40 (you have some snacks etc.), then your night out takes you four hours to earn enough for the evening. You could then ask yourself whether the sacrifice of four hours of work is worth a night out with your friends. What is the opportunity cost associated with you going to the movies?

Alternatively, you might decide to forgo the opportunity to attend the movies and work an extra shift (and earn another \$40). What might you be giving up? The obvious answer is the opportunity to hang out with your friends (and as that time will never be given back, this opportunity is lost forever). You may also consider other benefits associated with the movie night. You may be excluded from conversations about the shared experience of the movie and hanging out, the improvement in concentration and enjoyment of life that comes from engaging in recreational activities and you might suffer from FOMO (fear of missing out). This indicates the difficulties associated with being a rational economic agent. Should we be making decisions in this way or conclude that life would be much simpler if we didn't consider (all of the key elements of) the opportunity cost? Will this new focus on opportunity cost change your behaviour?

Questions

1. Define what is meant by the term opportunity cost.
2. Explain what the potential opportunity cost might be if one was to spend money on the movies on a Friday night.
3. What might be the benefits associated with recording all dollars spent?
4. Consider all the elements of what is foregone when you decide to stay home and study on a Friday night.
5. How might the recording of spending behaviour influence inter-temporal efficiency?

Activity 1h: Shopaholics – opportunity cost and the link to efficiency

Much of the focus of Chapter 1 has been on the concepts of relative scarcity and choices. As we have seen, each choice we make usually has a number of consequences. Before any choice is made, economists might (unrealistically) assume that all of the consequences (including the opportunity cost) will be rationally considered.



In the 2009 film, *Confessions of a Shopaholic*, Isla Fisher plays Rebecca Bloomwood, a consumer who cannot resist the temptation associated with buying fashionable clothes. Her behaviour is compulsive, and one may question whether her approach to meeting her needs and wants is based on a rational assessment of the costs and benefits associated with her decisions. This case study therefore looks at the potential consequences when consumers don't understand opportunity cost, or at least don't apply it to their purchasing decisions.

When a consumer undertakes any type of spending then there is an opportunity cost. In Rebecca's case she gives up the opportunity to save any money which could enhance her future living standards. In fact, her situation is much worse, because she is drowning in debt. Her credit cards are at their limit, which is very costly given that they typically have very high rates of interest (many charge 20%). This means that if one looks at the opportunity cost over time, Rebecca will need to allocate a portion of her future income to the repayment of both debt and the interest costs. One could therefore argue that her decision to bring forward her purchases to a period where she doesn't have sufficient income, results in a high opportunity cost (which she may not fully consider because she cannot visualise the pain associated with paying off debt). When she does eventually pay back the debt, it is evident that she will need to forego the purchase of some goods and services.

The story might also enhance our understanding of the concept of inter-temporal efficiency. Rebecca's decision to

bring forward her purchase might be an indication that she has not efficiently balanced her consumption today with her future consumption. Her decision to purchase clothes might boost her wellbeing in the current period, but it means that some aspects of her future living standards will need to be sacrificed. Over the last 40 years, consumers have been able to more easily access credit facilities, and this has resulted in exponential growth in debt. If the debt has been used to purchase consumer items like clothes, then it could be argued that this is inter-temporally inefficient. The allocation of resources has been skewed towards the current period and may come at the expense of future levels of individual and collective wellbeing.

The increased consumerism has not only contributed to the accumulation of debt, it could be argued that it is not sustainable. A wide range of resources are utilised to make and distribute clothing for example. The rapid rate at which clothes are purchased and then discarded (sometimes referred to as fast fashion) means that there is increased exploitation of natural resources, increased pollution from production and shipping and an increase in the amount of waste that must be sent to landfill. In the past, these discarded clothes may have been reused or recycled, but the flood of used clothing entering the market means that there is no end point for much of it, other than the local tip.

Therefore, the shopaholic not only reduces their own inter-temporal efficiency by consuming excessively and going into debt, he or she increases the environmental costs, and this is likely to decrease the living standards of future generations, some of whom are yet to be born.

Questions (responses may be enhanced by watching the film mentioned in the case study)

1. What might be the opportunity cost associated with a shopping compulsion?
2. What is meant by the term inter-temporal efficiency?
3. Why might excessive consumerism be an indicator of inter-temporal inefficiency?
4. Why might the average consumer fail to consider the opportunity cost when making spending decisions?
5. How might the fast fashion industry contribute to inter-temporal inefficiency?

Activity 1i: Business decision making and opportunity cost

When the economic models are discussed in future chapters, there will be an inherent assumption that both the consumer and the producer behave in a rational manner. For a firm this means that their business decisions are guided by the goal of profit maximisation. For those who are studying Accounting, profit will be a very familiar term and can be simply stated as the revenue generated from sales minus the expenses associated with running the business. For example, if you ran a smoothie bar that sold 400 smoothies per day for \$6, your revenue would be \$2,400 per day (i.e. \$6 X 400). The costs of the ingredients, the wages of your workers and other (overhead) expenses might equal \$2,000 per day. Therefore, your profit per day would be \$2,400 - \$2,000 = \$400 per day. The accountant might therefore look at the profit over a period (such as six months) and communicate this information in the relevant Income Statement.

Economists, however, consider profit in a slightly different way. For economists, profit is calculated as the revenue minus the **economic** costs. The economist, like the accountant considers the money used to pay for the resources needed to run the business. For example, if the business does not own the building from which it operates, it will pay rent. They also pay their workers' wages directly. These are referred to as explicit costs – they can be verified with receipts and are paid to non-owners of firm. The firm will also need to consider its implicit costs. For example, if the smoothie business did own the building from which they operate, they are sacrificing potential income from renting it out to a third party. This is an opportunity cost. Similarly, the hours of work that the owner contributes to the business also represents an opportunity cost because they have been unable to earn a salary by working elsewhere. Therefore, the economic profit is equal to the revenue minus the explicit costs and the implicit costs.

To further illustrate this point, imagine that a young entrepreneur sets up her own Economics tutoring business. At the end of the first year, she declares that she has made a profit of \$60,000. This figure, however, is only based on her accounting expenses. What she may fail to consider is the \$65,000 she could have earned as a graduate teacher. This is her opportunity cost. Based on this simple case study, it can be concluded that she has made an economic loss of \$5,000.

Questions

1. Define the term opportunity cost.
2. Distinguish between the terms implicit and explicit costs.
3. With reference to the concept of opportunity cost, explain how economic profit is calculated.
4. Use the following financial information to calculate the economic profit (for one week) for the following small lawnmowing business:

Item	Per week
Services provided per week	25
Price charged per service	\$50
Petrol expenses	\$500
Advertising expenses	\$250
Insurance expense	\$12
Other expenses	\$18



Additional information: The owner of the business could earn \$470 per week working in a local restaurant and the owner has been offered \$50 per week to rent his lawnmower to a friend.

5. Based on the information calculated in Question 4, should the owner continue with their business venture? Should it be based purely on economic calculations or are there other factors that might be considered?

Review Questions 1.6

1. Explain why governments seek to maximise the efficiency of resource allocation.
2. Distinguish technical efficiency from allocative efficiency.
3. Distinguish dynamic efficiency from inter-temporal efficiency.
4. Explain why a more technically efficient allocation of resources can boost allocative efficiency.
5. Explain why dynamic efficiency is intrinsically linked to the concept of allocative efficiency.
6. Explain why a more technically efficient allocation of resources may in some instances not lead to the achievement of allocative efficiency.
7. Explain why every point on the PPF is considered technically efficient, but only one point on the PPF is considered allocatively efficient.
8. Identify some factors that might promote a more efficient allocation of resources.
9. Explain, with reference to an example, why an increase in allocative efficiency might be associated with a decline in inter-temporal efficiency.

Multiple choice review questions

- 1. Relative scarcity is likely to be caused by:**
 - a) A growing population
 - b) The depletion of non-renewable resources
 - c) Infinite needs and wants and finite resources
 - d) All of the above
- 2. The economic question of what to produce is least likely to be determined in a modern economy like Australia by:**
 - a) The buying decisions of consumers
 - b) Surveys completed by market researchers
 - c) Changes in relative prices
 - d) Changes in the availability of key resources
- 3. Which of the following outcomes might be inconsistent with Mankiw's 10 principles of Economics?**
 - a) A decision by a consumer to burn \$10,000
 - b) A person considers the opportunity cost associated with learning economics
 - c) A country attempts to contain the rapid rise in prices, but this leads to a recession
 - d) The central bank prints money causing the general level of prices to rise
- 4. Resources are likely to be more scarce if:**
 - a) There is an increase in the number of people retiring
 - b) Output per hour worked increases
 - c) Humans make better use of solar resources
 - d) There is increased use of recycled products
- 5. Which of the following is least likely to be considered a microeconomic investigation?**
 - a) An investigation into the economic consequences for Australia caused by the war in Ukraine.
 - b) A discussion of the consequences of a cut in interest rates for the market for housing
 - c) An analysis of the impacts of an increase in excise taxes on the market for cigarettes
 - d) An analysis of exchange rate movements on the demand for education by international students.
- 6. The opportunity cost associated with building a new link between the Eastern Freeway and the Metropolitan Ring Road might include:**
 - a) An increase in the number of deliveries that can be made per hour
 - b) A decrease in road congestion
 - c) The government no longer being able to fund the employment of more teachers across the country
 - d) An increase in the price of oil used to make the freeways.
- 7. The opportunity cost associated with dancing all night with your friends might be:**
 - a) improved dancing ability
 - b) the loss of income from working all night instead
 - c) fatigue
 - d) the need to purchase new shoes

8. **A country may experience an immediate shift of its production possibility frontier to the left if:**
- Net migration to Australia is negative
 - There is an increase in the participation rate
 - There is a new discovery of oil
 - There is an increase in the use of artificial intelligence in the production process.

For questions 9, 10 and 11, refer to the following production possibilities for a hypothetical economy producing only apples and beef (million units per year).

Production combinations	Production of beef (units per year - million)	Production of apples (units per year - million)
A	1 000	0
B	800	1 000
C	600	1 300
D	300	1 700
E	50	1 900
F	0	2 000

9. **If the people of this country value apples twice as much as beef, then the optimal allocation of resources is:**
- Combination A
 - Combination C
 - Combination E
 - Combination F
10. **If the country decides to increase its production of apples from 1300m units to 1900m units, then the opportunity cost is:**
- the production of 600m units of beef
 - the production of 300m units of beef
 - the production of 0m units of beef
 - the production of 550m units of beef
11. **If the country experiences a bushfire that results in a fall in production to 500m units of beef and 0m units of apples, then this may create the economic problem of:**
- allocative inefficiency
 - unemployment
 - technical inefficiency
 - all of the above
12. **Tastes and preferences in an economy change such that more people now prefer avocados to tomatoes. Dynamic efficiency is likely to be evident if:**
- the government has to introduce a tax on avocados
 - the government introduces new subsidies for those who produce tomatoes
 - more land is made available for the production of avocados in a short period of time
 - the supermarkets put tomatoes on sale every week
13. **Inter-temporal efficiency is likely to improve if:**
- a tax is imposed on carbon emissions
 - the price of an avocado increases
 - the price of water decreases
 - the government reduces the excise tax on petrol
14. **Technical efficiency is likely to increase if:**
- the price of education increases
 - there is an increase in the level of competition across markets
 - the government prevents the import of foreign fruit and vegetables
 - the tax on alcohol is reduced
15. **An increase in the price of all university fees is likely to cause:**
- a decline in inter-temporal efficiency
 - a decline in technical efficiency
 - a decline in dynamic efficiency
 - all of the above

16. **Which of the following is not a key assumption that economists make when constructing most of their models?**
- a) Economic agents are rational
 - b) Consumption of a good is associated with decreasing marginal utility
 - c) The relationship between two variables can be better determined by holding all other variables constant
 - d) Consumers do the best they can with limited information
17. **Which of the following is not an example of capital resource for your school?**
- a) A teacher
 - b) An electronic whiteboard
 - c) A school building
 - d) A teacher's laptop
18. **Which of the following might cause an economy to operate at a point inside its PPF?**
- a) A reduction in tax rates for all income earners
 - b) Reduced spending on vocational education and training
 - c) An increase in borrowing by households
 - d) An increase in export demand
19. **A study of macroeconomics is likely to include:**
- a) an analysis of how an increase in income affects the demand for sausages
 - b) the degree to which households alter their spending on mobile phones when the exchange rate depreciates
 - c) an analysis of the causes of a world-wide recession
 - d) an evaluation of the effect of changes in child care subsidies on the market for child-care
20. **Consider a PPF with consumer goods on the y-axis and capital goods on the x axis. Based on this information, which of the following statements is likely to be untrue?**
- a) A movement along the PPF to the right is likely to result in a shift of the PPF to the right in the future.
 - b) The citizens could consume at a point beyond the PPF if they borrowed from a neighbouring country
 - c) If the economy is operating at a point inside the PPF, there is likely to be unemployed resources.
 - d) The most efficient allocation of resources occurs when the economy operates on the x-axis.

Chapter summary

1. Economics is the study of choices; the factors that influence choice and the consequences of these choices for the individual and society.
2. Relative scarcity occurs because the demands on resources are assumed to be infinite but the earth can only provide limited resources to meet our needs and wants.
3. A need is a good or service that is essential for human survival.
4. A want is a good or service that is not necessary for survival, but which adds to the quality of one's life.
5. Economists distinguish between three main types of resources that can be used to produce goods and services to meet the needs and wants of the people on the planet – land or natural resources, labour and capital.
6. Land or natural resources are those inputs used in the production process that are acquired from the natural world and which may be used in a relatively unprocessed state or transformed into more elaborate inputs or products.
7. Labour resources represent the physical and mental effort of humans in the production process.
8. Capital resources combine a variety of natural resources and are developed by humans (labour) so that the production process is more efficient.
9. Microeconomics studies the behaviour of individual economic agents and markets, whereas macroeconomics studies issues that are related to the whole or larger parts of the economy.
10. Economists often disagree on a number of issues with regards to human behaviour and how economies will respond to different events and policies. A summary of the key principles that most economists agree with can be found in 'Mankiw's Principles' (Table 1.1).
11. All economies attempt to answer the three basic economic questions of what to produce, how to produce and for whom to produce.
12. The primary way that resources are allocated (and therefore how we answer the key economic questions) in the Australian economy, is via the market mechanism. This means that resources are used to make the goods and services that are most desirable for the end consumers.
13. Whenever a choice is made there is always a cost. The existence of trade-offs means that there will be an opportunity cost – the value of the next best alternative foregone.
14. A production possibility curve (frontier) is a simple economic diagram that models the choices available to citizens of an economy. It shows the combinations of two particular goods or services that could be produced using the available resources in the most efficient manner.

15. Opportunity cost can be illustrated using a production possibility frontier. Production of more of one of the goods involves the sacrifice of some of the other good because the resources are allocated from one area of production to another.
16. It is impossible for a country to produce at a point outside their PPF in the short term. Over time they may add to their resource pool through discoveries (which provides the nation with more land resources), improvements in the quality of resources, immigration (more labour resources), or find ways to use their resources more productively.
17. Any point inside the PPF represents an inefficient allocation of resources, as some resources will be idle. This will make it impossible to achieve technical and hence allocative efficiency
18. A country can consume at a point outside its PPF through trade or by borrowing.
19. Allocative efficiency is achieved when resources are directed to those goods and services that provide society with the highest end-use and maximises the benefit to society.
20. Technical efficiency occurs when the society is able to produce the largest volume of goods and services from their given factors of production. Technical efficiency is a prerequisite for allocative efficiency but does not guarantee that it will be achieved.
21. Dynamic efficiency can be improved when factors of production can be reallocated quickly following changing economic circumstances (such as changes in tastes and preferences)
22. Inter-temporal efficiency focuses on the balance between consumption today and consumption tomorrow. This type of efficiency looks at the impact of current economic activity on resource depletion, pollution and how savings and investment decisions made now affect future living standards and wellbeing. It may also be affected by consumption decisions today that can reduce one's quality of life in the future.



The website supporting students of Economics

Economicstutor.com.au has been created by Romeo Salla, an Australian economics educator and former federal treasury economist. It offers support to students of economics, particularly those undertaking a secondary economics course in Australia.

How can www.economicstutor.com.au help students?

Economicstutor.com.au is primarily designed to provide students with a series of **challenging activities/tests** that will take the form of **interactive multiple choice question sets** of 10 (complete with explanations) and **short answer questions** requiring students to 'fill the gaps' to reveal model answers for a typical test/exam questions. Crosswords, video links and other interactive activities feature throughout the site and **compact course notes** are included to support texts and other teacher resources. In addition, the '**Contemporary activities**' section of the site includes new and contemporary exercises and/or tasks that are designed to both challenge students and keep them 'up to date'. The completion of the exercises and activities contained will help to enhance student performance in assessment tasks and examinations.

Testimonials

'We use economicstutor as both a place where our students can consolidate their learning as well as provide them with extension tasks to develop a greater understanding of individual topics. The range of tasks as well and the interactive nature of the site provide students with an opportunity to engage with the course outside of the classroom. We have found the site to be of great assistance in the development of their knowledge and understanding.'

Chris Williams (Fintona Girls' School)

'We subscribed to this site for a number of years and it provided the Economics teachers and students with lots of excellent exercises and activities to help them apply their knowledge of the VCE Economics course. The new look site makes it even easier to navigate through parts of the course, and the depth and breadth of the exercises, including the insightful explanations, proved to be a real support. The ability to project the interactive multi choice and short answer questions also provides teachers with the flexibility to change gears and offer fun and challenging class activities. It comes highly recommended.'

Lou Spanos (fmrly Geelong Grammar School)

Chapter 2 An introduction to Microeconomics and the role of markets

2.1 An introduction to microeconomics and the role of markets

This chapter focuses on a well-established model that can be applied to a range of markets. It is used to make predictions about the effect of changing economic circumstances on prices and quantities sold in product, factor and other markets, such as the money market and the foreign exchange market. This area of study is referred to as microeconomic analysis, where **microeconomics** is the branch of economics that looks at the behaviour of the individual economic agents (usually households and businesses) that make up the whole economy. In this area of study, we are interested, primarily, in the motivations of consumers and producers (or suppliers) and how they respond to changing incentives in individual markets. We are especially interested in the role of relative prices in allocating the scarce resources that were discussed in Chapter 1. The model discussed in this chapter gives us the opportunity to investigate and to analyse the potential consequences associated with the changing demand and supply conditions that frequently occurs in markets.

Microeconomics underpins the use of 'macroeconomic analysis, the study of which follows later in the course. By the end of the chapter, we will see how the market is the primary mechanism that our economy utilises to answer the three key questions of what to produce, how to produce and for whom to produce. It therefore has a huge influence on how scarce resources are allocated.

2.2 Perfectly competitive markets

A **market** is seen as any type of arrangement (which may or may not be a physical space) that facilitates exchange between buyers and sellers. The purchasers of goods and services may be households, businesses, governments or a range of other economic groups such as not-for-profit organisations. The suppliers of goods and services are generally businesses, but in the factor market, households supply businesses with their labour (this will be explored in more detail in Chapter 5). In Australia, government bodies also supply a wide range of goods and services. Buyers and sellers may meet in the same space, such as a shop, or they may communicate online, either domestically or internationally. Goods and services are sold in **product markets**, while the factors of production (inputs) are sold in **factor or resource markets**, such as the labour market. The model developed in this chapter can also be applied to the money market to determine interest rates, as well as the foreign exchange market to determine the exchange rate for a nation.



As we saw in Chapter 1 (Box 1.1), when economists develop theories about consumer and producer behaviour, they often make simplifying assumptions. When undertaking analysis of markets (demand and supply analysis), the model that will be used is based on the idea that the markets considered are highly competitive. This is a fundamental premise of the analysis that will be undertaken, and therefore it is important to keep it in mind when considering the information that follows. The word competition is used frequently in everyday language, especially by businesses, who would like you to believe that you are getting a good deal. When studying economics, however, the degree of **competition** is intrinsically linked to a set of key conditions.

The market structure that forms the basis of demand and supply analysis (to illustrate how the market mechanism works) is called **perfect competition**. It can also be referred to as a 'perfect market' or a 'perfectly competitive market'. The three **conditions** required for a perfect market are as follows:

- There is assumed to be a large number of buyers and sellers such that each economic agent acts independently in the market. No individual buyer or seller therefore has the market power to influence the price. This leads to the condition of **price taking** in the perfectly competitive market.
- It is assumed that the products being sold in a perfectly competitive market are **homogenous**, which means that they are virtually identical and easily substitutable. This encourages the suppliers to offer the products at the lowest possible price, because this is the main way to attract customers (rather than, for example, being a better brand).

- There is **ease of exit and entry** into this market. There are low set up costs in the industry, which means that if profit making opportunities exist (for example, because the good or service has increased in popularity), then new entrants can seek to capture a share of the market, possibly by undercutting the existing suppliers who may be making very high profits in the short term. These very high profits are referred to in economics as **'abnormal profits'** or **'super-normal profits'**. [See the Study Tip below for an explanation of how economists view profits and costs. Economic costs were also considered in Application exercise 1i in Chapter 1.]

In addition, the perfectly competitive market is based on the following **assumptions** (some of which were discussed in Chapter 1):

- Buyers and sellers operate with **full information**. They are aware of what they are buying and selling and are able to easily compare prices. Based on this information, they make fully informed **rational choices**.
- Resources are **mobile** and will be reallocated towards those areas of production that generate the greatest benefit.
- Both the buyer and the seller seek to maximise their own wellbeing. For the seller this means to **maximise profit** and for the purchaser it means to **maximise utility** or satisfaction.

In a perfectly competitive market, there is generally minimal intervention by the government. If the government intervenes in the market, it distorts the price mechanism and lead to a different set of relative prices and a change in the way resources are allocated. [Relative prices is an important concept that is defined later in Section 2.9 of this chapter.] The role of government in the market will be considered in Chapter 3, but for most of this chapter, the role of the government in influencing the market will generally be ignored.

Study tip

'Economics costs' have a specific meaning that makes them quite different to the accounting costs. Economic costs are intricately related to opportunity cost and represent both the explicit (accounting) cost and implicit costs associated with any investment or production decision. To illustrate, if a small businesses makes sales of \$180,000 and has expenses of \$80,000, then the accounting cost is \$80,000 and a profit of \$100,000 is made. However, if the owner could have generated \$100,000 in income by using her time working as an employee instead of owning and running the business, then the economic cost becomes \$180,000 and the profit is zero. In this example, economists would say that the business owner is neither making an economic profit nor loss. Instead, it is a normal profit and, ceteris paribus, is just enough to keep her in the business. If the owner makes less than normal profits (an economic loss) in the long run, then she is likely to exit the industry. When firms make economic profits above zero, it is likely to entice other producers to enter the industry in search of 'above normal profits' (also called super-normal profits).

The conditions for a free and perfectly competitive market are rarely met in the real world. The markets that are often seen to be the most competitive are those for commodities such as wheat, livestock and minerals like gold and coal. The share market and the foreign exchange markets are also highly competitive because each seller is relatively small compared to the size of the market (so they are price takers), the products they sell are almost identical and it is easy to enter and exit the market.

The fact that the market is based on what might appear to be unrealistic assumptions does not mean that it cannot be used to analyse less competitive markets. Economists expand on the ideas of the model to make predictions in other market structures. A monopolist, for example, will be the only seller of a good or service, but it will still consider how consumers are likely to react to changes in prices.

The behaviour of producers and consumers in a competitive market

In any **market**, consumers and businesses are assumed to be acting in their own self-interest at all times. The implication of this assumption is that consumers will want to obtain the amount of the good or service that will maximise their utility for the lowest possible price. If they are willing to purchase the good or service at a certain price, then they are giving the suppliers a clear signal that they value the good or service by at least that much. If they obtain the good or service for less than the maximum they are willing to pay, then they have obtained what is referred to as consumer surplus. **Consumer surplus** is therefore the difference between the price the consumer is willing to pay and the market price.

The assumption of profit maximization implies that the seller in a competitive market will try to sell their product at the highest price possible to maximise their **profits** (revenue less expenses). If they are able to sell the product at a price above their minimum selling price (which is linked to their economic costs) then they generate a **producer surplus** (the difference between the price the producer is willing to sell the product for and the market price). The price that is determined in any market is therefore a compromise between how much the consumers are willing to pay for the product and for how much suppliers are willing to sell the product.

In a perfectly competitive market, product homogeneity ensures that businesses compete against each other by offering the lowest prices. Consumers also compete against each other to gain access to the scarce products. When there is more demand for a product than supply, the consumers may bid up the prices which acts as a way to ration the scarce goods.

Competition also takes place between individuals seeking to obtain the best job or between firms that compete against each other to gain access to the scarce inputs that are available in the market. Nations, which produce a wide range of similar goods and services, compete in international markets.

The remainder of this chapter is essentially concerned with an analysis of the **market mechanism** (or **price mechanism**) which describes how the forces of **demand** and **supply** determine the **relative prices** of goods and services, which then ultimately determine the way our productive resources (e.g. natural, labour and capital) are allocated in the economy.

2.3 The law of demand and the demand curve

As mentioned in the previous section, buyers in any market will generally want to obtain the product at the lowest price possible and will exchange the amount of money for what they see as equal to, or less than, the value they place on the product. It is logical therefore that at higher price levels, the demand for most goods and services will decrease. As the price rises, the opportunity costs associated with purchasing the product will increase, resulting in some buyers dropping out of the market. In simple terms, the willingness and ability to purchase the good or service diminishes as prices rise. (We should keep in mind, however, that there are always exceptions to most economic laws, so this will not be the case for every single good or service).

The law of demand

The **law of demand** states that there is an inverse relationship between the price (the independent variable) and the quantity demanded (the dependent variable). This relationship is based on the assumption that all other variables that could affect the demand for a product are held constant (the *ceteris paribus* condition discussed in Box 1.1 in Chapter 1). In other words, if we assume that nothing else in the market changes, just the price, then the quantity demanded will respond to the change in price.

As the price decreases, the quantity demanded increases

As the price increases, the quantity demanded decreases

It could be argued that the law of demand is based on economists' observations of human behaviour. As you read each of the following justifications for the law of demand, it is worth considering the extent to which each factor is relevant in the context of your own consumption behaviour:

- As the price increases some consumers may no longer be able to afford (as much of) the product because a greater percentage of income is required for its purchase. Economists commonly refer to this as the **'income effect'**. They will therefore reduce the quantity purchased or not purchase the product at all.
- Price is generally seen as an obstacle that may deter people from buying a product and an increase in price may mean that the supplier is now asking for an amount that exceeds what people think the product is worth. Given that each person is assumed to have an amount they are willing to pay for a good or service (based on its **perceived value** to them), it makes sense that at higher prices less will be demanded. More people will drop out of the market as the price exceeds its perceived value.
- Higher prices may also encourage consumers to look at the alternatives that are available in the market. When the price of one good increases (and it is assumed others do not), consumers will look towards cheaper substitutes, so quantity demanded is likely to fall. Economists commonly refer to this as the **'substitution effect'**.
- Many products are subject to **diminishing marginal utility**. Diminishing marginal utility (also discussed in Box 1.1 in Chapter 1) recognises that each additional unit that is consumed (referred to as the 'marginal' unit) will add to a person's level of satisfaction (i.e. add to their 'utility'). However, the benefit received from each additional unit falls with each successive unit consumed. It may still be a positive experience, but the level of utility (satisfaction) is less for the second unit than the first and so on. In other words, diminishing marginal utility refers to the idea that each successive item of the product purchased yields less satisfaction. This affects a consumer's willingness to pay for a product. If the first apple you consume yields a certain amount of satisfaction, it would be expected that a second apple consumed straight after that would yield less satisfaction. Each successive apple will yield even less satisfaction, so the amount you are willing



Study tip

It is important for students of Economics to remember that, when we are talking about the law of demand, we are talking about the response of the quantity demanded to a change in price, not how changing demand affects the prices of goods and services. Consideration of factors other than price causing changes in demand will occur in the next section.

to pay for those extra apples tends to decrease. As a result, you will only buy the extra units if the price is lowered. This links to the second reason why the law of demand makes sense, because each successive unit of the good consumed is seen to have a lower perceived value for most consumers.

Box 2.1 The law of demand in action: 'House auction'

Attending a house auction is one way to witness the law of demand in action. There is one unique product available for sale (the house) and there are generally a number of possible buyers who are interested in the property. In this environment, the potential buyers will compete against one another. Bids may start low, with many people willing and able to pay the amount stated. As the price is bid up, the number of potential buyers decreases. The person who places the highest bid may or may not win the auction. They will only get to purchase the house if their bid is above the vendor's (seller's) reserve, the lowest price that the vendors will accept. Those who have dropped out of the race have either accepted that the price is above their budget (income effect) or have decided that the house is not worth the price that has been reached (beyond their perceived value). There may also be similar houses (substitutes) nearby which they believe may sell for less. If there is only one person who is interested in the property or the second highest bidder doesn't value it as much as the highest bidder, then the purchaser may obtain the house for less than what they were willing to pay (and hence gain some consumer surplus). Thankfully, the real estate agent is unable to read the mind of the potential buyers.



Constructing a demand curve

There are a range of factors that affect the quantity demanded in any market, but it is difficult to visualise more than two dimensions. Economists have therefore decided that it makes sense to choose the most important factor that influences the demand for most goods and services, namely price.

The demand curve shows the relationship between various possible prices for a product and the quantity that consumers in the market would be willing and able to buy at each of these prices.

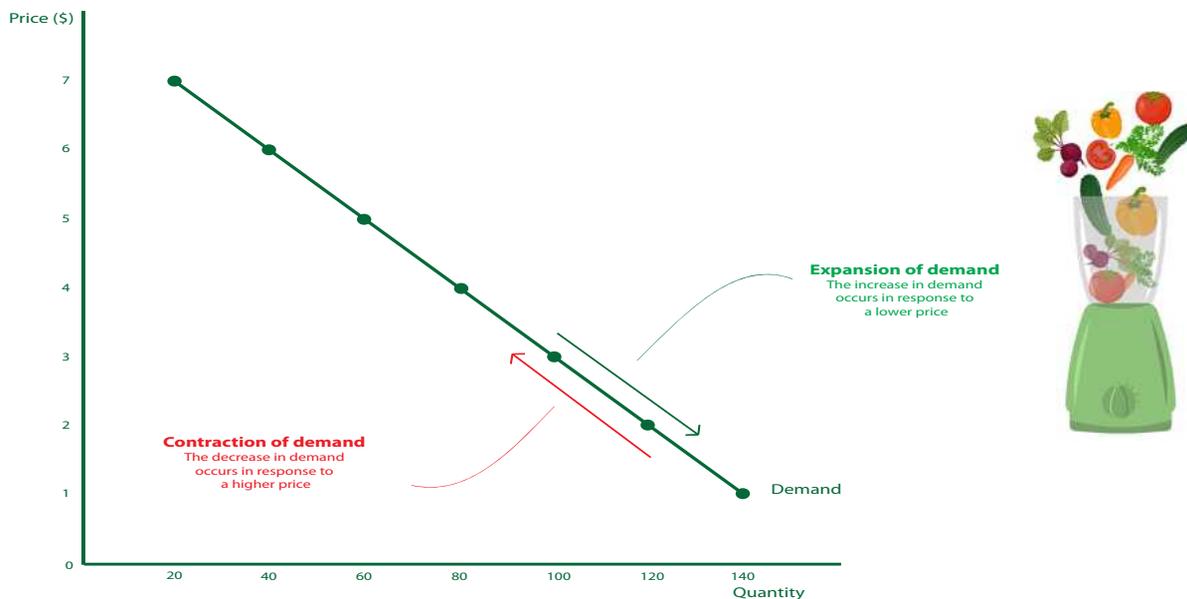
This total demand in the market is based upon the total amount demanded by each individual consumer (i.e. the sum of all individual demand curves). It is important to be aware that demand is based on both the **ability** and **willingness** to purchase. You may want to purchase a new sports car, but unless you have the income to pay for it (and are willing to sacrifice this income) then it is not relevant for the construction of the demand curve. This is referred to as **effective demand**.

Consider the following hypothetical information about the market for green smoothies, represented in a '**demand schedule**'. Green smoothies have become increasingly popular in the twenty first century as consumers look to replace their sugary beverages with juices and smashed up (blended drinks of) fruits and vegetables (called smoothies). Table 2.1 shows the number of green smoothies that would be purchased at any given price on any given day in a hypothetical market. It is clear that the demand for green smoothies follows the law of demand. Lower prices result in an increase in the quantity demanded and higher prices result in a lower quantity demanded. For example, if the price of green smoothies increases from \$5.00 to \$7.00, demand for green smoothies **contracts** from 60 per day to 20 per day.

Price (\$AUD) per 500 ml	Quantity demanded per day
1.00	140
2.00	120
3.00	100
4.00	80
5.00	60
6.00	40
7.00	20

The law of demand is represented in a two-dimensional diagram with the price on the vertical (y) axis and the quantity demanded on the horizontal (x) axis. This is represented in Figure 2.1.

Figure 2.1:
Demand for green smoothies



It is important to note that when the price of the product changes, there will be a **movement along the demand curve**. When prices increase, demand generally **contracts** (moves left along the demand curve). When prices fall, demand usually **expands** (moves right along the demand curve).

The difference between a movement along and a shift of the demand curve

Economists distinguish between a movement along the demand curve and a shift of the demand curve. In both cases the demand for a good or service will change, but the reasons for the change differ. A movement along the curve is due to a change in the good or service's own price. A movement along the demand curve to the left (a contraction) is caused by an increase in the price of the relevant good or service. A movement along the demand curve to the right (an expansion) is caused by a decrease in the price. A shift of the entire demand curve will occur when one of the other factors of demand (i.e. not price) have changed, resulting in either an increase or decrease in the quantity demanded at any given price. This essentially means that the previous demand curve is no longer relevant for the new set of circumstances. These demand factors are explored in Section 2.4.

Review questions 2.1 - 2.3

1. What are the conditions for a perfectly competitive market? How might these conditions influence the degree of competitiveness in the market?
2. Provide three examples of markets where you have been involved in the exchange of a good or service in the last month and discuss whether 'price' was a motivating factor behind the purchase.
3. Explain how consumers might compete against each other in a competitive market. Give an example from your own experience.
4. State the law of demand. With reference to the income and substitution effects, explain why the law of demand is a good explanation of human behaviour when faced with changing prices.
5. Distinguish between a movement along the demand curve and a shift of the demand curve.
6. Describe how the equilibrium price is achieved at an auction and link your response to the law of demand.
7. With reference to a snack you like to eat after school, explain what is meant by the concept of diminishing marginal utility.
8. Explain the link between diminishing marginal utility and the law of demand.

2.4 Non-price factors that affect demand

The demand curve depicts the relationship between price and its impact on the quantity demanded for a particular good or service. Other (non-price) factors that may affect the quantity demanded are held constant (*ceteris paribus*). However, changes in these non-price factors do occur, and such changes will cause the demand curve to shift – this effectively means that a **new demand curve** will now be relevant.

If the demand curve shifts to the right, this means that for each given price there is a greater quantity demanded, which is commonly expressed as an increase in demand. A shift of the demand curve to the left means that for each given price there is a lower quantity demanded, which is commonly expressed as a decrease in demand. The non-price demand factors that students need to learn as part of the VCE Economics course are explored below.

Disposable income

Disposable income is defined as the rewards received by households from their direct contribution (from working) and indirect contribution (from the provision of land or capital) to the production process, plus government transfers less direct (income) taxes. This represents the **total amount that consumers have to spend on goods and services**. Disposable income could increase, for example, when a person gets a pay increase, the government cuts individual income tax rates or when a household receives dividends or makes capital gains from buying or selling assets. During periods of strong economic growth, there will also tend to be a lower unemployment level and hence the disposable income earned across the country will also tend to rise (wages and salaries are in most cases going to be higher than the income received from government benefits).

$$\begin{array}{c}
 \text{Disposable income} \\
 = \\
 \text{Factor income} \\
 \text{[e.g. wages for contributing labour]} \\
 + \\
 \text{government transfers} \\
 - \\
 \text{direct (income) taxes} \\
 \text{on factor income}
 \end{array}$$



An increase in disposable income is generally associated with an increase in the demand for **normal goods**. This will shift the demand curve to the right, as consumers may be willing and able to purchase a greater quantity at any given price. A normal good is therefore defined as one where consumption of the good increases when income increases.

An increase in disposable income is likely to have a negative effect on the demand for **inferior goods**. Goods that are often considered inferior include second-hand clothes, generic ('homebrand' or no-name) products sold in supermarkets and travel by bus. As income increases, consumers may choose to substitute away from inferior goods and towards new clothes, branded products or purchase their own mode of transport.

With reference to green smoothies, if the government granted an income tax cut to all workers, disposable income across the country would tend to increase. Some of these workers may choose to spend their increased income on green smoothies, (assuming at this stage that the price remained the same). Not all people with the extra disposable income will purchase more green smoothies but it is reasonable to expect that some of them will. Therefore, the overall demand for green smoothies would increase and more would be demanded at each price level.

Study tip

It is important to distinguish between disposable income and discretionary income. Income tax increases will decrease disposable income but if the individual does not have savings, interest rate increases won't affect disposable income. This is because the individual will still receive the same rewards from their contribution to the production process. However, changes in interest rates is likely to affect discretionary income, especially for households who have loans with variable interest rates. Discretionary income is a measure of how much households have left over to spend on non-essential items after their core expenses have been paid.

This would be represented by a shift of the demand curve to the right and the demand information might change as shown in Table 2.2 below.

Table 2.2 Demand schedule for green smoothies		
Price (\$AUD) per 500 ml	Quantity demanded per day (D1)	NEW Quantity demanded per day after income tax cut (D2)
1.00	140	150
2.00	120	130
3.00	100	110
4.00	80	90
5.00	60	70
6.00	40	50
7.00	20	30

Figure 2.2: Demand for green smoothies [Shift of demand curve]

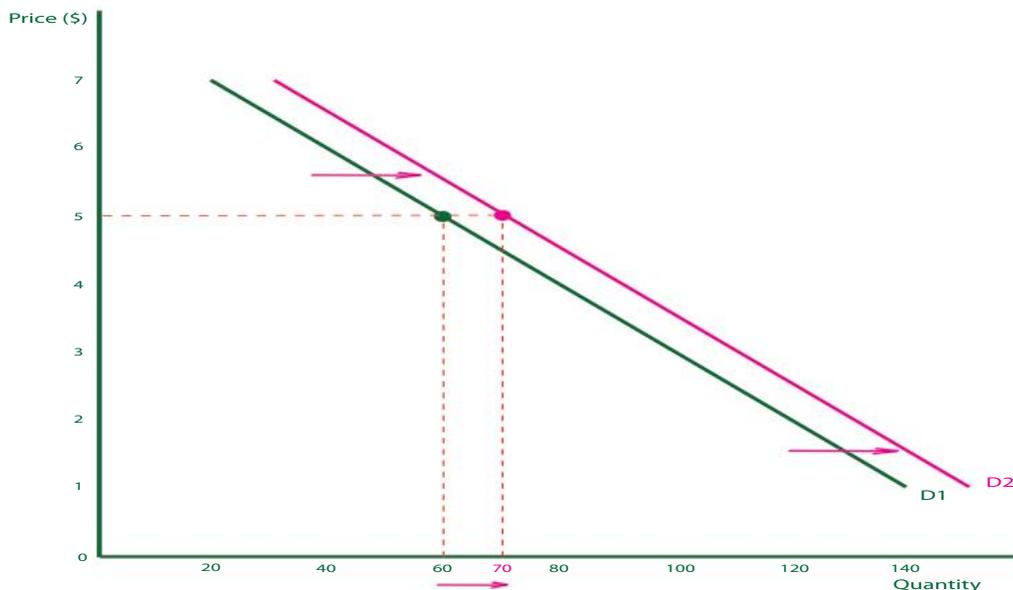


Figure 2.2 shows how a personal income tax cut affects the demand for green smoothies. For example, at a price of \$5.00 the demand has increased by 10 drinks per day, from 60 to 70. This increase in quantity demanded occurs at every other price, which is why the demand curve has shifted to the right in a parallel fashion. The tax cut in this case is likely to result in an extra 10 green smoothies being demanded per day as some of the extra disposable income has been allocated to the consumption of green smoothies. People who like them might be buying more or those who could not afford them before the tax cut may now feel that it is within their budget. It is important to note that we can't yet predict how many smoothies will actually be sold, as this will depend on the supply conditions in the market at the time, which will be considered in the next section.

Interest rates and other factors affecting discretionary income

Interest rates represent the reward for lending (saving) or the cost of borrowing, expressed as a percentage of the **principal** (the amount lent or borrowed). Increases in interest rates are likely to have the greatest impact on the behaviour of those who are indebted. Most home loans in Australia are usually offered with variable interest rates, which means that the banks can adjust the interest rate payable in line with changing economic circumstances (usually, but not always when the RBA changes the cash rate). An increase in interest rates will mean that indebted households (and businesses) will have less '**discretionary income**' after paying interest. This is likely to result in a decrease in demand and a shift to the left of the demand curve for many goods and services (especially non-essential items). In this case, less will be purchased at each price. In the case of retirees, a fall in interest rates might result in a decrease in their disposable (and discretionary income) as the interest earned on their savings will be lower.

There are a number of other ways (called transmission channels) that changes in interest rates can affect the demand for goods and services. These will be discussed in more detail as part of the analysis of monetary policy in Chapter 9.

When using the term discretionary income, economists are referring to the amount of disposable income that is left over (or available) after households have paid their essential bills. The word **'discretionary'** indicates that there is some degree of choice involved for households. Therefore, spending on such non-essential items is often classified as 'discretionary spending'. For example, between 2021 and 2022 the price of petrol increased by approximately 40 to 50 cents per litre (due in part, to the Russian invasion of Ukraine). For some motorists, this represented a significant decrease in their discretionary income. The Federal Government responded by temporarily halving the excise tax on petrol, helping to quickly increase the discretionary income of those who had little choice but to keep driving. While their disposable income (income received after income tax) may not have changed, the increase in the petrol price meant they had less to spend on non-essential items.

Other key bills paid by households that would also influence discretionary income, in addition to interest on mortgages and fuel costs, may include utility bills such as gas, electricity and water, rates and rent (for those who do not live in a home they own).

The price of substitutes

A **substitute** is a viable good or service that may be used instead of the product in question. From the consumer's perspective, this means that substitutes provide the user with a similar experience or fulfil a similar need. Remember that one of the reasons for the demand curve being downward sloping is that when the price increases, it is assumed that some customers will switch to cheaper alternatives. If a substitute becomes cheaper, and the price of the good we are analysing doesn't change, then it is assumed that demand for the original good will decrease, resulting in a shift of the demand curve to the left as consumers substitute into the relatively cheaper good. For example, tea and coffee might be seen as viable substitutes by some customers. An increase in the price of tea might therefore encourage some consumers to increase their demand for coffee, resulting in a shift of the demand curve to coffee to the right.



You will find substitutes in most product categories and whenever there is a change in the price of one of these products it will have implications for another. Some may see Fuji and Pink Lady apples as substitutes (or apples and pears). For those who prefer sugary drinks, Coke and Pepsi are substitutes, and when seeking out new trainers one might see Adidas and Nike as viable substitutes.

The price of complements

Complementary products are generally consumed together but are usually sold separately. Therefore an increase in the price of a complementary good might be viewed by the consumer as an increase in the price of the combined experience for both goods. The resurgence of vinyl (records) in the 2010s surprised many analysts, especially those in Australia who had closed down all the vinyl factories. As the price of record players continued to decrease (due to being able to produce larger volumes), this helped to generate extra demand for records. Similarly, if the price of records was to decrease, then more people may be tempted to purchase this form of media and they would need a record player to play the records. Therefore, if vinyl records get cheaper (which may happen if the producers are able to manufacture on a larger scale), then demand for records would expand and the demand for the record players might increase. In the last two years, the price of records has actually increased, which suggests that there might be a decrease in the demand for record players.

Complementary products also highlight how markets can be interdependent. For example, the increase in the price of petrol since 2022, if prolonged, will lead to a decrease in the demand for traditional (petrol/diesel driven) motor vehicles and an increase in the demand for either fuel efficient vehicles (e.g. smaller vehicles) or those powered by more renewable energy sources (e.g. electric vehicles), or even an increased demand for public transport.

Preferences and tastes

Demand may be affected by an individual's **tastes, attitudes and preferences** towards each good or service. In recent times, greater media attention has been paid to the effect of diet on one's health. This has influenced many people to increase their consumption of green smoothies (as discussed earlier). Knowledge of the product's detoxification properties, for example, could influence tastes and preferences. As a result, the demand curve for green smoothies is likely to have shifted to the right over time and more smoothies have been demanded at each price point.

As mentioned in the section on complementary goods, the recent (and somewhat surprising) resurgence of vinyl as a musical source has been driven by people who prefer analogue recordings to the perceived coldness of digital audio. Commentators have also suggested that the movement back towards analogue products is a rejection of technological advancement, while others have called it a 'hipster fad'. Either way, consumers' tastes have been affected, and the demand curve for records has shifted to the right. This has occurred despite the fact that vinyl records are often twice as expensive as the equivalent CD and significantly more expensive than streaming services such as Spotify.



Recent research highlighted the increasing role of influencers in affecting the tastes and preferences of consumers and hence their buying behaviour. People post reviews, warnings and provide advice on when to use certain products. If a post goes viral, then it could have a significant impact on the demand for a product.

When performance artists tour Australia, their music sales (both digitally and in physical form) tend to increase. Consumers are exposed to the music of the performer and the performer may become more fashionable. Going to see a music concert can influence the way the consumer considers and appreciates the music. The death of an artist also tends to have a positive effect on the demand for their art. Advertising is also designed to heavily influence tastes and preferences. Successful advertising campaigns can result in a significant shift in the demand curve to the right and could negatively impact the demand for substitute goods.

Population growth and demographic change

A **growing population** will generally need more goods and services, so it is not surprising that the production of goods and services will usually increase every year given that in most years Australia's population continues to grow. This is one reason why businesses often encourage governments to increase or at least maintain their high immigration targets. It has also been argued that Australia's relatively high immigration targets have contributed to the on-going increase in house prices as the demand for houses at each price point has increased.

The demographics of the population may also affect the range of goods and services that are sold in the market. Australia has an **ageing population** (an increasing percentage of the population are over 65) because there were more births per woman in the years between 1945 and 1965. The large increase in population at that time is referred to as the baby boomer generation. People from this generation are living longer, which means that demand for certain products increases, such as healthcare and aged care. Demand for retirement village living has also increased, with many projects selling out in a short period of time. The disproportionate number of people in this generation may skew production towards the types of goods and services that this group prefers.

A mini-baby boom that occurred in the early part of the 21st century may have contributed to the growing market for infant-related products and also created extra demand for child-care and education professionals. While 2020 saw a dramatic decrease in the fertility rate, with 1.58 births per woman being recorded, governments have responded with initiatives that are designed to boost population and participation in recent budgets. This includes the further increase in child-care subsidies and more generous paid parental leave arrangements, as announced in the 2022-23 Budget (see Chapter 10) which should once again boost demand for products in the relevant industries.

Consumer confidence (sentiment)

Consumer sentiment (also called 'consumer confidence') is a measure of households' general expectations about the future state of the economy. Consumers' expectations may affect their marginal propensity to consume (which in turn affects their willingness to save) and their willingness to take on new debt. The **marginal propensity to consume** measures the change in consumption that would result from a one dollar increase in income. If consumers feel secure about their future employment opportunities, for example, they may be more willing to bring forward purchases and go into debt to purchase items. As a result, when consumer confidence is high, the marginal propensity to consume might increase. This means that for every extra dollar received, consumers may spend a greater percentage of it. This would particularly affect the purchase of discretionary items such as a new car or a holiday. When confidence is high this is often reflected in a low savings rate across the macroeconomy. During the early stages of the COVID-19 pandemic in

is being undertaken by major franchisers to find inventive ways to expand their offerings of low-glycaemic index versions to continually broaden the size of the market.

Complementing the experience

Another factor which has driven the growth of bubble tea demand around the world has been the link between sales and the café culture. In much the same way that people like to enjoy a cup of coffee in a café setting with friends and family, bubble tea sales have increased as cafes offer this as part of their range of products. While in the café, consumers typically purchase other products (such as cakes or biscuits), so it is in the café's best interest to offer bubble tea as one of its drink options. Starbucks, for example, has tried to jump on the bubble tea bandwagon and has added a 'Raspberry Milk Tea' to its range of offerings (although the key ingredient, tapioca pearls, is missing at this stage).

Competition and prices

The increase in demand has brought with it an increase in competition. In most markets, greater levels of competition should lead to lower prices which will induce an expansion along the demand curve as the lower price makes it more affordable for some and encourage others to consume bubble tea instead of the relatively more expensive alternatives.

Questions

1. Explain how, in the market for bubble tea, tastes and preference have changed and describe the impact on the demand curve for bubble tea.
2. Define the law of demand.
3. Distinguish between a movement along the demand curve and a shift of the demand curve.
4. Explain why falling prices for bubble tea results in an expansion along the demand curve for bubble tea. In your answer, refer to income and substitution effects.
5. Explain why an increased demand for bubble tea at cafes can increase the demand for cakes and biscuits.
6. Outline why an increase in competition within the market for bubble tea exerts downward pressure on the price of bubble tea.

2.5 The law of supply and the supply curve

While a higher price may act as a deterrent to the consumer, it tends to have a positive influence on the incentives of the supplier. Each unit sold represents an increase in their revenue (which is equal to the price multiplied by the quantity for each product sold). A higher market price is therefore likely to make the supply of the particular product more **profitable**. Assume, for example, a farmer can use their land to grow a range of crops, but they have decided to focus on the production of strawberries. An increase in the price of strawberries in the market (which could be driven by a change in tastes and fashion in the market) would tend to encourage this farmer, and possibly other farmers, to increase their supply of strawberries in the market. They might be able to achieve this by using up more of their available land (which may have been used to grow raspberries, for example) or by increasing productivity. They recognise more profits are likely to be made from strawberries than any alternative use of the land. As a result, the opportunity cost of producing a product that is not strawberries has increased.

In addition, a higher output level might be associated with higher per unit costs of production. When the volume of production increases beyond a certain point, the firm's capital resources may become crowded. The production facility becomes stretched, bottlenecks start to appear and efficiency declines. As a consequence, the costs associated with each additional unit of production start to rise so the prices needed to cover the costs also increase. To encourage an increase in supply, the supplier needs to receive a higher price per unit.

Law of Supply

The law of supply indicates that there is a positive relationship between the price (the independent variable) and the quantity supplied (the dependent variable).

As the price increases, the quantity supplied increases

As the price decreases, the quantity supplied decreases

It could be argued that the law of supply is an accurate description of business behaviour because:

- a higher price received for the product represents an increase in revenue for the supplier (assuming all else remains constant);
- a higher price increases the opportunity cost of using resources to supply an alternative product; and
- to increase production, the cost per unit might increase (i.e. in this model, the marginal cost is assumed to rise).

As part of our basic microeconomic model, we have intrinsically assumed that the business operates to maximise its profits. Therefore we assume that businesses will prefer to sell products at a higher price which means that they are incentivised to increase their supply in response to a higher price.

It is useful to think about supply in terms of what prices will be required to encourage producers to supply the market with a given quantity. At the very minimum they need to cover their economic costs. There are a range of factors that affect the quantity supplied in any market, but it is assumed that these are held constant (*ceteris paribus*) for each of the different price levels when the supply curve is constructed.

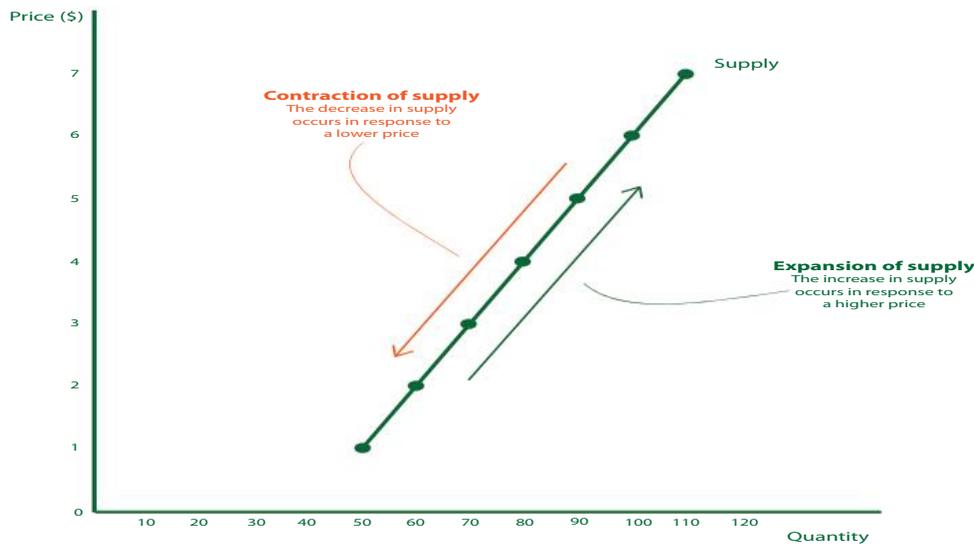
Constructing a supply curve

Table 2.3 shows the number of green smoothies that would be supplied at any given price in our hypothetical market. It is clear that the supply for green smoothies follows the law of supply. Lower prices decrease the quantity supplied and when price increases from \$1 to \$2, supply expands from 50 per day to 60 per day. Like the demand curve, the supply curve can be represented in a two-dimensional diagram with price on the vertical axis and quantity supplied on the horizontal axis. This is represented on the supply curve in Figure 2.3.

Table 2.3 Supply schedule for green smoothies	
Price (\$AUD) per 500 ml	Quantity supplied per day
1.00	50
2.00	60
3.00	70
4.00	80
5.00	90
6.00	100
7.00	110



Figure 2.3: Supply of green smoothies



The difference between a movement along and a shift of the supply curve

In a similar way to the demand curve, it is also necessary to be able to distinguish between a movement along the supply curve and a shift of the supply curve. In both cases the supply of a good or service will change, but the reasons for the change are different. A movement along the supply curve occurs when the product's price changes and this causes the quantity supplied to change. A movement along the supply curve to the left (a contraction) is caused by a decrease in the price of the good or service itself. A movement along the supply curve to the right (an expansion) is caused by an increase in the price. This can be seen when the price of green smoothies shown in Table 2.3 above increases from \$4.00 to \$5.00 - the supply will expand from 80 to 90.

A shift of the entire supply curve will occur when one of the other factors of supply have changed (i.e. not price), and, therefore, at any given price there is either an increase or decrease in the quantity supplied. If the supply curve shifts to the right, this is described as an increase in supply. If the supply curve shifts to the left, this is described as a decrease in supply.

2.6 Non-price factors that affect supply

There are a range of factors that will cause the supply curve to shift. When the supply curve is constructed, it is assumed that each of these supply factors (other than price) is held constant (the *ceteris paribus* conditions). Whenever one or more of them change, the position of the supply curve will change and a **whole new supply curve is created**.

A change in a factor of supply (also called a supply factor) will cause a shift in the supply curve. If a supply factor causes supply to increase, the supply curve will shift to the right. If a supply factor causes supply to decrease, the supply curve will shift to the left.

We have already examined the relationship between price and supply in the previous section, where higher prices indicated that more profit can potentially be made by allocating more resources to production, which prompted a movement up along the supply curve as existing producers supplied more to the market. However, the willingness of producers to supply goods to a market (in the first instance) will ultimately depend on the expectations of profit (i.e. profitability) at any given price. For example, in the case of green smoothies, once producers of other products (or entrepreneurs more generally) believe that makers of green smoothies are making large profits, they will allocate productive resources to their production. This increases the number of sellers/producers in the market and necessarily results in more supply at every given price – shifting the supply curve to the right. This is how an increase in competition, or competitive pressures (which is covered in detail in Chapter 3), can lead to a reduction in prices. Of course, the actual or perceived profitability related to any product must also depend on actual or perceived changes in the costs of production. So if the price of a product remains unchanged over any given period, and the per unit costs of production fall, then by definition the profit from selling each unit will rise and producers will be willing to supply more to the market - i.e. the supply curve will shift to the right. The non-price supply factors that students need to learn as part of the VCE Economics course are explored below.

Study tip

When trying to conceptualise the impact of a shift to the left of the supply curve, it can be useful to assume that quantities remain unchanged and then ask the following question: What price does the supplier now need to charge to justify supplying that particular quantity? The price needs to be higher at every quantity level or else the supplier will no longer be willing to supply. Consequently, this causes the whole supply curve to shift left.

Changes in the costs of production

Each good and service that is produced in the economy requires resources, which are often referred to as the **factors of production** (i.e. land, labour and capital). The position of a firm's supply curve will depend on the costs involved in making a good or service as this will influence the price the producer is willing to accept in return for the good.

Referring back to the market for green smoothies, there are a number of resources that are needed to create the end product. The drink may be made from spinach, kale and something like an apple to provide the sweetness needed to entice many customers to consider the drink. A shortage of kale, for example, could result in its price increasing, leading to a higher cost of production for the smoothie supplier. Similarly, if the price of petrol increased then each smoothie would cost more to make as it would cost more to transport the ingredients to the store. If the owner of the building charged higher rent to the smoothie business, then the smoothie producer's costs of production would increase. As a result, the supply will decrease at each given price, which is represented by a shift to the left of the supply curve. In other words, the higher costs of production reduce the willingness and/or ability of the retailer to supply at a given price. Refer to Box 2.2 for further information about the common costs that can affect the supply curve of most businesses.

Study tip

One of the biggest challenges faced by students studying supply is that they start to discuss the reaction in terms of demand. This intrinsically makes sense because most of us are consumers, but few of us own businesses. Therefore, it is recommended when analysing supply that you seek to view the question from the perspective of an individual business owner. Ask yourself how the change in a relevant factor will influence their willingness and ability to supply (at each given price point). Try, at least to begin with, to analyse this independently of any change in demand.

Box 2.2 Common costs of production

The common costs of production faced by businesses include the following:

- Wages/Salaries and other on-costs such as superannuation and WorkCover premiums
- Rent and property expenses
- Interest on loans and overdraft facilities
- Utility bills such as electricity, water, telephone/internet and gas
- Delivery costs
- The cost of technology
- The rate of depreciation of assets
- The cost of raw materials used in the production process
- Financial and insurance services
- The level of government assistance or taxes and charges
- The value of the \$AUD affects the cost of using imported components in the production process



Technological change and productivity growth

New technology is usually associated with an increase in productivity. **Productivity** measures the output per unit of input. One measure of productivity is **labour productivity**, which is measured by the total output (the volume of production) for each hour that is worked. The introduction of new and more advanced capital in the production process may result in a greater volume of goods and services produced for each hour worked. If the price of the resources used (such as labour) remains constant, this should result in a decrease in the cost per unit of output. Higher levels of productivity would therefore enable the supplier to supply more at each price level.

With reference to the market for smoothies, the introduction of robots in the production process could result in a reduction in the costs of production for the supplier (especially in the long run). With robots taking the orders, the additional costs associated with each order would decrease because the robots would not require compensation for each hour worked

Study tip

Remember that when demand or supply increases, the respective curves shift right, and when they decrease, the curves shift left. Avoid talking about moving the curves up or down.

New technology could also, over time, reduce the cost of operating a smoothie business. Electricity costs could decrease as solar technology improves and new technology could be introduced in the agricultural sector that increases the productivity of land. This could increase the supply of kale such that the supply of smoothies could increase. Therefore, technological improvement is likely to result in an increase in productivity and lower the costs of production, resulting in an increased supply at all price points (shifting the supply curve to the right).

Climatic conditions and other disruptions

Most goods and services rely upon nature for the provision of the raw materials required, either directly or indirectly. Some agricultural products are heavily dependent upon favourable **climatic conditions**. A drought, for example, reduces the availability of a key resource in the production process (i.e. water). This would decrease the availability of key resources in the production of green smoothies such as kale and spinach. This may push up their prices in the market, raising the cost of production. In some extreme circumstances, the smoothie operator may not be able to purchase as much kale as they need to meet demand, reducing the market supply of this offering.

Climate scientists predict that, as climate change worsens, there will be an increase in the occurrence of erratic weather patterns that cause disruptions to supply. Suppliers in regions affected by floods and bushfires have been significantly affected in the past and this has, in some cases, reduced supply to zero. For example, as a result of the extreme bushfires and floods over recent years, many businesses were completely destroyed and unable to supply any goods or services to the market. For example, the floods in eastern Australia over 2022 completely destroyed a number of fruit and vegetable crops in Queensland and NSW, causing farmers' costs to rise and prices to increase significantly.

Human actions and government intervention can also cause supply-side shocks. For example, acts of terrorism have disrupted transport infrastructure and added to costs for the airline and tourism industries. The Russian invasion of Ukraine caused significant supply shock disruptions in the markets for products like natural gas, oil, wheat, and other commodities. Further, state and federal government responses to the coronavirus pandemic led to significant disruptions to supply. An extensive number of businesses were unable to legally supply their goods or services due to lockdowns and other government-imposed restraints on trade. For example, the supply of haircuts, gym services, lawn mowing services

and restaurant meals effectively disappeared. In 2022, lockdowns in Shanghai made it difficult for some residents to access basic necessities like food and medicine due to a lack of supply.

Number of suppliers

In a competitive market, firms may be able to make supernormal (excessive profits) in the short run. Given that entry and exit to the market is relatively easy in a perfectly competitive market, the high profits would incentivise new firms to enter the market. When there are more firms offering goods/services in the market then the supply will increase. This causes the supply curve to shift to the right. This might not be possible in the short run because resources might need to be purchased and the businesses would have to hire new staff. In the long run, however, the entry of new firms is possible because all resources can be moved from one area of production to another. In contrast, if firms in the industry are making a loss, then some firms may choose to leave the market and search for alternative uses of their resources that are more profitable. When firms leave an industry the supply curve will shift to the left.

Activity 2c: Analysing supply

Complete the following table. For each of the markets:

1. Identify the impact on supply. Choose from the following options:
 - Expansion of supply (movement along the curve to the right)
 - Contraction of supply (movement along the curve to the left)
 - Increased supply (the curve shifts right)
 - Decreased supply (the curve shifts left)
2. Identify the relevant supply factor (price or non-price).

The first one has been done for you.

Relevant market	Change in economic circumstances	Impact on supply (expansion, contraction, increase or decrease)	Relevant supply factor
Eggs	Disease affecting poultry	Decrease	Climatic and other
Tickets to the AFL Grand Final	An increase in ticket prices		
Bottle of kombucha	A drought		
Guitars	An increase in the price of wood		
Mini Cooper Vehicles	An increase in labour productivity in the factory		
Haircuts	People are replaced by robots in the hairdressing industry		
Coffee	A frost in Brazil		
Lawn mowing services	An increase in the profitability of providing this service		
Economists' services	An increase in the HECS fees required to study Economics at university		
Petrol	The invasion of Ukraine by Russia		
Airline flights	Introduction of fuel saving technology		

To illustrate how these factors may cause the supply curve to shift, we will continue with the example of green smoothies. Let's assume that the costs of production fall by an average of \$1 per smoothie, perhaps because of lower raw material costs (e.g. cheaper fruit ingredients) or improvements in technology (cheaper and more efficient blenders). Table 2.4 below indicates that the suppliers will be willing to increase their supply of smoothies to the market at every price level. Alternatively, it means that for any given quantity of smoothies it produces, the producer is willing to supply them at a lower price (i.e. \$1 less per smoothie). On this basis, the supply schedule will change as shown in Table 2.4 below:

Table 2.4 Supply schedule for green smoothies		
Price (\$AUD) per 500 ml	Quantity supplied per day (S1)	NEW Quantity supplied per day after lower costs (S2)
1.00	50	60
2.00	60	70
3.00	70	80
4.00	80	90
5.00	90	100
6.00	100	110
7.00	110	120

Figure 2.4:
Supply of green smoothies [shift of supply curve]

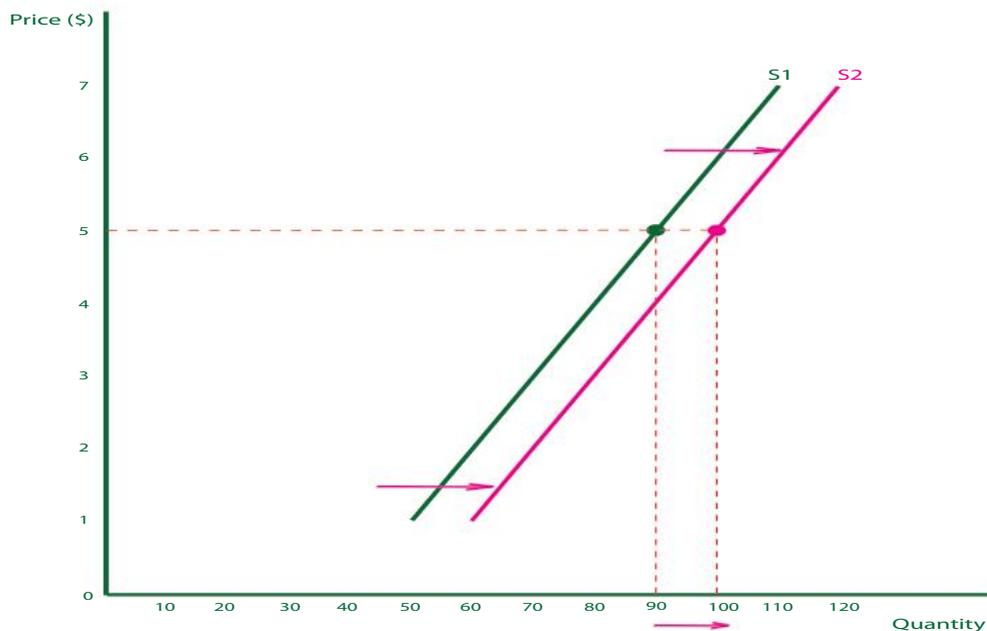


Figure 2.4 shows how the lower costs of production affects the supply curve for green smoothies. For example, at a price of \$5.00 the supply has increased by 10 drinks per day, from 90 to 100. This increase in quantity supplied occurs at every other price, which is why the supply curve has shifted to the right in a parallel fashion.

Review questions 2.5 - 2.6

1. State the law of supply.
2. Explain, to someone who has never studied economics, how and why suppliers will react to an increase in the price of the product they are considering selling.
3. Distinguish between a movement along the supply curve and a shift of the supply curve. In your answer, make reference to the terms used to describe movements along and shifts of the supply curve.
4. Identify and explain two factors that may lead to a decrease in the cost of production for cleaning services.
5. Illustrate how the decrease in the cost of production will affect the position of the supply curve for cleaning services.
6. Explain how an increase in the price of bananas might affect the supply of pineapples (assuming they can be grown on the same land).
7. Explain how climate change may be associated with changes in the supply of certain products. Refer to at least three specific products as part of your answer. (This question may require some additional research)
8. Identify two recent technological changes that are not mentioned in the text and explain how they may be associated with an increase in supply for the relevant industries.
9. Describe a factor that might encourage new suppliers to enter a market and discuss the implications for price and quantities sold.

Activity 2d: Climate change and disruptions to supply

Extreme weather events tend to have a negative effect on supply. Firms are often willing but unable to supply. Australia regularly suffers from major weather events that temporarily lead to the destruction of infrastructure and the closure of key businesses. For example, in the summer of 2020, there were devastating bushfires in Victoria that led to the closure of key transport routes, key infrastructure like electricity wires and mobile phone towers were destroyed and businesses were unable to open because they had been burnt down. Similarly, the eastern Australian floods of 2022 destroyed an estimated 15,000 homes in Brisbane (significantly reducing the ability of the city to supply accommodation services) and created widespread damage to crops and infrastructure across Queensland and NSW.



According to the government website www.climatechangeinaustralia.gov.au, extreme weather events, like those mentioned in this case study, will become more prevalent due to climate change. Droughts are expected to last for longer periods and be more severe because they will be accompanied by hotter temperatures. Floods, bushfires and other erratic weather patterns are also expected to be more devastating to the nation's ability to supply.

Climate change is therefore expected to disrupt the ability of firms to supply. The impact on food production alone is hard to predict, but climate change scientists have suggested that the major regional food bowl, the Murray Darling Basin will experience increasing shortages of water (which is essential for irrigation). The lack of a key resource, such as water, will make it increasingly difficult to supply a large number of fruits and vegetables, as well as impose supply constraints on the production of wheat and dairy products. In 2022, the Great Barrier Reef experienced its sixth mass coral bleaching event. Bleaching occurs when the animal becomes stressed from above-average water temperatures. The bleaching of the coral has impacts for the whole ecosystem. Fish and other invertebrates that rely on coral for food and shelter are now more vulnerable. This could ultimately decrease the supply of fish and the decrease in marine activity is bound to flow through to the supply of lucrative tourism services which operate in the area. Coral reefs are also a valuable source of pharmaceutical compounds, another area where supply may be negatively affected.

Responses to mitigate the effects of climate change will typically add to the costs of production for businesses (in the short run). Governments may also implement policies that seek to reduce carbon emissions (such as a carbon tax) which will also add to a firm's cost of production (either directly or indirectly). Actions taken by firms to reduce their carbon footprint may, however, lower their costs of production in the long run. The installation of solar panels, whilst expensive in the short run, will reduce the amount that the firm has to pay for each future unit of electricity consumed. In the case of insurance costs, as insurers increasingly accept that climate change events are likely to be more frequent, then the risk of claims increases and the cost of insurance policies for businesses (and households) will rise.

Questions

1. Identify and explain five different disruptions to supply that have occurred in recent years.
2. Explain how climate change might affect the supply curve for wheat.
3. Identify and explain a range of negative supply effects that arise from a bushfire or flood.
4. Explain how government and business responses to mitigate the effects of climate change might affect the willingness and ability of firms to supply.
5. Explain how business responses to climate change might result in an increase in supply in the long run.

Activity 2e: How the coronavirus affected supply

Over the last four decades, a large percentage of the manufactured goods that we purchase have been made available via sophisticated global supply chains. Raw materials and intermediate goods are shipped around the world (often multiple times) and then assembled in another country. For example, Foxconn, an electronics contract manufacturer based in China, produces for many electronics companies including Apple, Intel and Sony. The infections associated with the coronavirus are believed to have begun in China, during December 2019. The Chinese authorities responded by restricting the movement of people, imposing curfews and quarantines. This led to the closure of many production sites so that contact between people could be minimised. These closures led to a significant drop in industrial production and an associated fall in both the import of raw ingredients and intermediate products, as well as a fall in exports sold to the rest of the world. Countries that would ordinarily source these final electronics goods from China were unable to do so.



The reaction to the coronavirus by governments also played a part in the disruption to supply. For example, in the state of Victoria, only essential businesses were allowed to remain open after the Government imposed Stage 4 lockdowns. This meant that it was effectively impossible to offer a wide range of goods and services. The supply of haircuts and beauty treatments was, for example, reduced to zero in metropolitan Melbourne, as was the supply of a host of other service products, including live entertainment and dine-in meals. Social distancing laws, curfews and the fear of infection also negatively impacted on the supply of labour to some businesses. These types of disruptions meant that the supply curves for the firms shifted dramatically to the left. The coronavirus did, however, have positive effects on the supply of some goods and services. There was a marked increase in the demand for personal protective equipment such as face masks, hand-sanitiser, alcohol and entertainment services (such as Netflix). This higher demand resulted in elevated prices (and higher profitability), which encouraged existing producers to supply more to the market (i.e. there was an expansion of supply or a movement up along the supply curve). In addition, the increased profitability of these products encouraged new producers to enter the market (as the barriers to entry were low) which led to an increase in supply that is represented by the supply curve shifting to the right. For example, a Melbourne gin distillery started to make gin-scented hand sanitiser. Similarly, there were numerous examples of individuals and businesses adapting to the market and adapting their resources to produce face masks.

Questions

1. State and explain the law of supply.
2. Explain how the coronavirus might have affected costs of production in Australia.
3. Explain two ways that government responses to the coronavirus led to supply disruptions.
4. Discuss the view that coronavirus had a positive impact on the supply of some products. Research at least one industry where supply grew during this period and in your answer distinguish the movement along the supply curve from a shift of the supply curve.

2.7 Market equilibrium

The demand and supply curves have so far been considered in isolation. They have illustrated, respectively, the quantities that the consumers and firms are willing to buy and sell at each price. In order to determine the price and quantity sold in any market, the interaction of supply and demand is needed. It is this interaction that results in a market determined price, which then influences the quantity that is traded.

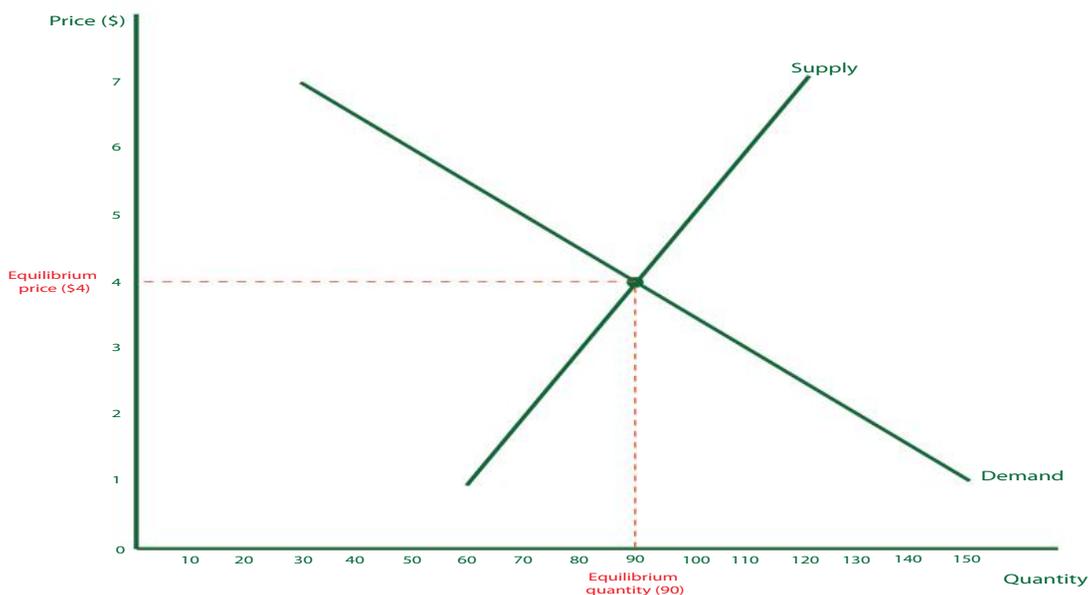
Remember that the consumer will want to obtain the good or service at the lowest price possible while the supplier will want to sell for the highest price to maximise their profits. The compromise that is reached in the market is referred to as the **equilibrium price** – the price where the quantity demanded is equal to the quantity supplied. The market therefore clears at the equilibrium price because every product that is made available for sale is sold and there is no excess demand or supply.

In Table 2.5, the demand for and supply of green smoothies is reproduced. The table shows the demand and supply schedules after the respective increases in demand (as a result of income tax cuts) and supply (as a result of lower costs of production) as outlined in Tables 2.2 and 2.4 above. The table also shows the points of disequilibrium, where the price is either above or below the market clearing level, resulting in either a surplus or a shortage of green smoothies in the market.

Price (\$AUD) per 500 ml	Quantity demanded per day	Quantity supplied per day	Surplus (+) or shortage (-)	Quantity traded
1.00	150	60	-90	60
2.00	130	70	-60	70
3.00	110	80	-30	80
4.00	90	90	0	90
5.00	70	100	+30	70
6.00	50	110	+60	50
7.00	30	120	+90	30

You will note that there is only one price and quantity at which the quantity supplied is equal to the quantity demanded. That price is \$4.00 per smoothie – which is referred to as the equilibrium price. The quantity supplied and demanded at that price is 90 smoothies per day - which is the equilibrium quantity. Therefore, at that point, the market is ‘in equilibrium’. At all other prices, there is either a **shortage** – where quantity demanded exceeds quantity supplied – or a **surplus** – where quantity supplied exceeds quantity demanded. The market in equilibrium is depicted in Figure 2.5 below:

Figure 2.5:
Market in equilibrium



When the market is in equilibrium, it is also referred to as being in a **state of rest**. In the case of smoothies, a price of \$4 will ensure that there will be neither a surplus nor a shortage at the end of every trading day. There is no pressure for the price to change from \$4 unless there is a change (or shift) in demand and/or supply such that one or both of the curves move to a new position. If this were to occur, the market would be in a temporary state of disequilibrium, with the price either being too high or too low, and surpluses or shortages would develop. Consumers and suppliers would alter their behaviour in response to the disequilibrium, which would return the market back to equilibrium.

Movement from disequilibrium to equilibrium

The market will always have a natural tendency to move towards equilibrium. When price is above equilibrium, normal market pressures will drive the price back down to the equilibrium price. Conversely, when price is below equilibrium normal market pressures will drive the price back up to the equilibrium price. Given that producers do not know precisely where the equilibrium price resides over any given period of time, it can become a process of trial and error, with producers changing prices until 'the right' price is achieved. This is often seen in fruit and vegetable markets around cities and towns, particularly towards the end of the day when impending shortages or surpluses become evident.

Price below equilibrium

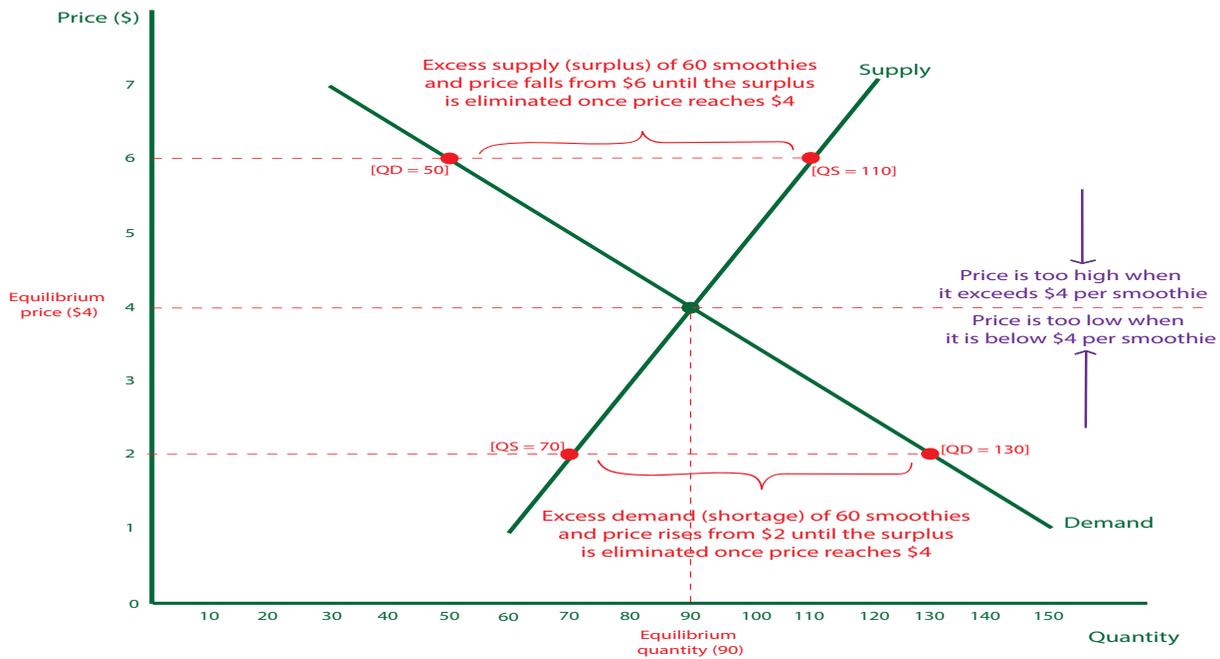
When the market price is set *below* the **equilibrium price**, such as at \$2.00 in our market for green smoothies, there will be a **shortage** of 60 smoothies per day. You will notice in Table 2.5 and Figure 2.5 above that at this low price, only 70 smoothies are supplied, but 130 smoothies are demanded, which means that only 70 smoothies will be traded at a price of \$2.00. The price may be set at this level because the suppliers have entered a new market and are trying to ascertain buyer response. They may not yet know whether the price is appropriate to clear the market. It will soon become evident to the supplier that the price they are charging is too low because they will run out of stock relatively quickly (resulting in a shortage and, hence, a missed opportunity). The supplier is then likely to take advantage of this by raising the price in order to maximise profits. In some markets, the buyers may compete with each other and offer higher prices (outbid) to obtain the scarce products. As the price of the smoothies rises, some buyers will decide to leave the market because they are no longer willing or able to purchase the smoothies (due to the income and/or substitution effects). The higher price will also act as an incentive for the suppliers to make more smoothies available to the market because it is now more profitable than an alternative use of their resources. This will be represented by movements along the demand (contraction) and supply (expansion) curves, as the price rises. The price will therefore continue to increase until the shortage is eliminated, and the quantity demanded is equal to quantity supplied at \$4.00 per smoothie. This is clearly demonstrated in Figure 2.6 below.

Price above equilibrium

If the price is initially set *above* the equilibrium price, the market will also move naturally towards its equilibrium. If, for example, the price was set at \$6.00 then the suppliers would notice that they are not generating enough sales. Table 2.5 shows that, at this high price, 110 smoothies are supplied, but only 50 smoothies are demanded, which means that 50 smoothies will be traded at a price of \$6.00. The suppliers may have overestimated the amount that people will pay for green smoothies and have set the price too high. This would create a **surplus** of 60 smoothies (quite a waste of resources), which should encourage suppliers to lower their selling price and entice new customers into the market. (This is often the motivation for stores who conduct regular sales to offload stock where prices were initially set too high.) When the price is lowered, however, it gives a clear signal to potential suppliers in the market that this product may not be as profitable as it first appeared. As a result, supply is likely to contract as the price falls and some manufacturers or retailers will decide to allocate their scarce resources to relatively more profitable areas. The price will continue to decrease (encouraging demand to expand and supply to contract) until there is no reason for suppliers to alter it, which means that the market has reached a state of equilibrium. This analysis is highlighted in Figure 2.6.



Figure 2.6:
Market in disequilibrium



2.8 The effects of changes in supply and demand on equilibrium prices and quantities traded

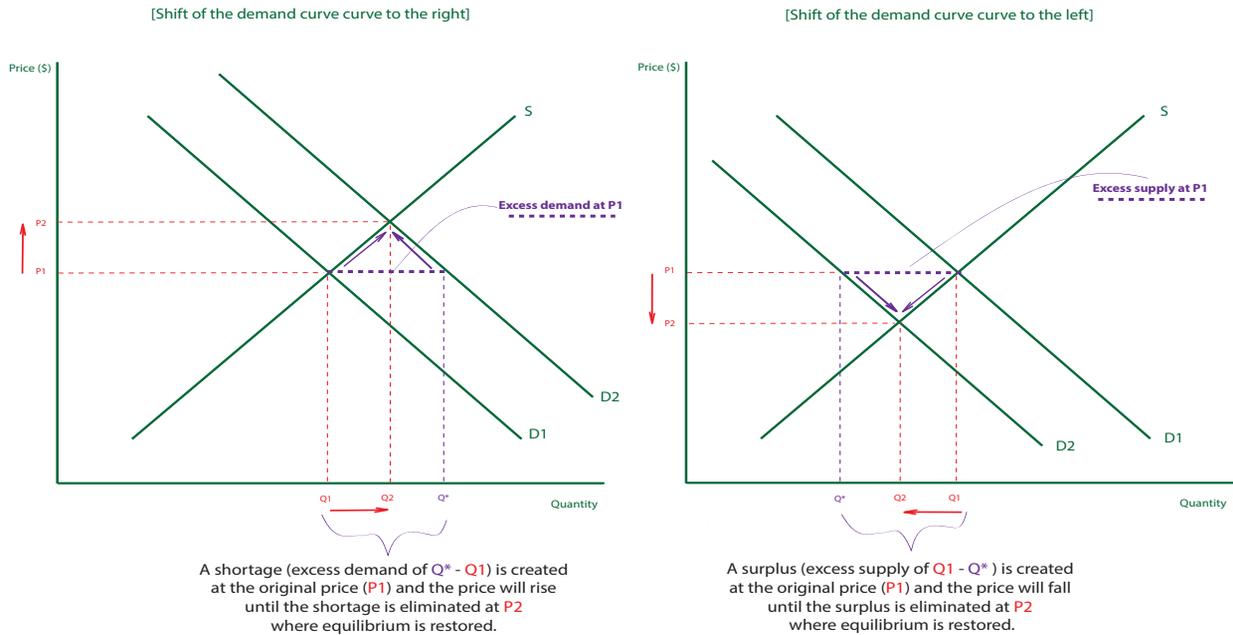
When the market is in equilibrium, there is no pressure for the price to change, unless there is a change (or shift) in the non-price factors that affect demand and/or supply, such that one or both of the curves move to a new position. Should this happen, the market will be in a temporary state of disequilibrium, with the price either being too high or too low, and where surpluses or shortages will develop. Over time, the market price will adjust to eliminate surpluses or shortages and equilibrium will be restored. A number of alternative outcomes are analysed below.

Changes in demand while supply remains constant

Suppose demand increases for green smoothies because the government undertakes an extensive education campaign to encourage citizens to eat more green vegetables. This could result in an increase in the demand for green smoothies at all price points, which is represented by a shift of the demand curve to the right. This is shown in the first diagram in Figure 2.7. The initial increase in demand causes a shortage at the original price (the suppliers may not have expected such a response from their customers). The popularity of the green smoothies may therefore encourage the suppliers to increase the price and/or the customers to compete against each other to obtain the scarce smoothies (they bid up the price). Therefore, as the price rises, the higher price alters the incentives for both the consumers and the producers. Some of the original increase in demand may contract as the price increases (some people may not be able to afford the smoothies), but the higher prices will act as an incentive to supply more, so supply expands. The end result is a higher equilibrium price and quantity traded for green smoothies.

Similarly, the demand for green smoothies may decrease. This may be caused by an increase in variable interest rates (indebted households would have less discretionary income to spend on smoothies), causing the demand curve to shift to the left. This is shown in the second diagram in Figure 2.7. When the demand curve shifts to the left, fewer smoothies will be demanded at each price level. This will initially create a surplus at the existing price and sellers may conduct a sale and lower their prices. In doing so the surplus is more likely to be eliminated. Some consumers will be enticed by the lower prices due to the income and/or substitution effect. Some suppliers will realise that the profitability of this market has fallen so will contract their supply. They may decide to pursue other, more profitable, areas of production. The new equilibrium price is therefore lower and the quantity traded also falls.

Figure 2.7: Disequilibrium caused by a shift of the demand curve

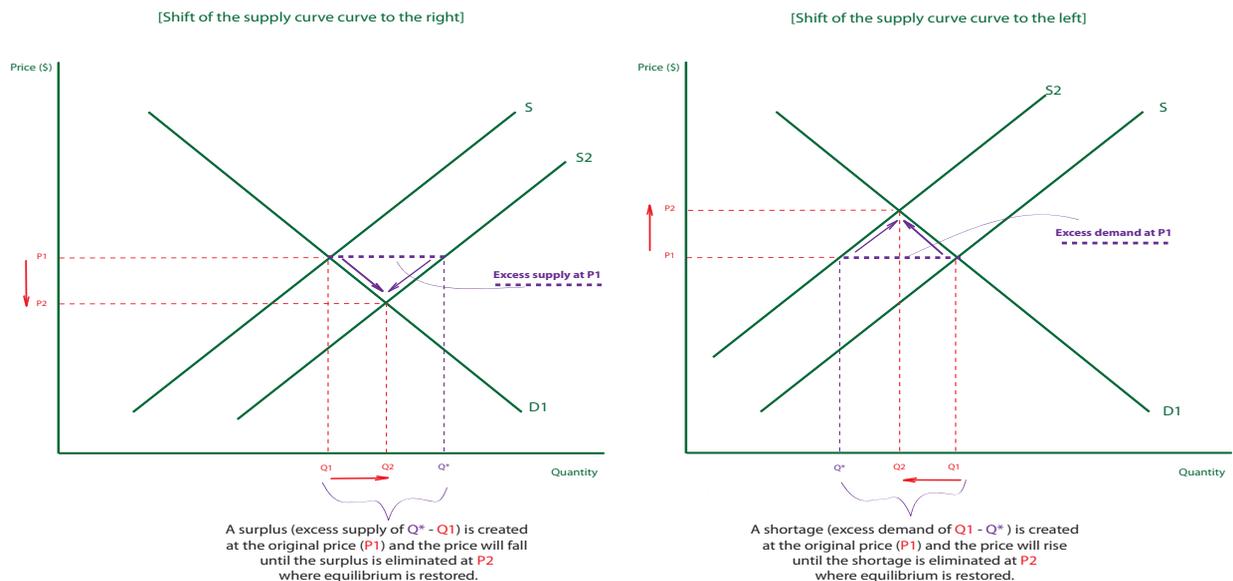


Changes in supply while demand remains constant

Supply may increase due to technological advancements, for example, that makes it cheaper to produce each smoothie. This will result in an increase in the quantity supplied at each price level and is represented by a shift of the supply curve to the right. This is shown in the first diagram in Figure 2.8. The shift to the right will generally result in a surplus of stock available at the initial price. A surplus of stock creates the need for the seller to lower the price. By lowering the price new customers are drawn to the market (demand expands) and the supply contracts because firms realise that it is no longer possible to sell the smoothies at the previously high price. The increase in supply results in a lower equilibrium price and an increase in the quantity traded.

Conversely, a decrease in supply will result in a decrease in the quantity traded and a higher equilibrium price. This is shown in Figure 2.8. An increase in the cost of oil, for example, will have an impact on most goods and services consumed. The oil is used as an input in the production of conventionally-produced green vegetables (as a component in fertiliser), as well as in the transportation of the final product to the retail outlet. Therefore, less will be supplied at each price and the supply curve will shift to the left. The shortage that is created at the initial price will affect how the producers and consumers behave in the market. It is likely that those who really want the scarce smoothies may bid up the price and some consumers will therefore leave the market as they are no longer willing and/or able to purchase the product. The shortage will also be eliminated by a possible expansion of supply as some suppliers see the added profitability from supplying more. These dynamics are summarised in Table 2.6 on the next page.

Figure 2.8: Disequilibrium caused by a shift of the supply curve



Change in demand	Change in supply	Impact on market
Increase	Unchanged	P increase, Q increase
Decrease	Unchanged	P decrease, Q decrease
Unchanged	Increase	P decrease, Q increase
Unchanged	Decrease	P increase, Q decrease

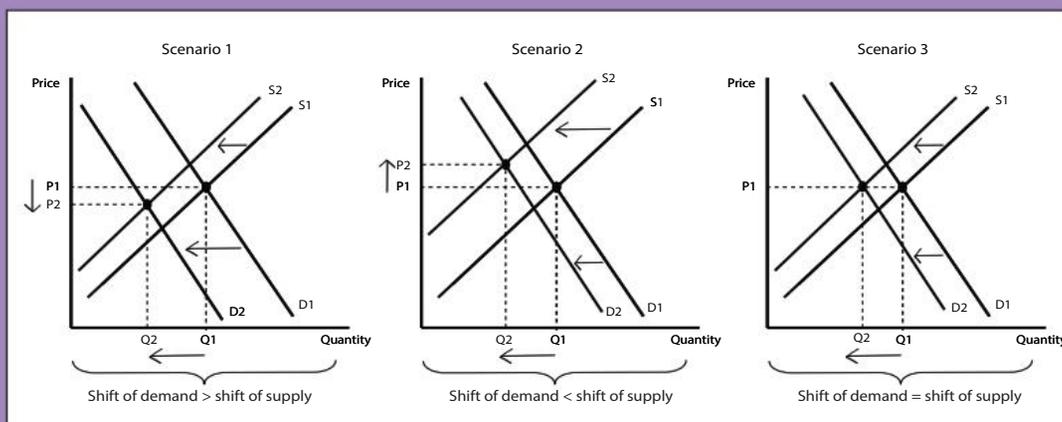
There are also four more complicated scenarios. Sometimes the factors of demand and supply can both change concurrently. This can happen when a factor of demand is also a factor of supply. For example, a decrease in interest rates will affect both the demand and supply curves for green smoothies. The lower interest rates will mean that indebted households will have more discretionary income to spend on a range of goods and services (such as green smoothies). This would shift the demand curve to the right. At the same time, the lower interest rates will tend to reduce the cost of production for firms who operate with some level of debt. [Even if firms have no debt, it reduces the opportunity cost of allocating the funds to the green smoothie business]. Their supply curve will therefore shift to the right. When the demand curve and the supply curve both shift to the right this will lead unambiguously to an increase in the quantity traded (because both demand and supply are increasing). However, the changes in demand and supply have conflicting effects on the price offered in the market. It may, at first glance, seem impossible to determine what impact this will have on the price of green smoothies. Further knowledge of the degree to which consumers and suppliers respond to changing interest rates is needed to make a meaningful prediction. The price change will therefore depend upon whether changes in interest rates will have a bigger effect on consumers or producers. At this stage, we would therefore suggest that the change in price is unknown. [Box 2.3 below includes an elaboration of possible outcomes of a scenario where demand and supply shift concurrently. It considers the relative impacts of each factor on the outcome for the market - the impact on price and quantity traded.]

Box 2.3 Shifts of demand and supply

Assume that there is a change in tastes and preferences that causes smoothies to go out of favour. At the same time, the cost of hiring labour increases. If the change in a demand and a supply factors are illustrated on a suitably labelled supply and demand diagram, both curves will shift to the left but there are three possible market outcomes:

- Scenario 1 – the demand curve shifts further to the left than the supply curve. In this case, the price will decrease, and the quantity traded will fall.
- Scenario 2 – the demand curve shifts to left by a smaller distance than the supply curve. In this case, the price will increase, and the quantity traded will fall.
- Scenario 3 – the demand and supply curves shift by a similar distance such that the equilibrium price remains unchanged and the quantity traded falls.

These three scenarios are depicted in the diagrams below.



Notice how the change in price depends upon the relative changes in demand and supply. This reflects the fact that the fall in demand places downward pressure on prices but the increase in costs of production (which reduces supply) places upward pressure on prices. Without further analysis it is hard to determine the final impact on prices. We have a high degree of confidence that given both curves are shifting left, the quantity traded will fall. Therefore, it can be concluded that the change in the quantity is negative but the change in the price cannot be definitively determined without further analysis of the relative changes in demand and supply. If faced with a scenario like the one described above, it would therefore be appropriate to state that the change in price is 'unknown'.

The four more complicated scenarios are summarised in Table 2.7. This table highlights that when both curves shift, there will be one of the two parameters (price or quantity) which is difficult to determine (expressed as ‘unknown’) and further knowledge of the individual market will be required to reach a more definitive conclusion. In reality, the predicted result may not eventuate as a number of other factors may influence how the market reacts (remember these other factors are held constant for the purposes of our analysis but in reality, they are always changing).

Change in demand	Change in supply	Impact on market
Increases	Decreases	P increase, Q ?
Decrease	Decreases	P ?, Q decrease
Increase	Increase	P ?, Q increase
Decrease	Increases	P decrease, Q ?

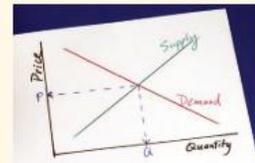
Review questions 2.7 - 2.8

1. Define what is meant by the term ‘equilibrium’. Explain why the equilibrium price is seen as a compromise between the forces of demand and supply.
2. Explain how the market for smoothies would be affected by an increase in consumer confidence and describe how the market would move from disequilibrium to a new equilibrium.
3. Explain how the market for smoothies would be affected by favourable weather conditions and describe how the market would move from disequilibrium to a new equilibrium.
4. Explain how the market for smoothies would be affected by higher interest rates and describe how the market would move from disequilibrium to a new equilibrium.
5. Explain how the market for smoothies would be affected by an increase in the minimum wage and describe how the market would move from disequilibrium to a new equilibrium.

Activity 2f: Making predictions using demand and supply diagrams

For each of the following examples, use a fully labelled demand and supply diagram to illustrate the impact on the equilibrium price and quantity. You should also provide a written explanation of your response, which makes reference to the relevant demand and/or supply factor and how the market returns to equilibrium from disequilibrium.

1. The impact of the floods on the market for lettuce.
2. An increase in the price of oil on the market for petrol.
3. An increase in the price of petrol on the market for taxi services.
4. An increase in the price of Spotify on the market for Apple Music.
5. An increase in consumer confidence on the market for BMW vehicles.
6. An increase in employment on the market for second-hand clothes.
7. An increase in the value of the AUD on the market for records (all of which are imported).
8. The impact of an economic slowdown in China on the market for Australian iron ore.
9. An increase in the price of electricity and gas and the market for heaters.
10. An increase in child-care subsidies and more generous paid parental leave and the market for baby clothes.



Activity 2g: A visit to the market to purchase Pink Lady apples

At the Queen Victoria Market (QVM) there are a large number of fruit and vegetable sellers, each selling Pink Lady apples. Consumers are able to easily compare prices between the sellers and the price paid to rent a stall is relatively low. Assume that an economist has conducted some detailed market analysis of apple sales and she has determined that the demand and supply for Pink Lady apples is as follows:

Price per kilo (\$)	Quantity demanded (kg)	Quantity supplied (kg)
\$0.50	100,000	55,000
\$1.00	90,000	60,000
\$1.50	80,000	65,000
\$2.00	70,000	70,000
\$2.50	60,000	75,000
\$3.00	50,000	80,000
\$3.50	40,000	85,000

- a. Using the above information, construct a suitably labelled demand and supply diagram.
- b. Use your diagram or the above schedule to determine the equilibrium price and quantity determined in the market.

Imagine that the QVM was featured on a high rating cooking show. This provided the people of Melbourne with valuable information about how the prices at QVM are very low and the atmosphere is ‘amazing’. This led to a change in the market outcomes in the following week as shown below:

Price per kilo (\$)	Quantity demanded (kg)	Quantity supplied (kg)
\$0.50	120,000	55,000
\$1.00	110,000	60,000
\$1.50	100,000	65,000
\$2.00	90,000	70,000
\$2.50	80,000	75,000
\$3.00	70,000	80,000
\$3.50	60,000	85,000

- c. Update your demand and supply diagram to show how the equilibrium price and quantity has changed.
- d. With reference to a relevant demand or supply factor, explain how the free promotion on the television program led to a change in the market outcome for Pink Lady apples. Make sure you describe how the market moved from disequilibrium to equilibrium.

Due to the increased popularity of the QVM, there is more competition for stall space. In response to this, the management of QVM increases the rent charged to stall holders. This results in a decrease in the ability to supply at each price level by 10,000 kg per week.

- e. Use your demand and supply diagram and/or the schedule to determine the new equilibrium price and quantity traded (assume that the other conditions in part c are maintained).
- f. Predict what might happen to the equilibrium price and quantity traded for Pink Lady apples at QVM based on the following changes in demand and/or supply conditions.
 - i. A lack of frosts across growing regions due to climate change (frosts are needed for apples to grow)
 - ii. A protest organised for the busiest shopping day of the year
 - iii. A shortage of pears
 - iv. The exemption from GST that applies to fruit and vegetables is removed
 - v. The closing of the Footscray fruit and vegetable market
 - vi. A strike by public transport workers

Extension: Organic apples are grown without the use of synthetic fertilisers, herbicides or pesticides. There are only three sellers of organic apples at the QVM. Most apples sold at the QVM are referred to as ‘conventional’ which means that artificial chemicals are used in the production process.

- g. With reference to relevant factors of demand and supply, explain why the price of organic apples is sometimes ‘twice the price paid for conventional apples.’
- h. Explain why apples sold at the QVM are generally cheaper than the price paid in the major supermarkets.
- i. Explain why the price of apples falls at the QVM at the end of each day of trading.

Activity 2h: The market for dogs during COVID-19

During the years 2020 and 2021, there was a significant increase in the price of pet dogs across Australia (and other countries around the world). Pure breed dogs such as Schnauzers, French Bulldogs and Pugs became increasingly fashionable. Dogs, which sold for \$2,500 two years prior, were priced above \$5,000 (and in some cases \$15,000). It is predicted that the prices should fall from their peaks after the ending of lockdowns and breeders face more certainty.



Breeders from across Victoria reported that during the lockdown period, the demand for puppies had ‘gone through the roof’. The Australian Association of Pet Dog Breeders said that there had been a huge jump in demand for small, apartment-friendly dogs and dogs that are low allergy. The inability to travel and the long periods spent at home meant that many people felt more equipped to raise a puppy and then look after the dog for the rest of its life. This influenced the demand factor, tastes and preferences, resulting in a shift of the demand curve for puppies to the right. Low interest rates might have also influenced the demand for puppies, as the costs associated with borrowing were significantly reduced in 2020/21. With most home loans in Australia being offered with variable rates, the amount required to service existing loans fell, leaving more (discretionary) income available for the purchase of other items, such as a new dog. During the pandemic years, households also accumulated savings, some of which might have been allocated to the purchase of a new puppy.

As noted, it is predicted that prices should start to fall from their COVID-19 peaks. As people return to work and travel opportunities increase there is likely to be fewer people who feel that they have the time or inclination to look after a pet. One of the negative consequences associated with the rapid increase in demand was the increased number of dogs who had to be subsequently abandoned. Some dog shelters in Victoria reported that they were operating at full capacity. Some previous owners underestimated the time and money required to properly care for their pet.

The growth in dog prices was also linked to the decrease in supply. In November 2017, the Victorian Government amendments to the Domestic Animals Act led to the banning of puppy sales in pet shops, closing off a major link in the supply chain. The legislation also placed a limit on the number of female dogs that a breeder could keep and the number of times the dog could have puppies. This reduced the viability of so-called puppy factories, resulting in many of them moving interstate. Those wanting to purchase a dog may have, in the past, ordered the dog from interstate, but with border closures these types of transactions were more difficult to coordinate. The laws failed to completely eliminate illegal activity which may also help to explain why increasing numbers of dogs have been abandoned.

The case study highlights how changes in non-price demand and supply factors can affect the equilibrium price and quantity of certain dogs. Some breeds still face ongoing shortages, which is highlighted by their long waiting lists. The predicted fall in prices may be associated with the reduction in demand – many people have returned to work and have more capacity to travel. It might also be an indication that many people who wanted a dog, have already purchased one (so the market is saturated). Rising costs of living associated with high inflation rates and higher interest rates may also curb the demand for dogs. Puppy breeding is a business and the breeders need to at least cover their costs of production. To raise a healthy puppy so that it can later be sold,

the breeder needs to pay for high quality food and preliminary vet checks. Other costs include registration and association fees, building the accommodation for the animals and the costs associated with looking after the puppies' parents. With the increase in the numbers of dogs ending up in pounds, there could be an increase in supply. Buyers also need to be aware that some of the dogs are coming from backyard breeders who fail to meet the legal requirements – but these dogs do add to the supply available.

The increase in the sales for pet dogs has also had positive flow on benefits to those offering complementary goods and services. Dog grooming businesses are thriving, and pet shops are experiencing increased sales of food, toys and other items such as bedding. The higher price of dogs may have also influenced some consumers to purchase a cat, because they are, on average, cheaper than most dogs.

Questions

1. Identify and analyse two factors that contributed to a shift of the demand curve for pet dogs to the right.
2. Identify and analyse two factors that contributed to a shift of the supply curve for pet dogs to the left.
3. Construct a suitably labelled demand and supply curve to illustrate and explain how the prices of dogs have increased.
4. Explain how the increase in the demand for dogs may have affected other markets. In your answer, refer to complements and substitutes.
5. Explain why the rise in the price of dogs may be temporary. Use a demand and supply diagram to illustrate what might happen once the coronavirus pandemic has passed.

2.9 The effect of relative prices on resource allocation

Resource allocation is the study of how the factors of production such as land, labour and capital are directed towards the production of goods and services to meet the needs of households, businesses, governments and other economic agents. An exploration of resource allocation is intrinsically linked to the three basic economic questions considered in the Chapter 1.

Economists are interested in **'What'** goods are produced. Therefore, they want to know where the resources are being directed in terms of production. For example, we may want to ask the following sorts of questions:

- Why is Australia using its labour resources to produce mineral exports rather than to manufacture cars?
- Why have some of our scarce resources been moved from mining to more service-based industries in recent years?
- What will happen to the allocation of resources as the earth's climate systems become increasingly disrupted?

Study tip

Most markets in Australia are interconnected. It is possible to make links between seemingly unrelated markets if one is prepared to investigate far enough. For example, any change in one market will affect labour and other factor markets for substitutes and complements as well as financial markets.

Economists may also be interested in **'How'** resources are being used in the production process. In a free market, it is assumed that self-interested firms (who are motivated by profit) will try to minimise their costs of production and offer the best product they can in their chosen market. This may mean that they seek the most efficient way to convert their land, labour and capital into the end product. We might consider the following:

- How will scarce resources be allocated in response to perceived changes in labour market conditions in the future?
- How will the invention of more sophisticated artificial intelligence affect the mix of labour and capital in the production process?
- How can community pressure and the buying decisions of consumers influence the methods of production employed by firms in a country?

Finally, economists will look at how the products that are made are ultimately distributed in the economy - in other words, **'Who'** gets to enjoy the goods and services that are produced. In a purely market capitalist economy, markets will typically allocate resources to those who are willing and able to pay. Given that no economy in the world is completely market capitalist, it is not surprising that the predictions that may be made by our model may not eventuate. However, in a country like Australia, the market mechanism is a very useful model that can provide consumers, businesses and other economic observers with the capacity to predict changes in prices and quantities (as well as explain retrospectively why these parameters may have changed). With respect to this question we may consider:

- What influences the wages paid to different professions?
- How does the scarcity of labour affect the allocation of the world's scarce resources?
- How do the buying decisions of the very wealthy affect the ability of low-income earners to access necessities?

Markets are able to reveal information about individual and collective preferences because consumers willingly exchange their income for those goods and services that they believe will maximise their wellbeing. These buying decisions are very instrumental when it comes to the way a nation allocates its scarce resources. The ability to make free choices

provides a signal to producers regarding what consumers value, their priorities and preferences. Ultimately, the price of any good or service is determined by the buyer's willingness to pay (demand) relative to its availability (supply). The price is therefore used to ration scarce goods and services to the point where the market will allocate resources to the highest 'end use'.

Across the economy there will be a set of prices for every good or service that is offered for sale. Economists are not only interested in the price of individual goods and services but also **relative prices**. The relative price is seen as the price of any one good or service measured in terms of the price of another good or service. This usually involves dividing the price of one good by the price of another. It is therefore a measure of opportunity cost (which was discussed in Chapter 1), as the relative price of one good can be expressed in terms of what is given up to obtain the other. For example, if the price of Vitamin Water is \$2.50 per bottle and the price for a green smoothie is \$5 (the new equilibrium as determined in our earlier example), then the relative price is $\$2.50/\5.00 or 1:2. For every green smoothie that is purchased, the consumer foregoes the opportunity to purchase and enjoy two bottles of Vitamin Water. Alternatively, for every bottle of Vitamin Water that is purchased, the opportunity cost is 0.5 green smoothies.

Markets are usually dynamic places and, as we have seen earlier, the factors of demand and supply frequently change, so the relative price could change at any time. For example, if the costs of producing Vitamin Water fall, leading to a fall in the price to \$2, the relative price becomes $\$2/\5 ; a new ratio of 1:2.5. Therefore, to obtain one green smoothie, the consumer must now give up 2.5 bottles of Vitamin Water. Even though the price of the smoothies has remained unchanged at \$5, it has become relatively more expensive in terms of the price of what else could be bought (a substitute). The demand curve for green smoothies might therefore shift to the left, contributing to a decline in sales. The resources used to make smoothies will therefore be shifted elsewhere.

With respect to the question of **what to produce**, an economy that relies on the market or price mechanism will generally allocate resources to those goods that are in high demand. When the relative price of a good or service increases due to an increase in demand (and/or a decrease in supply), this sends a clear signal to economic agents. A supplier may see the price movements and decide that it is now more profitable to use their resources to produce that good or service. Consumers are therefore said to be the main driver of resource allocation in the market-based economy. For example, the large increase in the price of oil during 2022 caused people to look for cheaper forms of transport. This resulted in an increased demand for EVs -electric vehicles (the demand curve shifted right) and created a shortage of EVs at the existing price (waiting lists were up to twelve months). The shortage may have encouraged some potential buyers to bid up the price and existing suppliers will have taken the opportunity to raise the price. The price of EVs has now risen relative to other forms of transport (such as petrol cars), which indicates that this is an area of production providing greater profit opportunities. Producers are therefore likely to allocate more land, labour and capital to the production of EVs. At the same time, the higher oil prices encourage suppliers to increase exploration and the development of new methods of oil extraction, as well as incentivising investment into alternative energy sources, such as hydroelectricity and biofuels. [See Box 2.4 for examples of relative prices and resource allocation in the energy sector].



The price mechanism describes how the forces of demand and supply determine relative prices of goods and services, which then ultimately determine the way our productive resources (e.g. labour and capital) are allocated in the economy.

The price mechanism will also influence the second fundamental economic question of **how to produce** the good or service. Generally speaking, a business will seek to maximise its profits by minimising its costs and selling the good or service at the highest price possible. The competitive market will ensure that resources are used as efficiently as possible so that producers can offer their product at the most attractive price to the consumer. When the price of one resource increases relative to the price of another, this may influence firms to change the way they produce their goods and services (and in the process alter the allocation of resources). For example, if unions are successful in raising wages of unskilled labour, this increases the price of labour, relative to capital, and may cause some substitution out of using labour and into using capital in the production process. The relatively high price of labour (when compared to capital) offered to unskilled labour in Australia, may have encouraged the supermarket industry to implement self-serve checkouts, which decreases the need to hire as many workers. Higher labour prices in Australia have also encouraged many firms to shift their manufacturing (and sometimes service) activities to countries with cheaper labour. For example, most clothes and technology products are not made in Australia because the relative price of labour is too high and resources are allocated to alternative products where the value-added might be higher.

Similarly, the price mechanism will effectively allocate resources within factor markets themselves, with changes in the relative prices for factor inputs sending clear signals to the owners of these resources about how best to use their resources in production. For example, in **labour markets**, the shortage of engineers over recent years has resulted in a higher price for engineers (i.e. the salary or remuneration), relative to the price for other professions, which has sent a signal to people, such as university entrants, that a career as an engineer is relatively more lucrative. This is likely to lead to a greater allocation of labour resources to this particular section of the labour market. In other words, there will be greater supply of engineers to this market as the price (or wage) of engineers has increased relative to the price offered in other professions. Again, the price mechanism has facilitated this movement of (labour) resources from one activity to another.

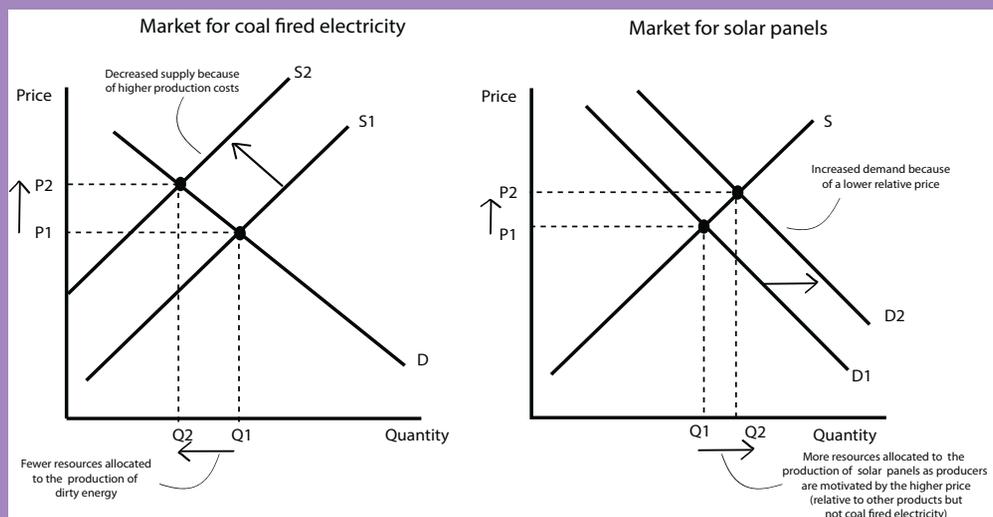
The answer to the third fundamental question of for **whom to produce** is determined by the potential consumers' willingness and ability to pay. Resources will usually be allocated to the production of goods and services that are demanded by the consumers, but some consumers will be able to access more goods and services than others. More land, labour and capital resources may therefore be devoted towards satisfying the material needs of the high-income earners in our society because they can afford to purchase more goods and services. Therefore, the relative wages of different professions will ultimately influence who gets to consume the resources available in a country (or the world at large). In a free market, this could mean that a large section of the population live without access to basic needs and could live below the poverty line. For example, there is an increasing number of Australians who do not have access to affordable housing. The inability to earn enough income in the market system significantly reduces their capacity to obtain a loan or successfully apply for a rental property. The activities of investors in the market (which have contributed to significant increases in prices) have also made it more difficult for people from younger generations to purchase a property.

Generally speaking, those goods and services that are profitable to produce in a competitive market will be produced and those that involve making a loss will not. However, governments will intervene to promote what is perceived to be a more efficient allocation of resources if there is evidence that the market has failed. Some of these instances are investigated in Chapter 3. The government will also reallocate resources when equity in the distribution of income is not achieved. This is based on society's preferences to support those who may not have the ability to achieve a dignified standard of living.

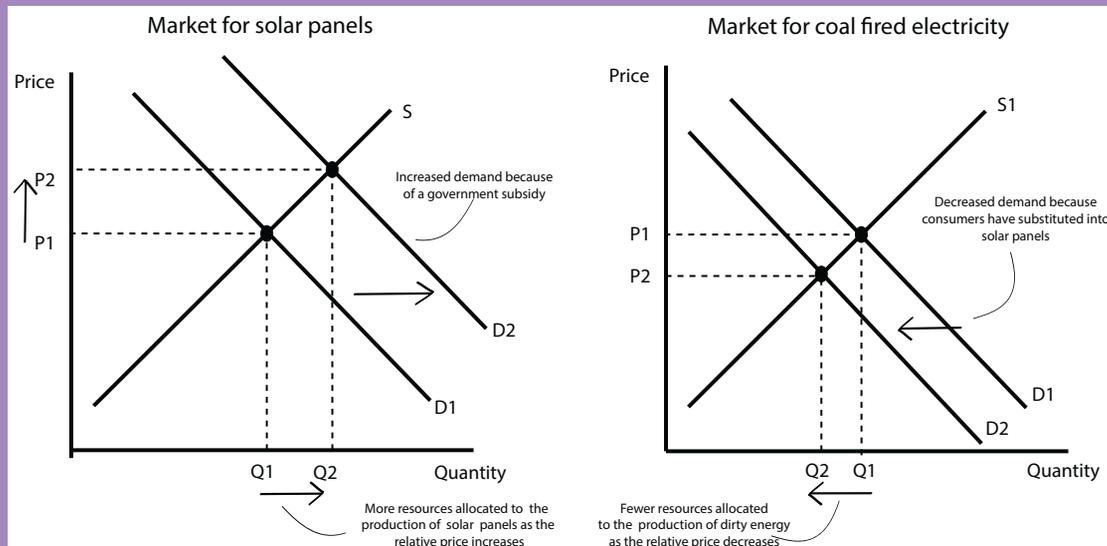
Box 2.4 Examples of relative prices and resource allocation in the energy sector

The introduction of the carbon tax from July 2012 (albeit for only two years) also influenced the structure of relative prices. The carbon tax was imposed on the country's largest carbon emitters and it resulted in an increase in the price of carbon intensive products, such as electricity produced at coal-fired power stations. The supply curve for coal-fired electricity shifted to the left, and the price of coal-fired electricity increased relative to the price of installing solar panels. This then raised the demand for solar panels (shifting the demand curve to the right) and resulted in a higher equilibrium price for solar panels. As a result, producers noticed the higher 'relative price' of solar panels (compared to other goods that they might wish to produce), and allocated more resources to the production of solar panels. The higher price of electricity generated from coal led to a contraction along the demand curve for coal generated electricity and less coal resources were ultimately utilised within Australia to make electricity.

Interestingly, a carbon tax (or carbon pricing more generally) both increases and decreases the relative price of solar panels, providing important signals to economic agents and helping to explain why and how resources are allocated in response to price signals. First, the relative price of solar panels will fall when compared to coal-fired electricity, encouraging demand to move away from the carbon intensive form energy production of burning coal, and toward less carbon intensive forms of energy production. Resources will therefore shift out of the production of coal-fired electricity. Second, the relative price of solar panels will rise when compared to other products (because the increase in demand will cause shortages at the original price), resulting in more resources flowing to the production of solar panels. After a period of time, the price of solar panels will again fall, because the larger market encourages both new suppliers to enter and the development of better technology to make the panels. This change in resource allocation is summarised in the diagrams below.



In 2018, the Victorian Government introduced a new subsidy scheme for middle and low-income households, offering to pay for up to half of the purchase price of solar panels or storage batteries. This changes the allocation of resources, as the subsidy (subsidies are considered in detail in Chapter 3) reduces the amount that consumers will need to spend on purchasing solar panels and causes the demand for solar panels to increase at the expense of coal fired electricity (i.e. consumers substitute away from coal fired electricity and into solar panels). The higher demand for solar panels causes the relative price of solar panels to rise and encourages producers to allocate more resources to their production. The lower demand for coal fired electricity would eventually see fewer resources allocated to its production over time. This change in resource allocation is summarised in the diagrams below.



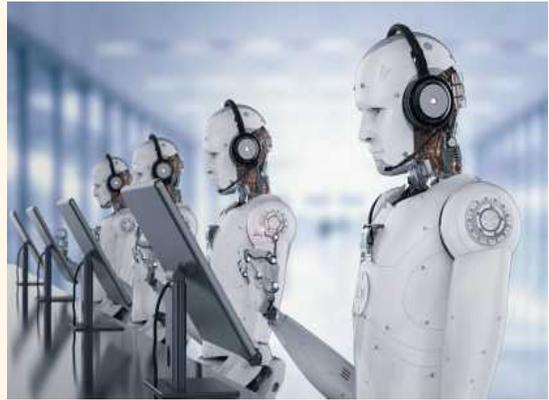
[Note: that normal sloping demand curves have been drawn for ease of illustration but in reality the curves are likely to be steeper (see 'price elasticity of demand' later in the chapter). In addition, to simplify the analysis, the original starting price for solar panels and coal fired electricity is assumed to be the same at P1.]

Review Questions 2.9

1. Explain how the market might answer the fundamental economic question of 'what to produce'. Make reference to the role of relative prices in your response.
2. In a competitive market, relative prices play a very important role in allocating scarce resources. With reference to a particular example, explain how an increase in demand has resulted in a change in relative prices and how this influenced the change in resource allocation.
3. Explain how the price mechanism will cause a reallocation of labour resources in the event that there is a shortage of economists.
4. Explain why reliance on the price mechanism will often result in an unequal distribution of income and therefore access to the goods and services that are produced.
5. With reference to a specific example, explain how an increase in supply of a particular product may result in a change in the allocation of resources in that particular market.
6. Consider the example you provided in Question 5. Explain how another (alternative) market may be affected by the change in supply you described.
7. With reference to different markets to those discussed in questions 5 and 6, explain how a decrease in demand for a particular product may affect the allocation of resources in that particular market.
8. Based on the example provided in Question 7, explain how an alternative market may be affected by the change in supply conditions.
9. Australia is currently experiencing a period of below average wages growth. Explain how this might be linked to the relative price of capital, the rate of unemployment and the price of labour in other nations.
10. With reference to a specific market(s), explain how an increase in demand may affect a factor market(s).
11. Explain why a competitive market is likely to promote allocative efficiency.
12. Explain why a competitive market is likely to promote technical efficiency.
13. Explain how changes to relative prices play an important role in answering the three basic economic questions.

Activity 2i: How artificial intelligence might affect the allocation of resources

Artificial intelligence is sometimes described as machine learning. It indicates that in the future, machines (capital) will be able to increasingly complete tasks that once required physical and mental effort by humans. In particular, the machines may get better at tasks over time. They can and will consider their operating environment and make adjustments that maximise their preferred outcomes (such as production).



Research and development in the area of AI has resulted in a number of significant developments and many expect that driverless cars will be seen on our roads in the next five years. This, in itself, is likely to see a dramatic change in the way labour resources are allocated. When a company hires a driver (to drive a bus or taxi for example), they need to pay them a wage or salary and the worker will have a physical limit to how long they can work. With the advent of driverless cars, such companies will be able to maximise their profits by reducing their demand for labour. Cathie Wood from UBS estimates that this could reduce the average cost of a trip to the airport from \$50 to \$10. This could have significant impacts on the transport decisions made by consumers. It is possible that these changes could result in fewer people using public transport or paying for parking services at the airport.

The introduction of driverless cars may also have flow on effects to other areas of production. The US Department of Transport predicts that driverless cars will reduce the number of fatal road accidents by up to 94%. They argue that accidents are caused by human error and that the intelligent vehicles will not suffer from lapses in concentration and irrational behaviour. With fewer accidents on the road, there will be decreased demand for panel beaters and fewer resources will need to be allocated to replacement parts for those vehicles damaged in accidents. The reduction in accidents could also reduce the demand for hospital services as fewer people require medical attention. This could mean that future societies won't have to allocate as much of the government's budget to healthcare spending. The reduction in accidents could also reduce the price of car insurance - which is based, inherently, on the probability of an accident occurring and the expenses associated with compensation.

The farming industry is also likely to experience dramatic changes due to the adoption of artificial intelligence in the production process. New 'smart' harvest machines will reduce the need for labour resources and farmers will be able to monitor their crops or livestock remotely.

Economic theory would also suggest that, with falling demand for a vast range of labour services, the equilibrium wage will fall. Those who are able to maintain their employment will face increasing competition from those who have similar skills and from artificial intelligence.

The predictions made by those researching the advances in AI point to a revolutionary change in the way goods and services are produced and significant modifications to the way economies answer the three basic economic questions. Humans may still demand natural products like food and water but households and businesses are also likely to want to purchase more labour saving devices. The real changes are likely to occur with respect to the question of 'how to produce' as businesses, acting to maximise their profits and maintain competitiveness, will look for machines that can help to lower their costs and introduce better, less wasteful production techniques. Futurists seem to disagree about the 'for whom' question. If the demand for labour resources shrinks and work, as we currently know it, is completed by machines, how will people earn an income so that they can purchase all of the goods and services that are being made with the machines? One suggestion, which is the focus of much discussion around the world, is a universal basic income (UBI) whereby all people might be paid a minimum amount per week or month so that they can live above the poverty line, regardless of their employment status. Other experts suggest that complex tasks that require emotional intelligence will be harder to replicate and will therefore give people with those skills a competitive advantage.

Questions

1. Distinguish between labour and capital resources.
2. Explain how the introduction of artificial intelligence may reduce the cost of production for firms and affect how they answer the key economic question of 'how to produce'. Make reference to specific examples.
3. With reference to the use of vehicles in the production process, explain how artificial intelligence could result in a significant change in the allocation of resources in the economy. Extend your analysis beyond the car industry.
4. Explain why a large number of workers might find it difficult to achieve a pay rise in the future. Ensure you use demand and supply analysis in your answer.
5. Research another area of artificial intelligence and explain how changes in this area may affect the allocation of resources. Again, use demand and supply analysis and reference to relative prices in your answer.

2.10 The meaning and significance of price elasticity of demand

The demand curve shows the relationship between various possible prices of a particular product and the quantities that buyers are willing and able to purchase at each of these prices. The law of demand suggests that consumers will respond to a lowering of price by purchasing more of the good or service in question.

Economists are also interested in the degree to which demand changes following a change in price. This can be studied by looking at the concept of elasticity, which considers the **responsiveness** of a change in one variable to changes in a factor that affects that variable (usually expressed as the relative percentage change in each of the variables).

Price elasticity of demand (PED) measures the responsiveness of the quantity demanded of a good or service to a change in price of that good or service. It can be calculated using the following formula:

$$\text{PED} = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

By making reference to percentage changes in the calculation of the PED, we can compare the degree of responsiveness across different types of goods and services. It also allows for comparisons of the PED across different countries (and regions within countries) for the same types of products. When the PED is calculated, the value will generally be negative (because the relationship between price and quantity demanded is inverse). For simplicity, this negative sign is usually ignored and the PED will take on a value between 0 and ∞ (infinity).

High PED (elastic)

A product will have a **high PED** if the absolute value is greater than 1. In this situation, the percentage change in quantity demanded will be greater than the percentage change in price. A demand curve where the PED is high would be one that is relatively flat. [See Figure 2.9.]

Low PED (inelastic)

The product will have a **low PED** if the value is less than 1. In this situation, the percentage change in quantity demanded will be less than the percentage change in price. A demand curve where the PED is low would be one that is relatively steep. [See Figure 2.9.]

Medium PED (unit elastic)

In some cases the percentage change in quantity demanded and price may be **equal**. This is called **unit elasticity** because the elasticity value will be exactly 1. [See the middle diagram in Figure 2.9.]

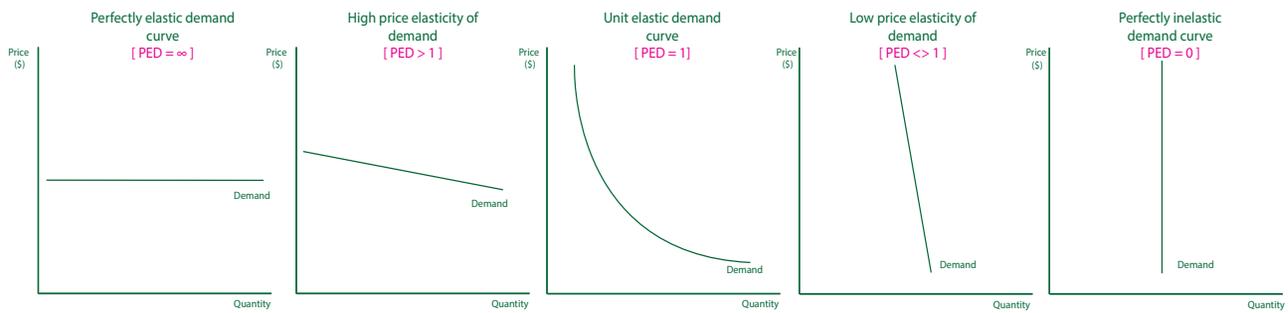
Box 2.5 Price Elasticity of Demand and Pricing

One way of telling whether a product has a high or low price elasticity of demand (PED) is to look at what happens to the total revenue that results from a price change. If a price increase results in an increase in total revenue then the product will have a low PED (that is less than 1). This is because the percentage increase in price will outweigh the percentage that is lost in quantity demanded. A good with a high PED will be one where a decrease in price will result in an increase in revenue. The response of increased demand will outweigh the decreased price, resulting in greater revenue. [That is, overall revenue ($P \times Q$) will increase.]



If a product has a low PED it does not generally mean that consumer demand is completely unresponsive to changes in price. A perfectly inelastic demand curve, however, would be vertical, as demand in this situation would be completely unresponsive to changes in price. A perfectly elastic demand curve would be horizontal as the smallest percentage increase in prices would result in a complete loss of sales. [Consider for example a highly competitive market like the QVM, where there are a very large number of sellers with homogenous products for sale, such that any attempt by one seller to increase the price will result in a complete loss of sales of their product.]

Figure 2.9: Price elasticity of demand



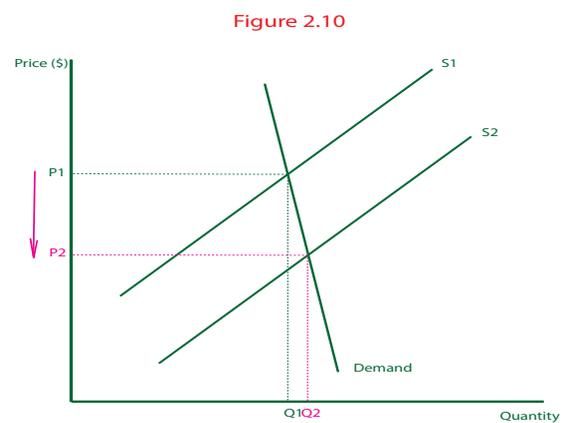
The significance of PED

The PED is an important measure for those involved in making **business decisions** and for the government. Business owners would usually prefer to operate in an environment where the goods they sell have a relatively low PED (especially if they have some degree of control over the setting of prices). From their perspective, any percentage increase in price would be associated with a smaller percentage decrease in demand. The overall impact of this is an increase in revenue for the business. Businesses will therefore seek ways to lower the PED on their products. This does not mean, however that they can continue to increase their prices. At some stage, the PED will move above one and it will no longer be feasible to increase prices because, at higher prices, consumers tend to become more responsive to price changes.

The PED of a product also influences the types of goods that may be indirectly taxed and who pays most of the tax (the consumers or the producers). The government knows that if they place an indirect tax on a product (such as cigarettes), this will result in a decrease in supply (shifting the supply curve to the left) and causing an increase in the equilibrium price for cigarettes. While the government appears to be concerned about cigarette smoking, the impact on demand may be minimal (especially in the short run) because cigarettes have a low PED. The low PED means that they generate the highest possible tax revenue from this activity because the imposition of the tax has a relatively smaller percentage effect on the quantity demanded (or sold) in the market.

When products with a low PED are taxed, the burden of paying the tax will fall more heavily on the consumer. The business knows that they can get away with passing on most of the tax to the consumer without too much loss in revenue. If the product had a high PED, it would be much more difficult to pass on the cost of the tax to the consumer because businesses would suffer a much larger percentage decrease in sales.

In some cases, operating in a market where the product has a low PED can be detrimental. For example, primary producers are often faced with unpredictable weather patterns that can affect the supply of their products. If there were favourable growing conditions, then farmers across the country could grow and offer for sale a large volume of produce. This would be represented by a shift of the supply curve to the right as shown in Figure 2.10. This might, however, lead to a decrease in total revenue. In order to sell the extra food, the farmers may have to accept the fall in market prices. The low PED means that if the farmers lower the price, they may not see a significant boost to sales (because there is only so much food that people are willing and able to eat). They may be able to sell their products into world markets, but if the whole world also has excess supply then farmers' incomes are likely to fall. Figure 2.10 illustrates the minimal increase in demand caused by a favourable change in weather conditions (resulting in the supply curve shifting to the right). Notice how significantly the price has to fall to clear the market - it clearly falls by a larger percentage than the growth in demand.



This can have implications for the whole economy. If an economy exports a large volume of goods and services in the primary sector, for example, then the revenue from export sales can fluctuate significantly. For example, Russia's invasion of Ukraine in 2022 decreased the world supply of key energy resources such as liquefied natural gas (LNG) and coal. This resulted in a significant increase in their respective prices. Both of these commodities are key exports for Australian companies - therefore the increase in price at the time, led to a smaller percentage decrease in the quantity demanded, meaning that alternative suppliers from around the world, including Australia, were able to increase their total revenue.

2.11 Factors affecting price elasticity of demand

The following factors will affect whether the demand for a good or service has a low or a high PED: The degree of necessity, availability of substitutes, proportion of income, and time.

The degree of necessity

Goods and services that are deemed to be **necessities** will usually have a low PED (less than 1), whereas luxury products will have a higher PED. Consumers usually have less choice when it comes to the purchase of a necessity, because, by definition, it is linked to survival. If the price of bread increased, for example, the quantity demanded would decrease, but by a smaller percentage than the increase in price, as bread is a staple (and perhaps a necessary food item) for most households. Similarly, if a person is a diabetic, they are unable to decrease their consumption of insulin if the price increases. Therefore, both products would have a low PED.

Study tip

Although a low PED will result in a less-than-proportional decrease in the quantity demanded of a product when the price rises, it is important to remember that there will still be some decrease in demand, unless the product has a perfectly inelastic PED. Students should avoid making statements such as 'even if the price increases, people will still buy the same amount' – as this is rarely true. The law of demand still applies meaning that when price increases, some members of the public will no longer be able to afford the relevant good or service (or they will be enticed by a relatively cheaper substitute).

Addiction can also turn a seemingly discretionary item into a good with a low PED. The addicted person will perceive the product to be a necessity and make their buying decisions without much consideration of the price. As a consequence, any price increase will usually be associated with a proportionately smaller drop in quantity demanded. This is evident in the markets for cigarettes and alcohol, which helps to explain why governments generate a significant amount of tax revenue when these products are sold.

Luxury goods on the other hand can be foregone more easily because, by definition, they are not necessities (they are considered to be items of discretionary spending). If the price increases, there is likely to be a greater percentage reduction in the quantity demanded. For example, Warren Buffet has often urged investors to steer clear of investing in the airline industry. One reason for this recommendation is that airline travel tends to have a high PED (especially when it comes to recreational travel). When oil prices were high, airline operators charged their customers a fuel levy. This consequently raised the price of a trip. With a high PED, this would have led to a more than proportionate decrease in the demand for airline travel and reduced the firms' profitability.



Availability of substitutes

Products that have a large number of viable **substitutes** will tend to be associated with a higher PED (greater than one). If substitutes are available, consumers are likely to switch to a close substitute quickly, when the price of a product rises. At a highly competitive fruit market, like the Queen Victoria Market, the price elasticity of demand for each orange would be very high. If one stall holder increased their prices by a small percentage, they may find that they lose a much larger percentage of sales (in a perfectly competitive market, their sales would fall to zero). Consumers would be able to compare prices easily, and there would be a multitude of suppliers to whom the consumer could turn to quickly and easily. This is also a key reason that insulin has a low PED, as there are no viable substitutes.

Activity 2k analyses the role of advertising in influencing the viability of substitutes. Effective advertising will decrease the viability of competitors' products since it promotes the idea that the product being advertised is unique, and therefore has few substitutes. Advertising is designed to reduce the price elasticity of demand for products by building brand loyalty and convincing the consumer that the product is unique.

Proportion of income

The greater the **percentage of income** that is needed to purchase a good or service, the higher the PED. If the price of a box of matches increased by 50% for example, it would be surprising to see a decrease in sales by 50%. A 10% increase in the price of a new house, however, could amount to tens of thousands of dollars which, for the average person, could be the deciding factor that excludes them from the market. The resulting drop in the quantity demanded would therefore exceed 10%.

This explains why a good can have a low PED at low prices but may turn into a product with a high PED as its price increases. This suggests that the PED along the demand curve increases as the price increases. Eventually, as the price of a product rises, it will reach a price where it becomes increasingly difficult to purchase the product because it takes up a larger proportion of income.

Time

Over time, the PED for a product might increase. In the **short term**, many consumers tend to undertake their buying decisions in a habitual fashion. This may mean that initially, they may not notice a price increase or cannot be bothered seeking out a viable alternative since they might need the product now and it is a hassle to go somewhere else to find a cheaper alternative. Over time however, consumers may notice the price increase and start to consider possible substitutes. Consider the market for gas, traditionally used to heat the family home. The substantial increase in the price of gas that has occurred in recent years may not result in a significant decline in demand, especially in the short term. The first time a household might notice the price increase is when they get ‘bill shock’ – when the latest bill is much higher than the previous one. They may not be able to alter their heating system in the short term but, over time, if the price hike persists, they may look for ways to decrease consumption of gas. They could install new appliances that rely on alternative sources of energy (reverse cycle air-conditioning that uses solar power) or improve insulation so that less heating is lost during the winter months. The steady rise in the price of petrol over recent years has had similar effects. Many consumers might find it difficult to reduce their consumption in the short run - they may not live in an area that has public transport and they have to maintain their current mode of transportation. However, as high(er) petrol prices become more permanent, then consumers have more time to change their behaviour. They may seek out ways to reduce their consumption by working from home, carpooling with work colleagues, catching public transport and in the very long term, they may seek out an electric vehicle or bike. As you can see, the change in behaviour over time alters the PED, such that it will be higher in the **long term** compared to the short term.



The increasing ability of consumers to research their chosen product using the internet may reduce the time taken for the PED to increase. If the consumer purchases a product regularly, then they may be disgruntled by a price increase. The ability to compare prices has been enhanced by price comparison websites and so changes in price can be acted upon in a more timely fashion. For example, each year health insurance companies increase their prices. This should be a product with a relatively high PED but due to the hassle involved in changing companies, many households tend to stick with their incumbent insurer. The introduction of comparison websites reduces the effort associated with changing companies and therefore the time taken to respond to price increases might have been shortened.

Activity 2j: Price elasticity of demand

Determine whether the PED is relatively high (price elastic with a PED greater than 1) or low (price inelastic with a PED less than 1) and identify the likely impact on the firm’s revenue. The first one has been done for you.

Scenario	H/M/L PED	Reason	Effect on revenue
Fruit and vegetable sellers increase the price of their cherry tomatoes from \$2.50 to \$3.00 per kilo, and observe that their sales drop from 1000 to 500 kilos per day	High (because >1)	The relatively high number of substitutes for cherry tomatoes encourages consumers to demand alternatives (such as Roma tomatoes)	Decrease
In response to a worse-than-normal flu season, the local supermarket increases the price of tissues from \$2.50 cents pack to \$3.00 per pack			
Qantas increases its airfares to the US in response to the higher price of fuel			
The government cuts the fuel tax excise in half to curb rising prices			

The government runs an extensive education campaign that outlines the long term consequences associated with consuming sugar			
Mylan raises the price of an Epi-Pen 2 pack from \$100 to \$600 over a ten-year period			
The supply disruptions caused by lockdowns causes the prices of the iPhone 16 to increase when compared to the iPhone 15			
A new brand of yoghurt is introduced to the market			
The Victorian government pays households \$250 to compare electricity prices			
An increase in excise taxes on cigarettes causes the prices to increase from \$35 per pack to \$40 per pack. Quantity demanded falls by 8%			
There is a huge rise in price of iceberg lettuce due to crop damage during floods			

Activity 2k: Advertising to boost demand and reduce PED

Firms often spend thousands to millions of dollars per year on advertising and other forms of marketing. In terms of demand analysis, the aim of advertising is multi-faceted. The first aim of advertising is to increase information for the consumer that will lead to more informed decision making. It may be difficult to sell a product if your target market doesn't know that the product exists or how it might enhance their enjoyment of life. The company may wish to create a new market altogether or capture a slice of an already established market (thereby taking some of the market share away from an established firm). A successful advertising campaign should therefore result in an increase in the demand for the product at each given price level, thereby shifting the demand curve to the right because tastes and preferences have been altered. (Note: it will also cause the cost of production to increase and the firm will require a higher price to cover their costs).



Advertising is also designed to increase brand loyalty. Brand loyalty refers to a situation where a consumer develops positive feelings towards a particular brand and will usually make repeated purchases from the same brand over time and in different categories. Brand loyalty therefore adds to the already mentioned benefits associated with advertising. It helps to create a need for the product (this might be psychological) and reduces the viability of substitutes (competitors' products). A successful advertising campaign can therefore decrease the PED for a product. The demand curve therefore not only moves to the right but it also becomes steeper.

A lower PED for a product will therefore allow the company to charge higher prices and gain an increase in revenue. This may help to explain why some brands, such as Apple, are able to sell their products at premium prices. The first iPhone was released in 2007. In 2024, the iPhone 16 range was released and, as with previous releases, this was accompanied by an official launch and met with shortages in the first few months of release. The upgrade cycle is part of the marketing approach, as people who do not need a new phone (because the old one is still working) still feel some sense that they should purchase a new phone. Despite the high price tag, it could be argued that Apple products have a relatively low PED. Customer sensitivity to prices is cushioned somewhat by the way phones are consumed in Australia, with most people opting for a plan that spreads the cost of the phone over 12 to 36 months. Apple also has succeeded in convincing a significant proportion of the public that their products are 'special', and that there is no viable substitute for an iPhone. Apple consumers may also feel locked into the Apple ecosystem with its unique iOS and compatibility with a range of applications (further reducing the viability of substitutes).

Questions

1. With reference to a relevant non-price factor, explain why successful advertising and marketing is likely to result in a shift of the demand curve to the right.
2. With reference to a relevant non-price factor, explain why advertising is likely to be associated with a shift of the supply curve to the left.
3. With reference to the relevant formula, explain what is meant by the price elasticity of demand.
4. Explain what is meant by 'brand loyalty' and outline how advertising can generate brand loyalty.
5. Identify one other product (apart from Apple products) where there appears to be a degree of brand loyalty. Discuss how the company has influenced you (or consumers more generally) to perceive this product when compared to others in the same industry.
6. Discuss the possible relationship between an increase in advertising expenditure, brand loyalty and the PED.
7. Explain why it is considered to be profit-maximising behaviour if a business raises the price on those products with a low PED.
8. With reference to at least two relevant factors, explain whether the price elasticity of demand for iPhones is likely to be high or low.

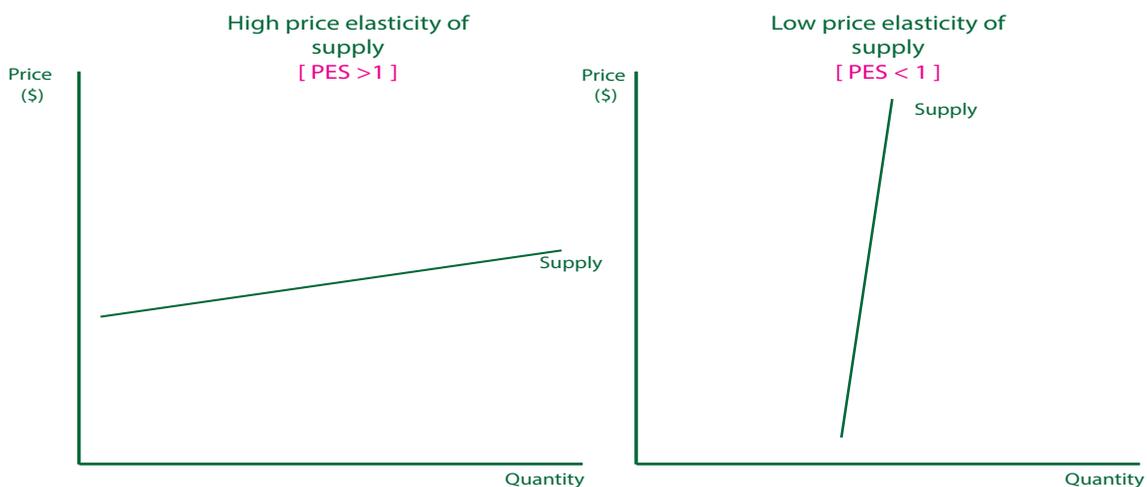
2.12 The meaning and significance of price elasticity of supply

Price elasticity of supply (PES) measures the responsiveness of the quantity supplied of a good or service to a change in price of that good or service. It can be calculated using the following formula:

$$PES = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$$

Supply curves with a high PES and a low PES are depicted in Figure 2.11. A product with a PES that is greater than one will have a relatively flat supply curve. This means that suppliers are willing and able to increase the supply by a larger percentage than the price increase. If the PES is less than one, the supply curve will be relatively steep. This means that when prices increase by a certain percentage, suppliers are either unwilling and/or unable to increase supply by the same percentage.

Figure 2.11

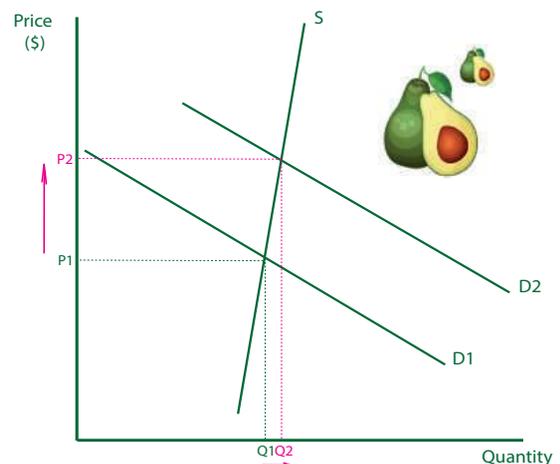


The significance of PES

The price elasticity of supply can affect the economic viability of a business as well as their ability to respond to changing price signals. Generally speaking, primary products (such as food and mining products) tend to have a lower price elasticity of supply than manufactured goods. Countries such as Australia that generate large revenue from mining and agricultural exports, often face volatile swings in the revenue they generate. For example, if prices for coal were to increase dramatically then it may be difficult for the firms to rapidly increase their output levels (especially in the short run). The low PES is also partially due to the volatility of prices in this sector. The companies need to wait for clear price signals before they undertake the investment needed to build the productive capacity necessary to meet the higher demand. Uncertainty surrounding government policy can also reduce the incentive to respond to changing price signals, especially if they, too, are perceived as temporary (given that governments in Australia can change every three years).

With a **steep supply curve**, signifying a low PES, any change in demand will result in a significant change in price. For example, the supply curve for many agricultural products is relatively price inelastic (less than one and therefore depicted as steep) owing to the fact that the production period is relatively long [See Section 2.13 on the next page.] This adds to the volatility of prices for primary producers. Any change in demand can lead to significant changes in prices. This is illustrated in Figure 2.12, which shows what happens when demand rises for a primary or agricultural product, such as avocados. In recent years, the demand for avocados has increased, causing a shortage at the original price. Given that avocado trees can take up to 4 years before they fruit, the PES tends to be low (in the short run) and prices can remain high for some time.

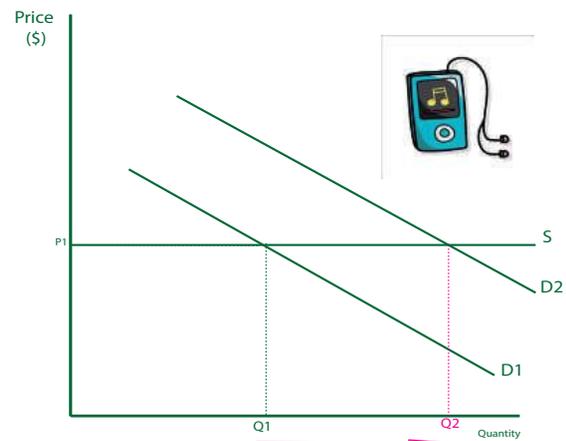
Figure 2.12



The advent of digital technologies has had a disruptive effect on both demand and supply. The disruption may be positive for some but negative for others. Consider the example of streaming services such as Netflix and Stan. Because these files can be used by any number of consumers simultaneously, the PES for this product is effectively infinite, resulting in a horizontal supply curve. Any increase in demand can be supplied instantaneously, resulting in **no shortage** and no need for the price to rise. This is highlighted in Figure 2.13.

Figure 2.13

As more products become available in a digital format (such as books, movies and games), the PES will influence the decision of producers to enter the market. If you were a potential producer, would you be encouraged to enter a market where supply could be infinite or one where it is difficult to adjust supply if the price increases or decreases? The ability to adjust supply quickly and easily (such as with the streaming services) adds flexibility to decision-making and supply response. (It does, however, in some cases, leave the company more vulnerable to piracy and therefore lost revenue). The ability to readily increase supply also means that consumers need not worry about the product being out of stock. For example, you might hear an interview on the radio where an author discusses her new book. In the next minute you could have downloaded the audiobook from Audible your smartphone, and be listening to it straight away.



2.13 Factors affecting price elasticity of supply

The following factors will determine whether the supply of a good or service is likely to have a low or a high PES.

Production period

If prices increase for a particular product, this will signal to suppliers that allocating resources into this area may now be more profitable. Firms may wish to increase their supply, but it may take time to attract the resources that are needed to increase production volumes. For example, if there was an increase in the demand for apricots, the demand curve will shift to the right, resulting in a higher equilibrium price. The higher price will therefore act as an incentive for more apricots to be grown.

Unfortunately, the supply response may be minimal because they cannot be produced instantly. Apricots trees may need to be planted, with time taken to grow, ripen and harvest the fruit. As a result, the PES of apricots (and many other seasonal fruits) will tend to be very low in the **short term**. However, the PES will increase over time as more resources can be shifted into the production of apricots (assuming that the increased preference for apricots is permanent and the price of apricots remains high over time.) In contrast, a song that has been written and recorded can be supplied at the tap of a button in the digital era. The production of new copies has a minimal production period, so the PES of such products is very high.



This factor highlights the importance of time for the PES. Over time, firms will be able to respond to changing **price signals** and this will vary from industry to industry. Consider a farmer who makes his/her living from grazing cattle. Imagine how he/she might respond to an increase in the world price for beef. In the short term, the farmer may not be able to meet the increased demand which has caused the relative price to increase. He/she will also want to make sure that the price change is not temporary so may need to study the causes of the price increase (are they cyclical or structural changes that have occurred in the market?). If the price is expected to stay high, then the farmer will look to raise more cattle in the future, and he/she will be able to respond more effectively to the higher prices.

Spare capacity

If a firm has spare capacity, then this will mean that they have factors of production that are not being fully utilised (they may be idle at times). This will mean that it will have a greater ability to respond quickly to changing prices. The **underemployed labour** may be able to work more hours and machinery can be utilised to increase supply quickly. In contrast, if businesses are running at productive capacity and there are **skills shortages**, this will make it hard to attract suitable labour to expand operations. The PES for products under this scenario will tend to be relatively low. Over a period of time, the firm may be able to increase its productive capacity (through investment and training for example) and attract new labour (it could offer higher wages to encourage workers to leave an alternative supplier). The government may also help to address the underlying causes of these capacity constraints by expanding immigrant targets and allocating more of the budget to training those who are structurally unemployed.

This factor also highlights why the PES will tend to change over time. As the firm gets closer to productive capacity, the PES will tend to decrease. For example, if there was an increase in the demand for movie tickets due to an excessively hot summer (too hot to go outside), initially firms may face a relatively high PES. This is because cinemas may be able to respond to the higher demand by opening the cinema for longer and filling more of the seats that had been empty in the past. Eventually the cinema would reach its productive capacity, at which point its PES would drop significantly. If the cinema owners believed that unpredictable weather conditions would continue (due to climate change) and that they could maintain the high prices for cinema tickets they may add to their productive capacity permanently, by investing in new cinemas. This would then raise the PES for these services.



Durability of goods

If the goods can be stored, then it will be much easier to respond to changing prices. The supplier can simply access the **inventory** that has been stored. Storage is, however, often costly for firms and they may want to reduce the stock that they hold at a given time. Advances in technology have also helped firms as they can now employ 'Just In Time' (JIT) inventory management systems. By having closer connections with their suppliers using digital technologies, firms are more easily able to respond to increasing prices that are caused by increases in demand.

Many fresh food products tend to have a low price elasticity of supply as they have a limited storage life. Processed food products, however, such as soft drinks and baked beans, may be stored for extended periods and will therefore tend to have a higher PES. If there was a sudden increase in demand which resulted in higher prices of, for example, baked beans, the supplier could simply access any inventory that is available and reap the rewards. It is important to note, however, that once all of the stock is sold into the market, the firm then faces the same factors that can make it difficult to increase supply (i.e. the production period and degree of spare capacity in the canning factory will affect the PES).

Activity 2!: Determining elasticities

With reference to relevant factors, examine whether the price elasticity of demand and the price elasticity of supply are likely to be high or low for each of the following products:

1. Chocolate
2. A bottle of wine
3. Digital movie rentals
4. New cars
5. Surfboard
6. Education
7. Opioid drugs
8. Coal
9. Pet cats
10. Hairdressing services



Activity 2m: Vaping: The tricks and loopholes e-cigarette and tobacco industries use to target young people

It's been six decades since the landmark surgeon general's report that shed definitive light on the deadly nature of cigarettes. And while it would be easy to feel complacent, and rest on our laurels as a nation now proudly at the forefront of tobacco control ... we should be anything but. The tobacco industry has re-emerged with an addictive and dangerous new threat. It's now repeating the deadly playbook that so effectively led to thousands of lives ending early and enormous levels of pain and suffering. An entirely new generation once again faces the very real possibility of becoming addicted to nicotine. Over the past three years, we have seen an explosion in the use of e-cigarettes. From a relatively low and constant vaping rate, we've seen enormous increases — particularly among young people. These are products that contain up to 200 chemicals, including poisons found in weed killer and paint stripper.



Vapourise these chemicals, and they're delivered deep into the lungs. And while there's no long-term safety data on these products, the early science suggests a host of dangers from asthma attacks, to bronchitis, to inflammation of the lungs and in some cases, even death. ... In the past three years and in several countries worldwide, the vaping industry has exploited our focus on the pandemic to push their new profit ploy onto young people. A calculated plan with frightening effect.

The first step was to flood the market with cheap, addictive and dangerous imports. Costing less than \$40, a single disposable e-cigarette can contain as much nicotine as 10 packets of cigarettes. And while products containing nicotine are illegal without a prescription, most importers simply don't declare the high levels of nicotine on packaging and thus avoid scrutiny by Border Force. The second step was to pitch young people's own data against them. The vaping industry has very successfully used "dark marketing" — highly tailored social media marketing using the data of young people — to promote these addictive products right under the noses of governments, parents and the public health sector.

The outcome is that an estimated one-third of teenagers in NSW have now used e-cigarettes. The single largest user age-group is 18 to 24 years. Most of these young people have never used cigarettes, but as the science continues to build around these addictive and dangerous products, it's now clear vape users are three times as likely to go on to use traditional cigarettes. With growing rates of e-cigarette use and a total underestimation of their danger by young people and the broader public, there's no time to waste in taking action and closing the loopholes that industry is exploiting.

What needs to be done? First, we need to stop illegal e-cigarettes at the border — support our border force to intercept and block the flood of these harmful products onto the market. ...Next, we need to take strong action against illegal advertising and promotion of e-cigarettes online and via social media. The vaping and tobacco industries design e-cigarettes to appeal specifically to young people, with sweet flavours, such as chocolate milk and cereal, and brightly coloured packaging that resembles highlighters and makeup.

...While we need to take urgent actions to protect further harms, particularly for young people, we also need to support those already addicted, with the services and resources required to help them quit. This includes through important programs such as Quitline which provides free advice and can support users, parents and community leaders. We also need to continue to build public awareness of the harms of e-cigarettes and dispel the dangerous misunderstanding that these products are safe. When it came to cigarettes, it took us decades to act on the deadly and addictive products of the tobacco industry — with countless lives lost in the meantime. Let's not let history repeat itself. It's time to act on vaping.

Source: <https://www.abc.net.au/news/health/2022-12-22/vaping-e-cigarette-tricks-loopholes-industry-target-young-people/101793648>

Questions

1. Describe a potential opportunity cost associated with the consumption of e-cigarettes.
2. Explain the law of demand in relation to e-cigarettes and in your response refer to the income and substitution effects.
3. Describe how the increase in excise tax on traditional cigarettes over recent years has influenced the market for both traditional cigarettes (tobacco) and the market for e-cigarettes. Use a diagram to illustrate your response.
4. Describe the role of the profit motive and relative prices in influencing the allocation of resources towards the production of e-cigarettes.
5. Describe one factor that might explain why the price elasticity of demand for e-cigarettes is low.
6. Describe one factor that might explain why the price elasticity of supply for e-cigarettes is high.

Activity 2n: The markets for new and used cars

Traditionally, used cars are sold at a lower price than new cars. The price paid reflects a number of demand and supply factors. In fact, it is an old cliché that the minute you drive your car from the dealer's lot, it could have lost up to 15% of its value (even though the car is essentially identical to what you just purchased). The price paid in the market is a reflection of, amongst other things, consumer tastes and preferences and the availability of cars. Consumers might need to be offered a used car at a lower price due to asymmetric information (which will be covered in Chapter 3). For example, they don't know whether the car has any faults, or whether it has been involved in an accident. This creates uncertainty about its potential value and a warranty is not always available when purchasing a used car (especially if purchased privately) unlike that which applies to the purchase of a new car.



Over the period 2020-2022, the price of used cars increased dramatically (in some cases by 50%). The price of some used cars was even higher than the price of new cars. For example, the price of a new Toyota Landcruiser was listed at \$144,000 in July 2020. Online used car websites listed identical used vehicles selling for up to \$175,000 in 2022. We can therefore try to use our demand and supply model to explain what might appear to be an economic anomaly. From the start of the pandemic, global supply chains were significantly disrupted. There was a global computer chip shortage, meaning that car makers were competing against other industries for chips (cars might have up to 1,000 chips). There was also a shortage of shipping containers, which increases the delays in getting the new cars to the dealership. Other factors causing a supply disruption include the closure of factories in parts of the world, and rising costs of oil (which is an input into car manufacturing). In addition, the Australian dollar depreciated over the same period, increasing the costs of importing for the dealerships. All these factors resulted in a shift of the supply curve to the left for new cars, which created a shortage of new cars and meant that people wanting a new car had to wait for extended periods to receive their cars after placing an order. According to [pricemycar.com.au](https://www.pricemycar.com.au), average wait time in June 2022 was 155 days (compared to 25 days in June 2019).

The extended wait time could be linked to the demand factor - tastes and preferences. Faced with extended wait times, some consumers turned to the used market. Some of these consumers, especially those who required a car in the short term, might not have considered a used car in the past. As a result, more people competed for the stock of used cars available, shifting the demand for used cars to the right. While the height of the pandemic saw many people working from home, with a reduced need for cars, once lockdowns ended many people became less willing to use public transport and increased their need for a car (which is another factor affecting tastes and preferences). The increased demand for (used) cars may have also been encouraged by the record low interest rates that prevailed over the two-year period in addition to the generous government stimulus measures that helped to raise disposable incomes. The lack of activity during the pandemic also allowed many households to accumulate savings, money that could later be allocated to the purchase of a car.

Since then, the chip shortage has been resolved, resulting in an increase in the supply of new cars, which helped to reduce the demand for, and price of, used cars. The growth in interest rates over the past couple of years has had a negative impact on discretionary incomes and disincentivised borrowing and reduced the willingness and ability of consumers to buy cars. With fuel prices remaining around \$2.00 per litre, however, one would expect that the demand for new electric vehicles will continue to grow relative to the demand for traditional vehicles, which has implications for relative prices and resource allocation.

Questions

1. Identify and explain the supply factors that are discussed in this case study.
2. Identify and explain the demand factors that are discussed in this case study.
3. With reference to the factors identified above, use a demand and supply diagram to explain changes in the market for new cars.
4. With reference to the factors identified above, use a demand and supply diagram to explain changes in the market for used cars.
5. What has happened to the price of used cars since 2022? Explain the movement in prices by linking to relevant demand and supply factors.
6. Explain how high fuel prices are influencing the relative price of electric vehicles and resource allocation.

Review questions 2.10 - 2.13

1. Define what is meant by price elasticity of demand and explain how PED affects the slope of the demand curve.
2. With reference to two relevant factors, explain why the PED for airline travel would be higher than the PED for cigarettes.
3. With reference to the concept of brand loyalty, explain why advertising expenditure may cause the demand curve for a specific product to shift to the right and become steeper.
4. Explain how knowledge of PED may affect the government's decision to place taxes on certain goods and services.
5. With reference to the consumption of electricity, explain why the PED will tend to increase over time.
6. Use a suitably labelled supply and demand diagram to explain why farmers, whose products tend to have low PED and low PES, face huge variations in their incomes.
7. Define what is meant by price elasticity of supply. Explain how PES affects the slope of the supply curve.
8. With reference to two relevant factors explain why the PES for streaming services may be higher than the PES for fresh pineapples.
9. Explain how the increasing use of artificial preservatives may have affected the PES of food products.
10. With reference to iron ore, explain why the PES will tend to increase over time.

Multiple choice review questions

1. **Which of the following statements about the relationship between price and quantity demanded is incorrect?**
 - a) As the price of the product increases, the quantity demanded is likely to decrease
 - b) As the price of the product decreases, the quantity demanded is likely to increase
 - c) As the demand for a product increases, its price is likely to fall
 - d) The quantity demanded for a good or service is dependent on its own price
2. **The demand curve for teddy bears is likely to shift to the right if:**
 - a) there is a decrease in the price of teddy bears
 - b) there is an increase in the birth date
 - c) the price of cuddly toy rabbits decreases
 - d) there is a new invention that allows the suppliers to produce more teddy bears per hour
3. **The demand for special edition sneakers is likely to 'expand' in Australia if:**
 - a) their own price increases
 - b) the price of traditional sneakers decreases
 - c) there is an appreciation of the Australian dollar
 - d) the unemployment rate in Australia increases
4. **The supply curve for soft drinks is likely to shift to the left if:**
 - a) the Victorian Government bans the advertising of soft drink
 - b) the price of soft drink increases
 - c) the price of sugar increases
 - d) there is a decrease in the price of glass
5. **There will be a movement to the right along the supply curve for chocolate (i.e. an expansion) if:**
 - a) the price of chocolate decreases
 - b) the price of cacao beans (used to make the chocolate) decreases
 - c) chocolate is proven to contain polyphenols that extend the average person's lifespan
 - d) the price of ice cream decreases
6. **A pandemic, where the government bans the selling of cinema tickets is likely to cause which of the following changes in the streaming service market?**
 - a) A shift of the demand curve to the right and a decrease in the price of streaming services.
 - b) A shift of the demand curve to the left and a decrease in the price of streaming services.
 - c) A shift of the supply curve to the right and a decrease in the price of streaming services.
 - d) A shift of the demand curve to the right and minimal change in the price of streaming services.
7. **A large increase in real disposable incomes is likely to lead to a decrease in the demand for:**
 - a) Amazon Prime memberships
 - b) High end restaurant meals
 - c) Mass produced sausages
 - d) Financial advice

- 8. A movement down along the demand curve (i.e. expansion) for peanut butter is likely to be caused by:**
- a) An increase in the price of almonds
 - b) A ban on all nut products in all schools across Australia
 - c) Higher cost of labour for peanut farmers
 - d) A glut in the market for peanuts
- 9. An increase in the price of petrol is likely to result in:**
- a) A decrease in the sales of petrol powered vehicles
 - b) An expansion of the demand for petrol
 - c) A decrease in the demand for public transport
 - d) An increase in the price of electric vehicles
- 10. What would happen in the market for BMW vehicles if there was an increase in the price of Mercedes vehicles?**
- a) The demand curve would shift to the right and the price would fall
 - b) The demand curve would shift to the right and the price would increase
 - c) The demand curve would shift to the left and the price would increase
 - d) The demand curve would shift to the left and the price would fall
- 11. An increase in Australia's unemployment rate is likely to cause which of the following to occur in the market for home brand baked beans?**
- a) the supply curve would shift to the right causing the price to increase
 - b) the demand curve would shift to the right causing the price to increase
 - c) the demand curve would shift to the left causing the price to decrease
 - d) there would be no change in this market
- 12. If the price for soft drinks increases by from \$2 to \$2.20 and this resulted in a fall in the quantity demanded for soft drinks from 20 million litres per week to 19 million litres per week, then the product:**
- a) Has a high PED
 - b) Has a low PED
 - c) Is unit elastic
 - d) Has a PED that cannot be determined from the information given
- 13. Which of the following products is likely to have a PED that is higher than its PES?**
- a) Cans of baked beans
 - b) Smart phones made by Apple
 - c) A cordless drill
 - d) Paintings by Pablo Picasso (a deceased artist)
- 14. The demand for McDonald's hamburgers is likely to decrease if:**
- a) McDonalds doubles the licence fees for their franchise operators
 - b) The government raises income tax rates
 - c) Hungry Jacks closes down
 - d) McDonalds introduce a loyalty scheme
- 15. An increase in the price of lawn mowing services may result in:**
- a) An increase in the price of lawn mowers
 - b) An increase in the price of synthetic grass
 - c) A contraction along the supply curve for lawn mowing services
 - d) all of the above
- 16. Consider a business producing a good with a low Price Elasticity of Demand (PED). To maximise its revenue, it should:**
- a) increase its price
 - b) decrease its price
 - c) keep the price at its current level
 - d) increase supply
- 17. The equilibrium price and quantity for which of the following is likely to increase when there is an increase in interest rates**
- a) Gucci handbags
 - b) New Mini Cooper vehicles
 - c) Shares
 - d) Public transport

- 18. There will be an increase in the quantity of resources allocated towards solar storage batteries if:**
- a) immigration to Australia is temporarily halted
 - b) the cost of materials to make the batteries decreases
 - c) there is a recession that causes an increase in unemployment
 - d) the government removes the subsidy for solar panels
- 19. The Price Elasticity of Supply (PES) for canteen food, such as a chickpea salad, is likely to be affected by:**
- a) The disposable income of the students
 - b) The price and availability of sushi rolls
 - c) The size of kitchen
 - d) A campaign by the students and teachers to introduce healthy, brain boosting food options
- 20. An increase in the popularity of a product, which is traded in a highly competitive market, is likely to result in:**
- a) a short run increase in the price and a long run decrease in the price
 - b) a short run increase in the price and a long run increase in the price
 - c) a short run decrease in the price and a long run decrease in the price
 - d) a short run decrease in the price and a long run increase in the price

Chapter summary

1. Microeconomics is the study of the individual parts of the economy that interact to make up the whole economy.
2. A market is anywhere that facilitates the exchange of goods and services. Buyers and sellers may exchange goods in person or via online facilities.
3. In a competitive market it is assumed that all economic agents are price takers. No individual buyer or seller has the market power to influence prices. It is easy for new competitors to enter these markets as set up costs are low and the government does not restrict new entrants.
4. Consumers will try to obtain the product at the lowest price possible while the seller will try to extract the highest price possible. Analysis of demand and supply predicts the likely compromise between the two parties.
5. The law of demand states that as the price of a product increases, the quantity demanded will tend to decrease. Conversely if the price of the product decreases, the quantity demanded will tend to increase.
6. The law of demand is based on the observation of human behaviour that suggests that at higher prices a consumer's ability and willingness to purchase tends to decrease because the consumption of most goods is subject to the law of diminishing marginal utility.
7. The effect on demand of an increase in price is represented by a movement along the demand curve to the left (called a contraction). The effect on demand of a decrease in price is represented by a movement along the demand curve to the right (called an expansion).
8. When the demand curve is drawn with price on the vertical axis and quantity on the horizontal axis, all other factors that affect the demand for the product are assumed to be held constant. A change in any of these factors will result in a shift of the demand curve to the left or right.
9. A shift of the demand curve to the right means that more is being demanded at each given price. A shift to the left of the demand curve means that less is being demanded at each given price.
10. An increase in disposable income will generally lead to a shift of the demand curve to the right for normal goods and a shift to the left for inferior goods.
11. A decrease in interest rates will increase discretionary income for indebted households and businesses and usually result in an increase in demand for most goods and services. Changes in the prices of other essential items, such as petrol, will also affect the discretionary income of households and may affect the demand for other seemingly unrelated products.*
12. If the price of a substitute good or service increases, there will be an increase in demand for the alternative product (resulting in a shift to the right of the demand curve).
13. A complementary good or service is one that is consumed together with another. An increase in the price of a complementary good or service will mean that the cost of consuming both has increased, resulting in a decrease in demand for the complementary good (even if its price has not increased).
14. An increase in population will generally result in an increase in the demand for most goods and services. Demographic change can lead to an increase in the demand for some goods but a decrease in others.
15. An improvement in consumer sentiment (confidence), which measures consumers' general expectations about future state of the economy and their employment prospects, will generally lead to an increase in their marginal propensity to consume and result in an increase in the demand for a broad range of goods and services.
16. If a product becomes fashionable, this is likely to result in an increase in demand. This is described as a change in tastes and preferences.

17. The law of supply states that as the price increases for a good or service there will generally be an increase in the quantity supplied.
18. The law of supply is logical because at higher prices suppliers have more incentive to shift resources into those areas which will generate greater profits.
19. An increase in the price of a product will result in a shift along the supply curve to the right (an expansion). A decrease in the price of a product will result in a shift along the supply curve to the left (a contraction).
20. When the supply curve is drawn with price on the vertical axis and quantity on the horizontal axis, all other factors affecting supply are assumed to be held constant. A change in any of these factors will result in a shift of the supply curve to the left or right.
21. If the supply curve shifts to the right, there will be a greater volume supplied to the market at each given price. A shift of the supply curve to the left means that less will be supplied at each given price.
22. An increase in the cost of any inputs associated with making a product will result in a shift of the supply curve to the left. Common costs of production include wages, utility costs and rent.
23. New technology may reduce the cost per unit and will tend to shift the supply curve to the right. This increase in the willingness and ability of firms to supply is associated with the boost to productivity which is enhanced by technological change.
24. Climatic conditions affect the willingness and ability of firms to supply. Human activity can also cause disruptions to supply (such as wars).
25. The market equilibrium occurs when the demand for a good or service is equal to the supply of a good or service.
26. A shortage develops when the price is below the equilibrium price and the demand is greater than the supply for the product.
27. A surplus develops when the price is above the equilibrium price and the demand is less than the supply for the product.
28. A movement of the demand and/or supply curve will result in a new equilibrium price and quantity traded.
29. The relative price is seen as the price of any one good or service measured in terms of the price of another good or service.
30. Relative prices send clear signals to producers and consumers and therefore direct resources to their highest end use.
31. Prices help to answer the three economic questions; what to produce, how to produce and for whom to produce. They therefore determine how resources are allocated in the economy.
32. The price mechanism describes how the forces of demand and supply interact to determine relative prices of goods and services, which then ultimately determines the way our productive resources (land, labour and capital) are allocated in the economy.
33. Price elasticity of demand refers to the responsiveness of demand to changes in prices and is measured by the percentage change in quantity demanded divided by the percentage change in price.
34. A low price elasticity of demand means that the percentage change in quantity demanded is less than the percentage change in price. A high price elasticity of demand means that the percentage change in quantity demanded is higher than the percentage change in prices.
35. PED is an important economic measure because it helps businesses to analyse the impact of price changes on revenues and allows the government to consider which goods are the most appropriate to impose an indirect tax upon.
36. Price elasticity of demand will tend to be higher if there are a number of viable options available for the consumer as small price increases are more likely to result in a substitution towards these alternative products.
37. Price elasticity of demand will tend to be lower if the good or service is deemed to be a necessity or is highly addictive.
38. Price elasticity of demand will tend to be higher if the purchase of the product consumes a large portion of a purchaser's income.
39. Generally speaking, the PED will increase over time because consumers will have more time to consider alternatives and to adjust their behaviour in response to the price change.
40. Price elasticity of supply measures the responsiveness of quantity supplied to changes in price and is measured by the percentage change in quantity supplied divided by the percentage change in price.
41. A low price elasticity of supply means that the percentage change in quantity supplied is less than the percentage change in price. A high price elasticity of supply means that the percentage change in supply is more than the percentage change in price.
42. Price elasticity of supply is an important economic measure because it helps businesses to determine the impact of price changes on their profitability and it may also determine how vulnerable a country is to changes in the prices of the goods and services it exports.
43. Price elasticity of supply is likely to be higher if the product can be stored easily.
44. Price elasticity of supply is likely to be higher if firms are operating with some spare capacity and can ramp up production quickly.
45. Price elasticity of supply will tend to be lower in the short term but as resources are re-allocated across the economy to more profitable areas, price elasticity of supply will tend to increase.

Chapter 3

Competitive markets and efficiency

3.1 Competitive markets and efficiency of resource allocation

This chapter considers the role of markets in achieving economically efficient outcomes. Both the strengths and the weaknesses of the market system will be considered. Over time, most economies around the world have gravitated towards using the market system for allocating resources as it is seen to be the most efficient way to do so. Using the market alone, however, can result in an **inefficient allocation of resources**. This occurs when the combination of goods and services that is produced does not achieve the highest level of collective satisfaction – which economists refer to as **'market failure'**. The sources of market failures that will be discussed in this chapter do not necessarily advocate for the removal of the price mechanism or excessive intervention in the market, but they do highlight the need for some modification by governments to the way markets work to achieve outcomes that increase the collective wellbeing of society. In the final section of this chapter, we consider instances where government intervention can have unintended consequence and even lead to sub-optimal outcomes for society.



Features of competitive markets

Before we consider the impact of competitive markets on efficiency, it is important to recall the key features of competitive markets. As discussed in Chapter 2, the market structure that forms the basis of demand and supply analysis is called **perfect competition**, sometimes also referred to as a 'perfect market' or a 'perfectly competitive market' or even 'a competitive market'. Some key conditions required for such a market have been reproduced in Table 3.1 below.

Key feature	Explanation
A large number of buyers and sellers	This means that each economic agent acts independently in the market. No individual buyer or seller therefore has the market power to influence the price. This leads to the condition of price taking rather than price making.
Homogenous products	It is assumed that the products being sold are virtually identical and easily substitutable. This encourages the suppliers to offer the products at the lowest price possible because this is the main way to attract customers (rather than, for example, being a better brand).
Ease of exit from and entry into the market	There are low set up costs in the industry which means that if profit making opportunities exist (for example, because the good or service has increased in popularity), then new entrants can seek to capture a share of the market, possibly by undercutting the existing suppliers who may be making very high profits in the short term (referred to in economics as 'abnormal profits').

There are also a number of other assumptions about the features of a competitive market:

- Buyers and sellers operate with **full information**. They are aware of what they are buying and selling and are able to easily compare prices. Based on this information, they make fully informed **rational choices**.
- The economy's **resources are mobile** and will be reallocated towards those areas of production that generate the greatest benefit.
- Both the buyer and the seller seek to maximise their own wellbeing. For the seller this is likely to be their **profit** and for the purchaser they are seeking to gain the most satisfaction they can (often referred to in economics as their **'utility'**).

How competitive markets affect allocative efficiency

Allocative efficiency, as defined in Chapter 1, is the combination of the goods and services (produced and consumed), which achieves the highest level of collective satisfaction for a society. Inherent in this definition is the belief or idea that the *right* goods and services are produced, in the *right* way and those products are then distributed, via the market, to those who value them the most. While the definition could be contested on a number of grounds, it will be one of the criteria used to evaluate the role of the market in allocating resources.

As explained in Chapter 2 and recapped above, the market system is assumed to operate in a competitive fashion. The large number of independent buyers and sellers who are operating and acting independently, selling homogenous products with low set up costs (no barriers to entry) and low levels of government regulation means that it is easy for new suppliers to enter the market should profit making opportunities arise. It is also easy for firms to leave if they find the product they are selling is no longer profitable (or as profitable relative to other areas of production). This is linked to the assumption that resources are mobile and can be easily reallocated to an alternative area of production.

The competitive environment promotes allocative efficiency because suppliers pay close attention to price signals and act in their own self-interest. They will look to meet the needs and wants of the consumers. It is the buying decisions of the consumers that ultimately determine how resources are allocated in the market. For example, if there is an increase in demand for puppies (such as that which occurred during the height of the COVID-19 pandemic) then the market is the most effective way to ensure that this change in needs and wants is addressed. The increase in demand will lead to a shortage in the short term, and those consumers who have a greater willingness and ability to purchase above the current price, will bid up the price for the now-scarce puppies (prices increased by more than 100% over 2020-21). Profit making institutions or entrepreneurs will respond to the price signal and reallocate



resources towards the production of goods or services experiencing a higher relative price (e.g. puppies). The key point here is that, in altering their production activities, the allocation of resources has become more efficient because the change in the types of goods and services being produced once again reflects the desires of the population.

Consider what would happen if the market did not work. If the same volume of puppies were supplied to the market despite the increase in demand, there would be some consumers who would miss out on their desired product. There would effectively be an underproduction of puppies in the market relative to the level of demand. The suppliers in the market will therefore generally be responsive to the demands of their consumers because to sell anything that is not in demand will lead to excessive stock levels and ultimately result in the demise of those businesses. A lack of responsiveness to the increase in demand is more likely to occur in a market that is less competitive, such as a **monopoly** or **oligopoly** market. In such markets, producers can manipulate either price or quantity to maximise profits, and barriers to entry into the market (such as branding and high set up costs) mean that resources are not as mobile, prices are higher and collective satisfaction is reduced.

Competitive markets are an effective way to promote technical efficiency, resulting in lower prices for consumers. By doing so, competition can result in an increase in **purchasing power** (the volume of goods and services that can be purchased from a given income). It is assumed that if a consumer can increase their access to goods and services, then their material living standards can increase. Through better use of resources and more efficient production techniques, the market promotes improvements in satisfaction (making someone better off), without making anyone else worse off. This highlights another way that markets tend to improve allocative efficiency.

How competitive markets affect technical efficiency

A competitive market also imposes a discipline on firms to seek the least cost **method of production**. Given that the products offered for sale in a competitive market are assumed to be homogenous, one of the most effective ways to attract customers is through offering the lowest prices. By looking at their cost structures and identifying wastage in their production processes, the firms may be able to change work and management practices and make use of available technology such that **productivity** increases. This means that existing resources (or possibly fewer resources) can achieve higher production volumes, thereby achieving higher levels of **technical efficiency**. When technical efficiency increases, the cost to produce each unit tends to fall (assuming other input costs are held constant), which means that technical and allocative efficiency can be compatible goals.

How competitive markets affect dynamic efficiency

It has been shown that competitive markets are more likely to achieve allocative efficiency when compared to any other economic system used to allocate scarce resources. **Dynamic efficiency** could be redefined in terms of allocative efficiency. It could be thought of as the ability of an economic system to move to a new allocatively efficient point following a change in conditions of demand and/or supply in the shortest amount of time and with minimal disruption as the economy restructures. When there is a change in demand and/or supply conditions, a new set of relative prices will be determined. The degree to which an economy is dynamically efficient will therefore depend on how quickly markets respond to the changed conditions by reallocating resources into the now relatively more profitable (more desired) areas of production.

In competitive markets, it is assumed that the movement to the new set of equilibrium prices will happen relatively quickly when compared to an alternative system. Suppliers, who are constantly monitoring price changes, will seek to move resources into more profitable activities as quickly as possible. As noted above, there is an assumption that resources are mobile and can be substituted into different production uses, because there are relatively low set up costs. Therefore, it should be relatively easy for firms to change their production processes and focus their efforts on the more profitable areas. This means that increases in demand can be met, because new competitors will enter the market as the relative price of a product increases. Given that the effectiveness of the competitive market system relies heavily on price changes and firms are looking always to maximise profits, it is in their interests to constantly change the types of products they supply so they don't miss out on any profit making opportunities. If the price system was not employed and resources were allocated according to a planning system, the government may still try to meet the needs and wants of the people, but the lack of clear price signals may hamper their efforts because they would have less information on which to base their decision. Their decision making may also be distorted by the activities of lobby groups and it would be quite easy to misread what the true desires of the public are.



How competitive markets affect inter-temporal efficiency

Inter-temporal efficiency is achieved when society has achieved the right balance between resources used for current and future consumption. This means that we are consuming (and producing) just the right amount of goods and services today such that our ability to consume in the future is not compromised. By definition, if we achieve inter-temporal efficiency today, then living standards for future generations will not be jeopardised by the actions of current generations.

One interpretation of this definition is that economic agents save enough of their income in the present, so that investment projects that expand the productive capacity of the economy can be funded. These investments ensure that future consumption levels can be maintained or increased. If, on the other hand, there was excessive consumption spending in the present, the level of investment might decrease. The market system should operate to promote some form of inter-temporal efficiency via money markets, but this will be determined by the preferences of the current generations (since future generations are not able to express their preferences because they cannot participate in the current market). Nevertheless, the market will adjust to excessive levels of spending in the economy in the present. If there is excessive spending and not enough saving, the money market may experience a shortage of funds that are available for investment. Given that some firms will want to access these funds, the demand for money may be greater than the supply. This shortage will therefore promote an increase in interest rates (in simple terms, the price of money). The higher interest rates will help to rebalance the level of spending in the economy, because the incentive to save will increase. There will also be an increase in the opportunity cost of spending. This may promote a more inter-temporally efficient outcome. However, if there is a low level of government intervention such that all decisions regarding balance between current spending and investment are left to the market, this might mean that essential infrastructure is neglected. Because essential infrastructure promotes inter-temporal efficiency, a lack of investment spending in this area will worsen inter-temporal efficiency. Infrastructure is an example of a product that creates positive externalities which will be discussed in Section 3.3.

Inter-temporal efficiency also takes into account the **sustainability** of economic actions. The market system is likely to result in inter-temporal inefficiency because the needs and wants of future generations cannot be directly considered. While those who are currently alive may prefer sustainability, the market will only respond to changes in behaviour that reflect **effective demand**. Therefore, a person might like to conserve the forests in their local neighbourhood. If, however, they also want to purchase cheap furniture, their buying decisions will send a clear signal to the producers.

The market has a number of drawbacks that means that the relative prices do not always reflect the full costs and benefits associated with the production and consumption of a product. Some of these costs and benefits are 'externalised' as will be explained in Section 3.3. The examples discussed throughout the chapter will illustrate how there will be an overproduction of goods and services that tend to be environmentally damaging (and which reduce the likelihood of economic actions being sustainable) and an underproduction of those goods and services that could benefit society in the long run. It has been argued that the market system is therefore somewhat short sighted.

Study tip

Units 3 and 4 students should ensure that, when answering questions about the effect of factors or policies on 'efficiency', they clearly specify the effect on one or more of the specific types of efficiency covered in this section.

Activity 3a: Benefits of competitive markets

As indicated in the diagram below, the higher level of competition in a market, the larger the number of firms, as characterised by perfect competition. The reverse is also true – the lower the level of competition in a market, the smaller the number of firms, as characterised by oligopoly and monopoly. Based on the information contained in the diagram below, answer the questions that follow:



Questions

1. Explain why (perfectly) competitive markets are likely to lead to a more efficient allocation of resources. In your answer, refer to:
 - a) Technical efficiency
 - b) Allocative efficiency
 - c) Dynamic efficiency
 - d) Inter-temporal efficiency
2. Outline why (perfectly) competitive markets are likely to result in lower prices and higher living standards.
3. Discuss the impact that more concentrated market structures like oligopoly and monopoly might have on efficiency in the allocation of resources..

Review questions 3.1

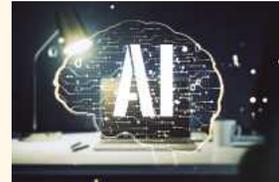
1. Describe what is meant by the term 'highly competitive.'
2. Explain how the existence of a large number of buyers and sellers in a competitive market helps to ensure that markets are highly competitive.
3. Explain how access to 'perfect information' promotes competition.
4. Explain why the offering of homogenous products results in lower prices for consumers.
5. Discuss the importance of low set-up costs and factor mobility for the competitiveness of a market.
6. Explain how a competitive market might promote an allocation of resources that maximises the satisfaction of the

needs and wants of society.

7. Explain how competitive markets ‘impose a discipline’ on firms, such that, they seek the least cost method of production. Link this outcome to the concept of technical efficiency.
8. Explain why an ‘allocatively efficient’ allocation of resources requires the market to be dynamically efficient.
9. Evaluate the following statement: ‘Competitive markets fail to achieve inter-temporal efficiency’. (You are encouraged to revisit this important question once you have completed the chapter).
10. Before you read the section on market failure, try to brainstorm a list of examples where the market system may promote the production and consumption of goods and services that don’t necessarily maximise society’s collective wellbeing. You might consider goods where there is an overallocation of resources to production in one column and an underallocation of resources to production in a second column.

Activity 3b: Digital disruption, competition and efficiency

One of the key ways that businesses can stay competitive and continue to attract valuable customers is through innovation. We are living, however, in a period of time where this is becoming increasingly challenging due to digital disruption. Digital disruption is described as a process whereby businesses discover a better way to meet the needs and wants of the consumer through the use of emerging digital technologies and models. The new method is often cheaper to implement and quicker, and in some cases provides a new good or service that may have not been imaginable in the past.



Digital disruption has the potential to increase competitive pressures in the market. While software might be expensive to create (a huge amount of research and development might be needed), once it is deployed it can enable a business to operate without the same expensive running costs. In many industries, new software ideas facilitate the entry of more and more competitors into a market. It is predicted that software driven digital disruption will increase competitive pressures in the finance, energy, healthcare and logistic sectors. Retail, telecommunications, media and transport are all already experiencing the effects of digital disruption.

Digital disruption depends, in part, on the ability to create, access and store huge amounts of data. In the past, this may have imposed a huge cost on businesses and acted as a barrier to entry. This is, however, no longer a significant cost concern for businesses and computer processing power has advanced to such a level that it can enable the extraction of high-quality information that improves competitiveness. Consumers can also access vast amounts of information. This access by consumers might lead to more informed decision making that enhances wellbeing.

Examples of digital disruption are all around us. Think about how online stockbroking significantly reduced the cost and effort required to buy and sell shares. How has streaming changed the entertainment distribution businesses? The excessive profits made by record companies are now a thing of the past as the revenue that was once derived from physical sales disappears. Similar disruptions have occurred in the passenger transport industry, delivery services, hospitality, telecommunications, financial services and real estate. Consumers might also challenge those with whom they transact – they can easily compare prices online and use this information to negotiate a more favourable price. In doing so, they increase their purchasing power and signal to the retailer that they are now subject to a different set of rules, where the market power of the retailer is being eroded.

The rapid change that occurs in business models highlights how technology can contribute to improvements in dynamic efficiency. Businesses that engage in effective research and development may identify inefficiencies in current methodologies and move society towards the consumption of products that can elevate the human experience. Many areas of digital disruption have helped to reduce market power, exert downward pressure on prices and increased the ability of households to access a wider range of goods and services. Consider the following examples:

- As students of economics, you can access up-to-date news articles at virtually zero cost (and it is assumed that this will enhance your wellbeing).
- You might be able to make more informed health decisions using the wide range of information on the internet (potentially saving money on doctors’ bills and/or improving your understanding of medical advice).
- Massive Open Online Courses (MOOCs) have the potential to increase access to education. This could flow through to productivity growth in the future and significantly reduces the private costs associated with learning. It is also likely to make the labour market more competitive.
- The rise of artificial intelligence that is changing the way services will be delivered over time, with wide ranging implications for education, healthcare, transportation, financial and legal services, as well as retail and other sectors.

The embrace of digital disruption has not been unequivocally positive for consumer choice, however. The rise of ‘tech giants’ who harvest the data of customers (and more broadly, that of internet users), and use it to deliver limited options to consumers could manipulate consumer choice even further and also potentially limit the responsiveness of the market to changing consumer demand, over time.

Questions

1. **Choose a key market that has faced digital disruption. Undertake some online research on the market.**
 - a. Describe how the market has become more competitive (based on the characteristics of a competitive market).
 - b. Explain how the disruption to the market has affected the prices paid by the consumers.
 - c. Explain how the disruption may have led to a more efficient allocation of resources.
2. **Choose a different area of digital disruption.**
 - a. Explain how this market is now more able to respond to changes in consumers’ tastes and preferences (i.e. has become more dynamically efficient).
 - b. Discuss at least one negative outcome associated with your area of digital disruption, such that there is potential for living standards to decline.

consumers may have missed out on their chocolate needs being fulfilled and some resources may have been wasted because they would have continued to be allocated to another area of production that was less beneficial to society. The producer who does not pay attention to the needs and wants of the consumer will soon go out of business, so they have an on-going incentive to monitor price changes. By responding to consumer needs, material living standards can be maximised and it may also reduce some angst in the markets, knowing that markets will respond when the desires of consumers change.

Markets also encourage on-going developments in the way goods and services are produced so that technical efficiency is achieved. A firm that is exposed to **competition** has a discipline imposed upon them that provides the incentive to seek the least-cost method of production. If we assume that products offered in the competitive market are similar, then the best way to attract customers is to offer your product at a lower price than your competitors. This can be achieved by raising the **productivity** of the workforce or utilising technology that increases the volume of product that can be produced per hour. When productivity is increased, the cost per unit has a tendency to fall. This will improve supply conditions, causing prices to fall (as per the supply analysis undertaken earlier in this chapter). As prices fall, the consumers' purchasing power increases meaning that they can access more goods and services with a given amount of disposable income.



A counter argument to each of those presented above, however, is that the **market allocates scarce resources inequitably**. The access to goods and services that a household might enjoy may be affected by their ability to earn an income. Those whose skills are in short supply relative to the labour demand in the market may command wages that are multiple times those achieved by those who work in occupations that require lower skills. Therefore, the market system will tend to result in relatively low living standards for some members of society while others achieve material living standards that may have been unimaginable to their parents or grandparents. Reliance on a purely market system would also mean that some members of society would have zero income because they are unable to participate in the production process. Furthermore, as you will discover in Chapter 4, there will be periods when there is a decrease in demand for a wide range of goods and services and this is driven by changes that can affect the whole economy. Reliance on the free market alone could therefore result in significant declines in material living standards during periods such as recession (two consecutive quarters when the volume of production in a country declines).

Inequity of income distribution may also be associated with deteriorating non-material living standards. Societies that are associated with a high degree of inequality may be more likely to experience social unrest, increased crime rates and 'status anxiety', resulting in a wide range of mental health problems.

Reliance on the market and the existence of competition may also mean firms have to constantly monitor price signals. This may mean that owners of capital and workers may be unable to relax, because they are always worried about losing market share (or their job). The emphasis in the economy on boosting productivity could also be associated with more stressed workers. Their employers may expect more and more from them and this can also affect mental health and negatively affect the quality of their relationships. Each of these factors may reduce non-material living standards.

As the next section of this chapter reveals, the excessive reliance on markets to allocate resources can result in the under-provision of some goods or services that could improve society's collective wellbeing. Some products that cause harm to the individual and society may be over-produced, resulting in a decline in society's wellbeing. These are instances where markets fail. A balanced argument about the role of markets in efficiently allocating resources and maximizing wellbeing should therefore make reference to the important role of price signals, but also acknowledge the instances where the free market cannot achieve efficient outcomes.

Review questions 3.2

1. Explain how material and non-material living standards are each measured and describe a key difference between them.
2. Explain how the market tends to promote outcomes that improve living standards.
3. Explain how reliance on the free market alone can result in a decline in material living standards during a period of recession.
4. With reference to a specific example, explain why increased reliance on the market mechanism might lead to a deterioration of non-material living standards

excludable, which means that the supplier of the product can prevent someone from consuming the product unless they pay the price offered in the market. Most products in our markets are private such that one can't consume a product unless they pay for it, and once consumed, it cannot be consumed by anyone else.

Public goods, in contrast, have opposite characteristics. They are **non-excludable** which means that the supplier cannot stop a person from consuming/using the product (even if they have not paid). They are also **non-rivalrous** (i.e. **non-depletable**) which means that consumption by one person does not lead to a reduction in the amount available for other potential consumers.

Table 3.2 below includes some products that are considered to be public goods. For each, it would be very difficult to exclude users from receiving the benefit of the product, and consumption by one person or group does not reduce the amount available for others.

A lighthouse	Border control
Police force	National defence
Street lights	Free-to-air and radio roadcasts
Prisons	National security



From an individual's perspective, there might be an incentive to consume without paying for it. This leads to the **free rider problem**, where a free rider receives the benefit from a public good but does not pay for it. Instead, they rely on others to pay for and provide the incentive for suppliers to offer it to the market.

is a person who

However, the existence of free rider problem means that the market will tend to underallocate resources to those goods where the producer cannot charge all end-users. Capitalists, who are looking for profit-making ventures, would be reluctant to enter an industry where they could not charge their customers enough to at least cover their (opportunity) cost (i.e. the amount they could have received had they produced something else instead). As a result, the producers will choose to allocate scarce resources elsewhere (more production will be directed towards private goods where higher profits can be made). This means that society misses out on the opportunity to consume this valuable product, meaning that there is an **underallocation of resources** to its production (compared to the allocation that would maximise society's collective wellbeing). The under-allocation of resources to the production of the relevant good or service means that **allocative efficiency** is therefore not achieved.

The provision of 'defence' for the citizens of a country is a traditional example used to illustrate the under-production public goods. If defence were to be provided privately, the provider(s) would need to be able to charge each consumer (perhaps through a subscription fee). Given that the defence force is unlikely to be able to choose who it defends in the event of war, many 'rational' consumers might decide to 'free ride'.

There may also be a number of citizens who do not have a capacity to pay the fees due to low income. Despite not paying, most consumers would expect to receive 'defence services' (e.g. the protection that a defence force provides). Consequently, the market (if operating freely) would tend to under allocate resources to the defence force, leading to an inefficient allocation of resources.



Government intervention: Public Goods

Government subsidies

The government will intervene in those markets where the benefits associated with the provision of public goods exceed the amount provided by the free market. They will therefore need to estimate the value society places on a public good and seek ways to increase the amount of resources that are allocated to the production of the good or service. This might mean that they provide generous subsidies to private suppliers so that they can cover the costs of their operations (including their opportunity costs). A **subsidy** usually takes the form of a direct cash payment from the government but it can also take the form of low or no interest loans, subsidised costs (such as tax-free petrol) and other grants. To work effectively, the government provides enough income to the supplier so they can offer the product to the public for free. For example, street lights may be produced by private companies but rather than charging the individuals who might benefit from the improved safety conditions, they receive their revenue directly from the government.

Direct Government provision

Alternatively, the government can simply take full responsibility for the provision of the public good. They become the national producer, which is the case for the defence force. The government employs the defence personnel and purchases the necessary defence equipment and munitions from the market so that it can provide the service itself. By entering the market as a producer of this public good they alter the allocation of resources. Through their intervention in the market to alter the allocation of resources, it could therefore be argued that government has improved society's wellbeing



Governments also provide lighthouses so that ships do not enter dangerous areas, street lighting so that streets are safer at night and emergency services. Some privately-provided goods may exhibit the characteristics of public goods. For example, free-to-air television broadcasts are services with public good characteristics because the consumption by one individual does not deplete the quality of reception available to another. Once a person has purchased a television and an aerial they cannot be excluded from receiving the free-to-air signal - which they can in the case of Pay TV or streaming services. The consumer of free-to-air TV does not pay directly because the provider of the service is able to charge for advertising space. In this case, the market has found its own solution.

Review Questions 3.3b

1. With reference to the key characteristics of each good, distinguish between a private and a public good. Provide three examples of each type of good.
2. Explain why the characteristics of a public good can lead to the 'free rider' problem.
3. With reference to your answers to questions 1 and 2, explain why the market fails to allocate resources to the provision of certain types of public goods.
4. With reference to a particular example, explain how the government intervenes in the market to alter the allocation of resources to achieve a more efficient outcome.

Activity 3c: Are our roads a public good?

A public good has two key characteristics that lead to an underallocation of resources. It might seem, at first glance, that most roads in Australia are non-excludable, given that it is possible to drive (or ride your bicycle) on a road without incurring any direct payment. Similarly, roads might also appear non-rivalrous/non-depletable, given that one's use of the road (particularly country or regional roads) does little to reduce the enjoyment or ability of others to use those same roads. It therefore suggests that a road meets the criteria to be considered non-rival/non-depletable in consumption.



In contrast, however, many of you will have experienced road congestion in built up/city areas (especially during peak times). While it is still 'free' to use the road, during peak times the use by one person does indeed reduce the ability of others to use the road. This means that at 3am the road might be non-rivalrous/non-depletable, but at 8am on the same day, the road effectively becomes rivalrous/depletable, and develops fewer 'public good' characteristics.

With respect to the other public good characteristic of non-excludability, it has always been theoretically possible to exclude non-payers from using some roads (e.g. those roads on private property). This meant that roads were

theoretically excludable and therefore did not meet the criteria to be considered a public good. In the past it has been difficult to charge for the use of public roads, which meant that in practical terms, roads were typically considered to be non-excludable. However, advances in technology have meant that, increasingly, roads are becoming more excludable, with companies (e.g. CityLink and EastLink) already able to charge users via 'e-tags' when travelling on toll roads. Governments can charge road users in such a way that people who use the roads are contributing to their creation and upkeep. The Federal Government collects fuel excise tax (approximately 50 cents per litre), GST on fuel and vehicle sales, and State Governments collect vehicle registration fees, taxes on EVs and stamp duties.

This is a very imprecise way to charge road users for their use. It is evident that the fuel excise is contributing less and less to revenue as cars become more fuel efficient. This is expected to continue with the real value of fuel excise expected to fall by 45% by 2050 (by which time a large percentage of cars will be electric). Governments will therefore need to utilise GPS data to charge road users according to their actual use. As the government moves closer to a 'user pays' model, it could be argued that our roads become less and less like a public good.

Questions

1. Distinguish between a private and a public good. Based on these definitions, provide examples where a road might meet the definition of a public good and examples where the road better meets the definition of a private good.
2. Explain whether the roads you travel on to get to school are private or public goods.
3. Why would there be an under allocation of resources to the production of roads in an economy that is purely driven by market forces?
4. Identify and explain one form of government intervention that leads to a change in the allocation of resources with respect to key infrastructure like roads.
5. Explain how intervention by the government might effectively exclude some members of society from using roads.
6. Discuss the following quote "In the future, all roads will be private goods".
7. Evaluate the proposal to charge road users based on the kilometres travelled. (Consider arguments for and against the proposal before reaching a conclusion. Ensure you use economic reasoning and terminology in your response.)

3.3(ii) Externalities

When a person buys and consumes a product, it is reasonable to expect that he or she derives some private benefit from doing so (i.e. the person's utility is increased). When a firm produces a good or service, they incur costs. Sometimes a producer or consumer (referred to throughout this section as the 'third party') may incur a cost or receive a benefit, even when they are not involved in the transaction (or production or consumption activities).

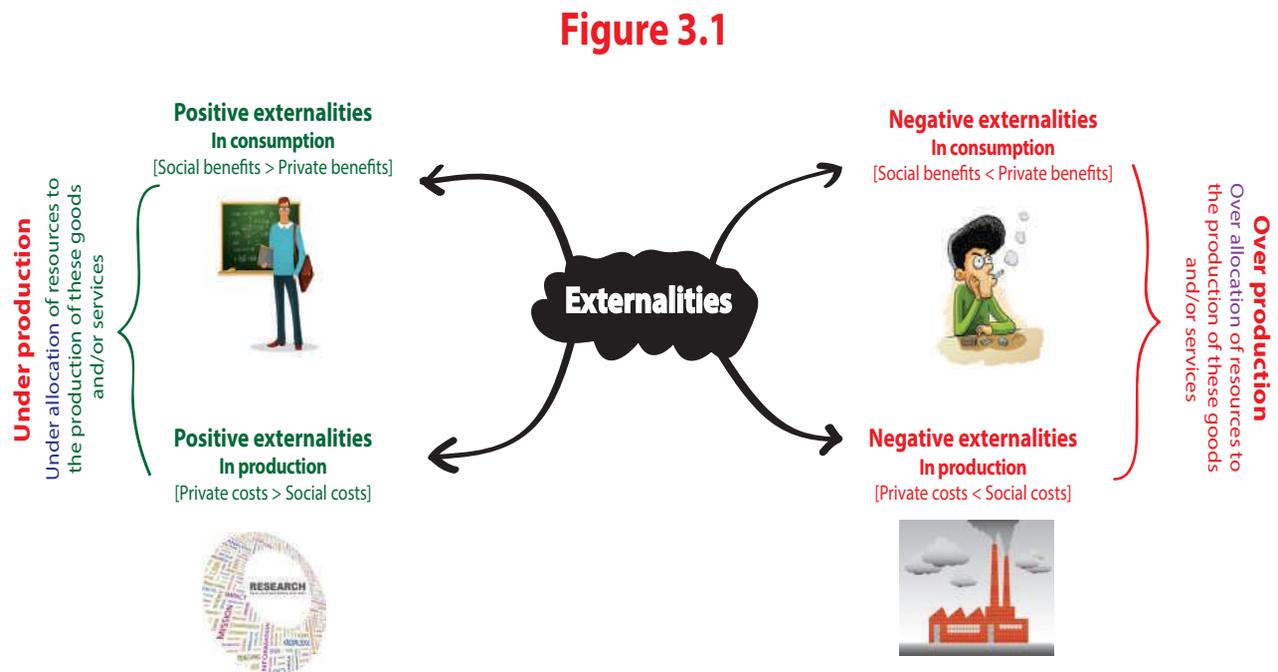
An **externality** arises when a person is engaged in a transaction (or activity) that affects the wellbeing of a third party who is not involved in the transaction (or activity). Externalities are sometimes referred to as **spillovers**. Externalities can be positive or negative and can occur in either the production or the consumption of a good and/or service. A **positive externality** occurs when the third party (consumer or producer) receives a benefit from the production or consumption of a product. A **negative externality** occurs when a cost is imposed on a third party not involved in the transaction (or activity).

Buyers and sellers tend to neglect the impact of externalities when making decisions about production and/or consumption, which means that the market outcome will not always be in the best of interests of society, at large. Before the positive and negative externalities are considered, it is worth discussing the difference between private and social costs and private and social benefits.

When considering any production activity, there are two types of costs that will be considered. Most businesses usually only consider their **private costs** (which includes the money they need to spend to make each additional good or service plus the opportunity costs). The costs of production have a huge influence on the position of the supply curve as discussed in Chapter 2. On the other hand, economists also refer to the concept of **social costs**, which takes a more holistic view of production. Social costs will therefore be higher if there is an external cost associated with production that is not incurred (i.e. paid for) directly by the producer. In contrast, social costs will be lower if the production activities convey a benefit on others that they do not have to pay for.

Private benefits are usually discussed in relation to consumption and relate to the marginal utility that a person receives from consumption (the extra increase in utility arising from an extra unit of consumption). Economists also consider the social benefits that may be associated with consumption of goods and services. Any consumption activities that provide a third party with a benefit will lead to additional benefits for society, such that the social benefits will be higher than the private benefits. Consumption activities that reduce the living standards of third parties will have a lower social benefit

than the private benefit. Figure 3.1 illustrates the nature of externalities in terms of the differences between private and social costs/benefits.



In relation to goods and services with positive externalities, it highlights that an unregulated market would devote an insufficient volume of resources to the production of these goods and services, resulting in under production. In contrast, for those goods and services with negative externalities in production, the unregulated market would devote too many resources to the production of these goods and services, resulting in over production.

Positive externalities in production

A **positive externality in production** occurs when a firm produces a good or service that provides benefits (directly or indirectly) to another economic agent (e.g. a consumer or another business) not involved in the transaction. The firm which has chosen to produce the product will only consider the potential revenue (i.e. the private benefits) they can extract from their (paying) customers and compare this to the private costs associated with production. In the case of positive production externalities, the social costs are less than the private costs associated with producing the product (because the external benefits do not reduce the private costs of production). Therefore, in a free market the producers will tend to underallocate resources to the production of goods and services that have positive production externalities.

Examples of positive externalities in production

If a firm undertakes **research and development**, it may eventually result in the production and implementation of new technology across many sectors in the economy. The firm itself may benefit from the sales of the new technology, but the technology is also likely to be beneficial to other firms and consumers who do not have to pay for the initial research and development.

Positive externalities in production can also occur when a **beekeeper** sets up near agricultural producers (such as fruit growers). The bees will pollinate the nearby fruit trees and increase their yield, but the farmers, in some cases, will not have to pay for the bees' 'work'. As it turns out, the positive externality does work both ways because having access to good quality fruit trees will improve the quality and quantity of honey available.

A firm may also undertake **training** of their workforce to improve production outcomes, such as through improvements in production techniques and communication. If an employee, whose skills have been improved by this training, should leave the organisation, then the firm will not be able to enjoy the full benefits of the investment given that the employee will be working elsewhere. Firms will therefore be more reluctant to undertake extensive investment in training (a significant cost) in the knowledge that other firms stand to reap (some of) the rewards of that investment once the more highly skilled employee moves to another workplace.

Positive externalities in consumption

A **positive externality in consumption** occurs when the consumption of a good or service improves the wellbeing of another consumer or producer (a third party, not involved in the transaction/activity). The consumer is assumed to be willing to pay a price which is equal to or less than the private benefits but won't consider the external benefits to other members of society. The market will therefore underallocate resources to these areas.

Examples of positive externalities in consumption

In a free market, demand for **vaccinations** may be lower than the socially optimal quantity. The producer of the vaccines would need to ensure they charge the customer enough to cover their costs. When a person receives a vaccine, they are likely to experience an increase in their long-term living standards because they are protected from contagious diseases. Some people who do not pay to have the vaccine, however, will also benefit because the vaccinated people reduce the viability of the disease. It is much more difficult for it to spread when there are fewer potential carriers.



Education is also a service where there are extensive positive externalities in consumption. An educated person experiences many private benefits. This might include a better understanding of how the world works and an increased earning capacity in the future. Society also benefits from having a more educated workforce because the labour force is likely to be more productive, unemployment rates are likely to be lower, crime rates will tend to be lower and people will usually experience better health outcomes. The provider of the education can only charge what the individual is willing and able to pay (which is assumed, quite unrealistically to be linked to the private benefits they expect to generate from such consumption). This means that the demand for education would be much lower in a free market (a completely user-pays system). In many cases, children from low-income households would be denied an education, resulting in a significant reduction their living standards, as well as lost productivity and lower living standards for society at large.

All positive externalities in consumption or production will ultimately lead to an **inefficient allocation of resources**. Too few resources would be allocated to the production and consumption of the relevant good or service and the socially optimal allocation of resources would not be achieved. This means that the relevant goods and services would be **underprovided** without some form of government intervention.

Government intervention: Positive externalities

As discussed in Chapter 2, the interaction of demand and supply in individual markets will determine how resources are allocated across the economy. When there are positive externalities in production and/or consumption, the allocation of resources will be sub-optimal because the market is unable to capture the external benefits that arise. Those who receive the benefits are not required to pay and it would not necessarily be rational for recipients to do so. Therefore, the government may intervene in free markets either directly or indirectly to increase the production and consumption of goods and services that convey external benefits.

Government Regulation

A **government regulations** include law that can ban production or consumption of certain activities or impose requirements on producers or consumers if they want to engage in certain activities. One way governments can use legislation to increase the production and consumption of products that convey external benefits is by making certain types of activities mandatory. They may also impose certain conditions on the use of other goods and services that also promote the consumption of goods and services with positive externalities. Consider the following examples:

- Australia has in place legislation that makes education compulsory between the ages of 5 or 6 and 16. This creates demand for, and production of, education services, some of which might not be present in a free market. The demand curve shifts to the right and the equilibrium quantity sold increases. This brings society closer to the socially optimal level of education.
- In January 2016, the Victorian Government introduced a new law they called 'No Jab, No Play'. The aim



of this legislation was to promote infant vaccinations. Those households who wanted their children to attend childcare must be up to date with the per-age schedule as determined by the Federal Government. Commonwealth childcare subsidies (where the government pays for a portion of a family's childcare) are also denied if the child is not vaccinated. This is referred to as 'No Jab, No Pay.'

- In 2021, many state governments made it mandatory for workers to be double vaccinated against COVID-19.

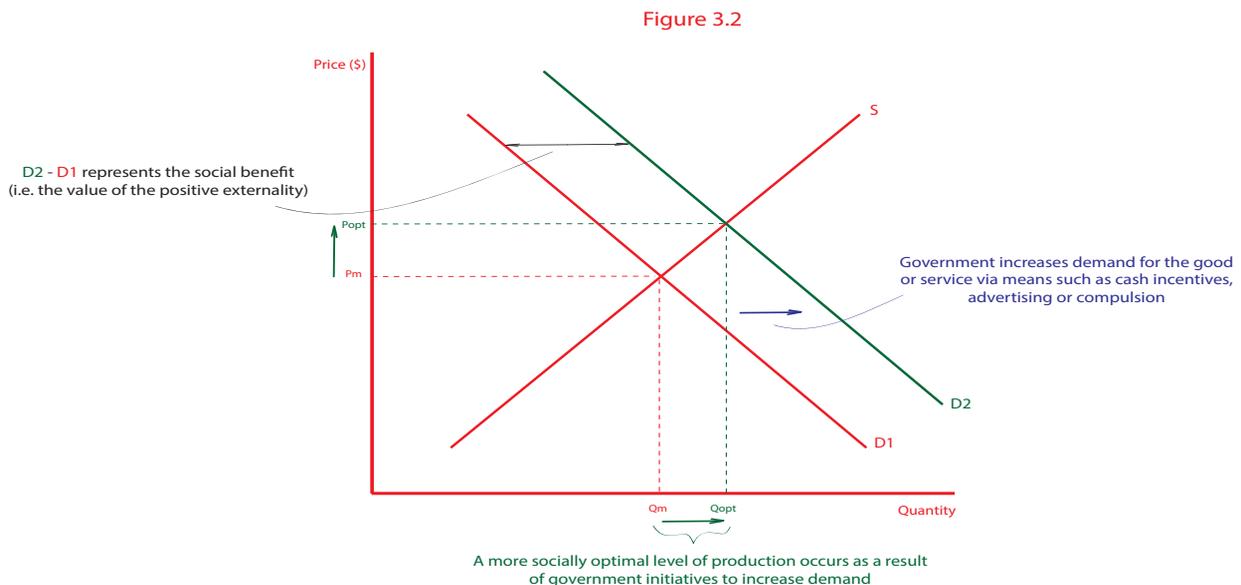
Advertising

Governments can utilise taxpayer funds to create advertising campaigns that promote the consumption of goods and services that convey positive externalities. The government may be trying to reduce the degree of ignorance about the potential benefits by providing meaningful information (so that the consumer can make a more informed decision). Consider the following examples:

- The promotion of cancer screening to protect health through early detection. One specific example is BreastScreen which provides free services for women. The most recent campaign has focused on women between the ages of 70 and 74, as this group were not using the services as much as younger generations and the chances of cancer increase with age
- The COVID-19 advertising campaign that encouraged people to behave in ways that lead to reduced transmission
- SunSmart campaigns that are designed to reduce the risks associated with exposure to UV rays that can lead to skin cancer

Each of these campaigns, if successful will help to promote improvements in health outcomes. A healthy person not only enjoys a higher standard of living but they are also likely to be able to contribute more positively to the economy. In addition, those who interact with the healthy person may also experience intangible benefits.

Both advertising and legislation are designed to shift the demand curve for products with positive externalities to the right. This is illustrated in Figure 3.2 where the quantity traded for the good or service increases from Q_m to Q_{opt} , where Q_m is the free market level of production and Q_{opt} is the quantity produced after the intervention. The use of 'Qopt' highlights that the new quantity produced is closer to the optimal allocation of resources because society's wellbeing has been improved through this intervention.

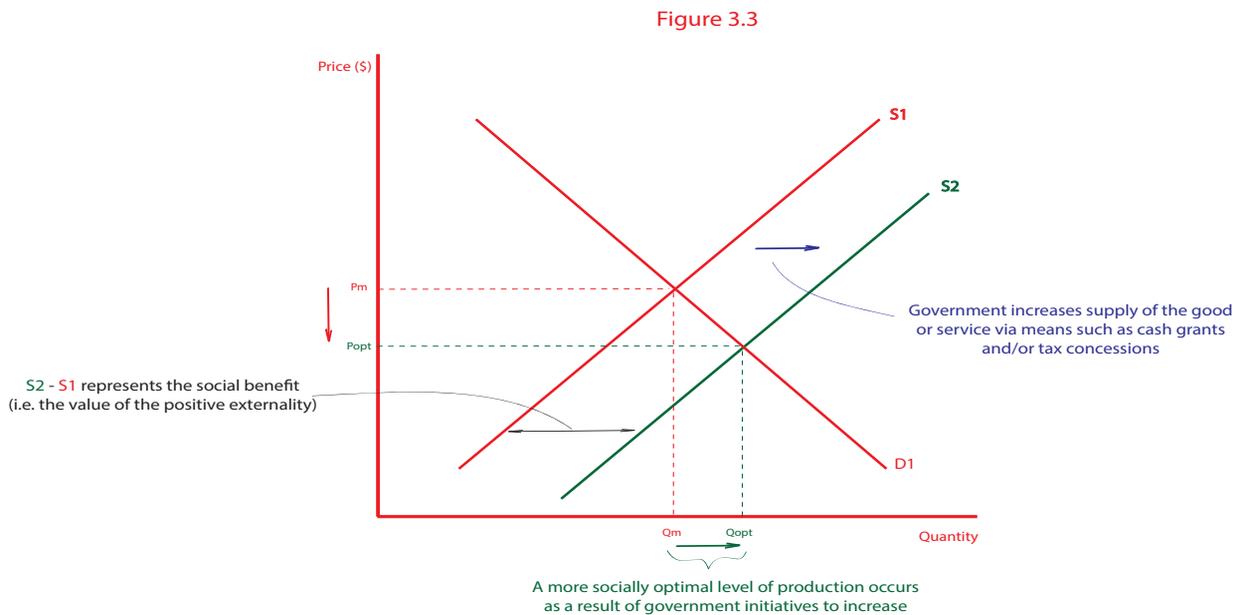


Subsidies (and direct provision)

The government can also intervene in the market to reduce the private costs of producing the goods or services in order to encourage production and consumption and therefore internalise the positive externalities.

A subsidy is a payment made, usually to the producer of a good or service that effectively reduces their cost of production. This will shift the supply curve to the right because it is now possible to supply more at each given price level. Governments can also help to subsidise private costs by granting tax relief to producers or offering low interest rate loans. When the supply curve shifts to the right this puts downward pressure on prices, helping to expand demand and increase production. In some cases, the product will be fully subsidised, which leads to a price of zero.

This is reflected in Figure 3.3 which shows how the shift in the supply curve results in an increase in the quantity traded increasing from Q_m to Q_{opt} where Q_{opt} reflects the fact that society has now allocated more resources to the production of this type of product and it is now operating closer to the allocation that optimises society's wellbeing.



Examples of subsidies to account for positive externalities

In most countries around the world, including Australia, the government is involved in the **direct provision** of both education and health care. The positive externalities associated with health care are so large that the government does not want to leave it to the private sector. For some forms of education and health care, the government intervention reduces the price to zero, such that any person who needs or wants the service can choose to access it.

Private schools in Australia are also some of the most highly subsidised in the world. The Federal Government allocates more per private school student than to each public school student (although the majority of the funding for secondary schooling is provided by State governments). The Government argues that this **investment in education** leads to better educational outcomes because it creates a more competitive market and allows schools to cater for students with different learning needs.

The Government also provides large incentives for firms to undertake **research and development**. They have implemented changes to the taxation system such that those companies who engage in eligible research and development are entitled to a refundable tax offset.



Negative externalities in production

Negative production externalities occur when the production activities undertaken by suppliers impose costs on society/third parties. This might take the form of reduced living standards for individuals or higher production costs for other firms (which will ultimately mean that consumers may have to pay a higher price for seemingly unrelated products). When the firm decides how much of a good to produce, it will look at its private costs relative to selling price. They will not consider the costs to society because they can externalise those costs onto a third party. This means that the amount they produce is deemed to be excessive (sub-optimal) from the perspective of society because at the point of production, the costs to society are greater than the benefits.

Examples of negative externalities in production

Imagine that a factory was set up next to a river. The river flows into a nearby lake where a trout farm operates. The factory, in order to reduce its costs of production, dumps its waste materials into the river, rather than dispose of it using more environmentally friendly methods. Their production activities are therefore imposing a cost on the trout farm downstream as the waste either kills the fish or makes them unfit for human consumption. Those who live along the river and use it for recreational activities also experience a decrease in their standard of living. The firm operating the factory, because it does not pay for these costs, will experience relatively low costs of production and will therefore be able to charge its consumers lower prices. Lower prices encourage greater consumption of the good or service so the product that causes the negative externalities is overproduced.



Most of the electricity produced in Australia is derived from coal-fired power plants. This involves the burning of fossil fuels. When carbon dioxide from burning the coal is released into the atmosphere it imposes costs not only on current generations but also future generations. Firstly, those who live near the power plants experience a significant decrease in their air quality. Particles in the air, for example, may be associated with the increased incidence of asthma and other respiratory conditions. These individuals experience an increase in their medical bills (a measurable external cost) and a decrease in their enjoyment of life (which is much harder to quantify). Secondly, the release of carbon dioxide contributes to climate change, leading to longer-term costs imposed on future generations. [These costs are highlighted in Chapter 10, which explains the rationale for environmental policies.] The market price for electricity does not reflect the external costs and is therefore relatively low. This encourages excessive production of electricity based on fossil fuels in the free market and leads to an inefficient allocation of resources.

Negative externalities in consumption

Negative consumption externalities occur when the consumption of goods and services impose external costs on third parties. When the consumer decides to consume a good or service, it is assumed that he/she will consider the private costs and benefits. If the price paid is equal to or less than the perceived benefit of that extra unit of consumption, then they will choose to consume the extra amount (assuming they can afford to do so). Unfortunately, that consumption may impose a cost on another individual or on a business, and therefore society as a whole may be worse off. It could therefore be successfully argued that the benefit from private consumption is larger than the social benefits from the same activity (i.e. the rest of society experience a decrease in their living standards). This results in an over allocation of resources to the production and consumption of the good in question.

Examples of negative externalities in consumption

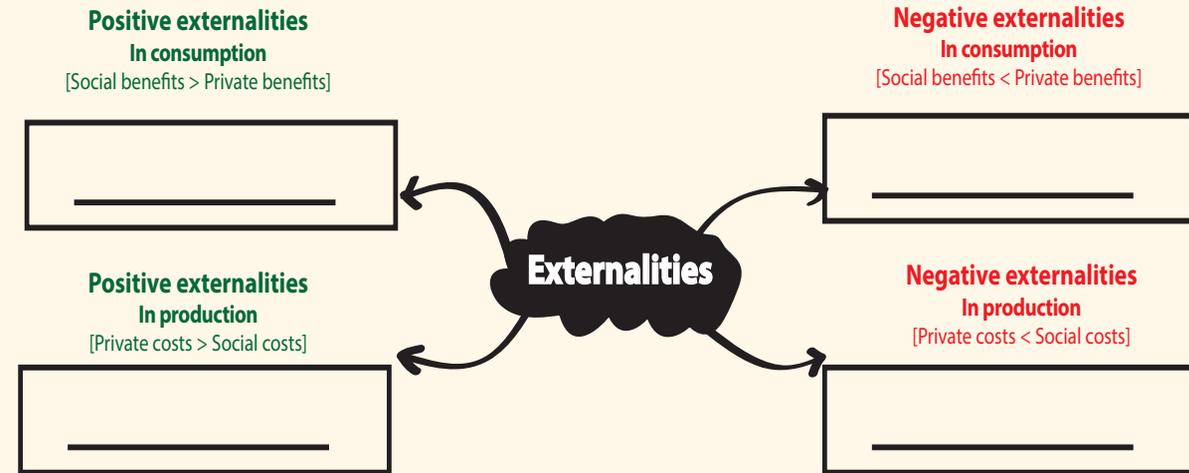
When a person consumes a cigarette in public, the toxins in the cigarette are passed from the consumer to the third party, imposing a cost upon them (referred to as passive smoking). The decision by the smoker has reduced the enjoyment of life and imposed unnecessary costs on a third party. The third party may have to allocate more of their future income to healthcare (rather than the consumption of goods and services that could add far more utility). Smoking also creates a future healthcare burden, which may result in an opportunity cost for future governments and/or higher taxes needed to fund the treatment of preventable diseases.



If you are trying to sleep at night and your neighbour is having a party, the noise pollution is a form of negative externality. The neighbour may not consider your wellbeing (the cost he or she imposes upon you), so the noise may be excessive for the relevant time of the evening. If the noise keeps you awake, then you may not be as productive at work the next day (which indirectly reduces society's wellbeing as well) and your stress levels are likely to be higher.

Activity 3d – Externalities

- Place each of the four examples listed below into the appropriate boxes on the diagram below.
 - The creation of a beautiful garden by your neighbour
 - Research and development by Apple
 - The building of a road using a jackhammer
 - Your next door neighbour's fireplace



- Explain why an unregulated market would tend to over produce or under produce the relevant good or service. In your explanation, make reference to the difference between private costs/benefits and social costs/benefits.

Government intervention: Negative externalities

When negative production or consumption externalities exist, the market will fail to arrive at the socially optimal allocation of resources (too many of the goods and services are being produced and consumed). The government will therefore look to correct this market failure by intervening in the market. Consider the following approaches.

Government regulation

A government regulation may include a law that can ban certain production or consumption activities or imposes requirements on producers or consumers if they want to engage in certain activities. Many products and activities that cause negative externalities have been made illegal over time, such as:

- In 1987, CFCs (chlorofluorocarbons) were banned by governments around the world because their use contributed to the hole in the ozone layer
- In 2007, the Victorian Government banned the smoking of cigarettes in any enclosed public environment, helping to reduce the negative externalities associated with passive smoking
- It is illegal to light fires and burn off materials in your own backyard
- It is illegal to sell or be in possession of illicit drugs and it is illegal to sell alcohol to minors
- Single use plastic bags were banned in some states of Australia in 2018
- In 2020, the Victorian Government made it temporarily illegal to travel more than 5 kilometres from home and established a curfew between 8 pm and 5am
- The NZ government has effectively banned anyone born after 2008 from ever purchasing a cigarette
- The sale of nicotine vapes is now restricted to those who are over 18 and purchases can only be made at pharmacies.

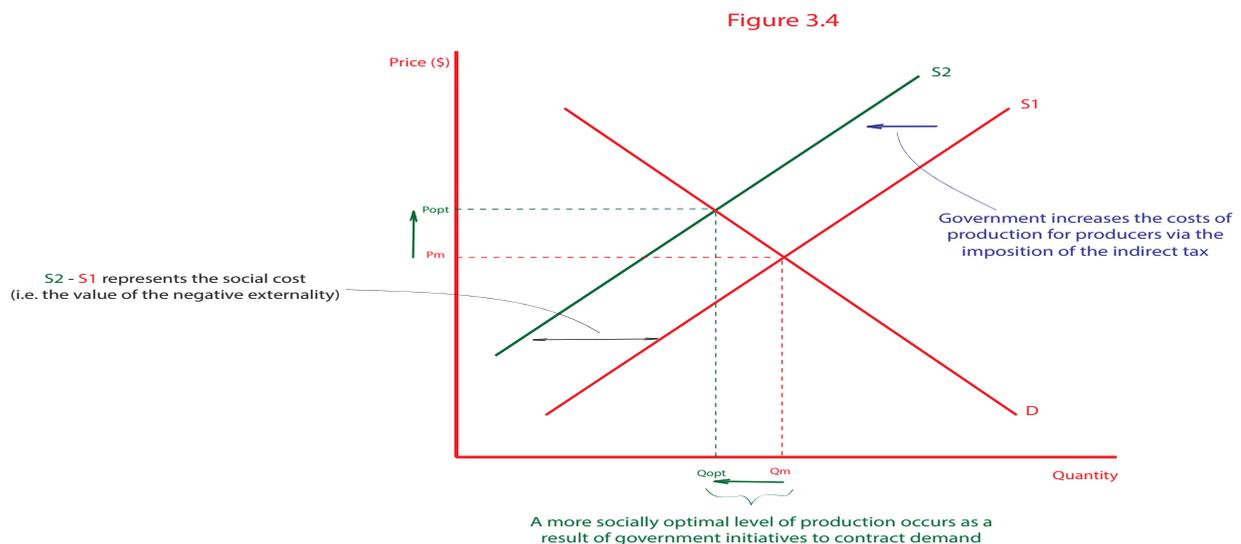
The government can also require households or businesses to modify their behaviour such as:

- Music venues that are located near residential buildings must have noise limiters fitted so that sound cuts out if it exceeds a certain decibel reading
- Cars sold in Australia must have catalytic converters installed. These help to reduce the toxicity of fumes released into the atmosphere when the car consumes petrol
- Governments may require that new buildings meet certain safety and environmental standards and reach a certain level of energy efficiency (which effectively reduces the number of future injuries that might occur and the level of pollution)
- During the COVID-19 crisis, governments around the world required people to wear masks in public.
- From 2022, new homes built in Victoria no longer need to be connected to gas.

Indirect taxation

An **indirect tax** is a source of revenue for the government where the tax may be imposed on an intermediary (such as a producer or a retailer) but where the consumer will ultimately pay for most of it (especially if the product in question has a low PED - discussed in Chapter 2).

An indirect tax is usually imposed upon the producer. This adds to the cost of production for the producer. When the cost of production increases, the supply curve shifts to the left. The price will therefore have a natural tendency to increase, which means that demand will tend to contract and production will fall. Therefore, the government intervention has altered incentives for producers and consumers and the allocation of resources has changed. As Figure 3.4 illustrates, the production and consumption of the good has been decreased from Q_m to Q_{opt} , where Q_{opt} is an indication of the socially optimal allocation of resources for that product.



The most optimal outcome is likely to be achieved if the government is able to set the tax equal to the external costs. The aim of the indirect tax is to **'internalise'** the external cost, such that those involved in the transaction ultimately pay for the costs that are imposed on society. For the producer, this additional cost might be reflected in lower sales and a lower price received (after the tax is considered), and for the consumer it will be reflected in higher prices and therefore reduced purchasing power.

Examples of indirect taxes that have been implemented in Australia include:

- The **excise taxes on tobacco**. Between July 2013 and 2020, the government increased the tobacco excise by 12.5% per year and has legislated to increase by a further 5% per annum each year from September 2023. This has resulted in the price of a packet of 50 cigarettes being as high as \$100 (Sep 2024)
- The **excise tax on fuel** (e.g. 49.6 cents per litre on petrol and diesel)
- The **excise taxes on alcohol** (e.g. up to 47% for beer)
- The **luxury car tax** of 33% for vehicles above approximately \$72,000.



Subsidies

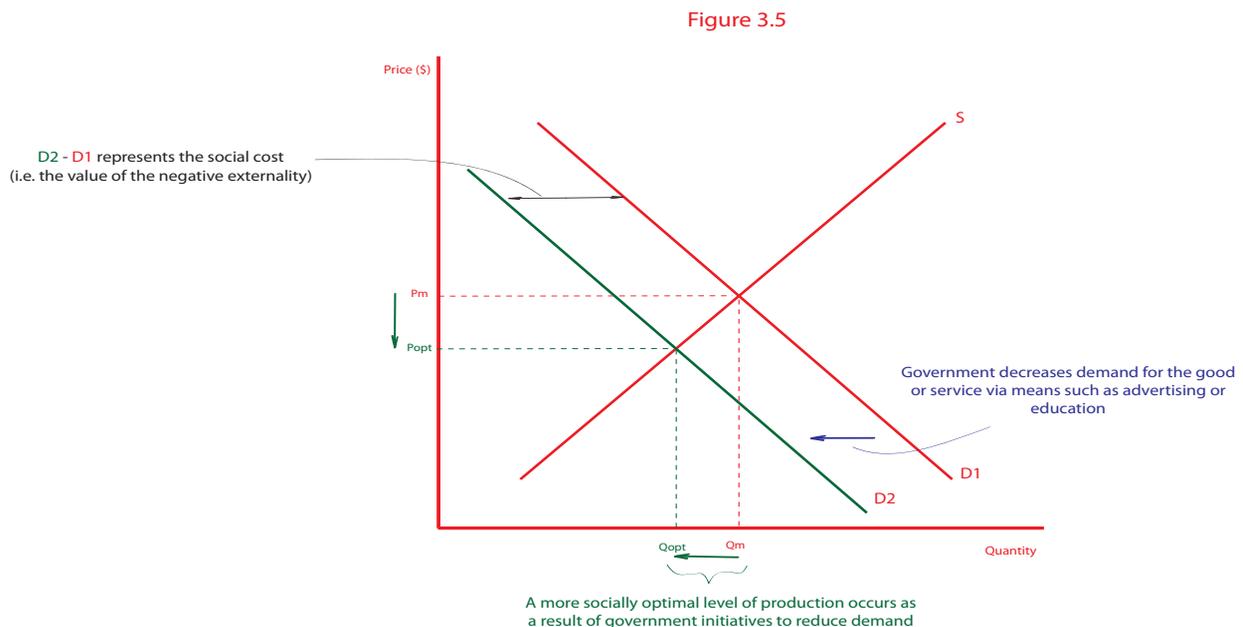
The indirect taxes referred to above will ultimately raise the relative price of the good or service and encourage consumers to substitute into the consumption of products which have less harmful effects on society and whose prices are now relatively lower. The government can also accelerate the substitution away from goods with negative externalities by providing **subsidies** to the production of goods and services that cause fewer negative externalities. For example, the Victorian Government provides eligible households with a rebate of up to 50% of the purchase cost to install solar PV panels (up to \$1,400 plus an interest free loan). This policy helps to reduce the demand for coal-fired electricity (which creates substantial carbon emissions).

Government advertising

Governments have also tried to reduce the incidence of negative externalities by influencing **tastes and preferences**. To do this they engage in advertising campaigns that attempt to educate the public about the costs that are being imposed on both the individual and society. This also applies to **demerit goods**. These goods and services tend to be over consumed because the consumer is making decisions based on incomplete information or approaching the decision-making process in an irrational manner. Education campaigns/negative advertising is designed to shift the demand curve for the product to the left. The decrease in demand leads to lower prices and quantities sold, reducing the profitability associated with producing the good or service in question. The reduction in demand is reflected in Figure 3.5, which shows how the equilibrium quantity traded decreases from Q_m to Q_{opt} .

Study tip

Demerit goods are those that are considered harmful or 'bad' for the person consuming them. They are related to negative externalities in consumption but there is an important difference. Goods with negative externalities in consumption require third parties to be negatively affected. This is not the case for de-merit goods.



Examples of government advertising include:

- Ongoing **QUIT campaigns** aimed at reducing cigarette consumption. These campaigns have illustrated, in an extremely graphic form, the health consequences associated with smoking and how smoking can affect children and those yet to be born. (The very effective 'Every cigarette is doing you damage' advertising campaign can be viewed at <https://www.youtube.com/watch?v=rjOZSg39bbo>).
- To view a wide range of advertisements associated with reducing **carbon emissions** and raise awareness about **climate change** visit <https://www.youtube.com/watch?v=iE2948gLBpw>

Review Questions 3.3c

1. Explain the difference between a positive externality in production and a positive externality in consumption.
2. Identify one example of a positive externality in production and explain, by referring to the difference between private and social costs, why the market would tend to under allocate resources towards the production of this type of good or service.
3. Identify one example of a positive externality in consumption and explain, by referring to private and social benefits, why consumers may consume a sub-optimal level of this good or service in an unregulated market.
4. Identify two different types of government intervention that have been implemented, or could be implemented, to increase the production and consumption of a good or service that conveys external benefits.
5. With reference to your examples in Question 4, illustrate how the market outcome might change using a demand and supply diagram.
6. Identify one example of a negative externality in production and explain, with reference to social and private costs, why the market would tend to over allocate resources towards the production of this good.
7. Identify one example of a negative externality in consumption and explain, with reference to social and private benefits, why consumers may consume a sub-optimal level of this good or service in a free market.

8. Identify two different types of government intervention that have been implemented, or could be implemented, to reduce the production and consumption of a good or service that imposes external costs on third parties.
9. Use two different demand and supply diagrams to illustrate how the two different policy initiatives discussed in Question 8 might work to change the allocation of resources.
10. With reference to at least one type of efficiency, explain how actions to correct the market failures caused by negative externalities are likely to lead to a more efficient allocation of the nation's scarce resources.

Activity 3e: Vaping

The Australian Government Department of Health and Aged Care describes E-cigarettes as “devices that make vapour for inhalation, simulating cigarette smoking”. E-cigarettes deliver an aerosol by heating a solution that the user breathes in. They may also be called vapes (hence the link to the term vaping). Results from the 2022–2023 National Drug Strategy Household Survey showed that the proportion of people using e-cigarettes daily in Australia increased substantially, from 0.5% (an estimated 100,000 people) in 2016 to 3.5% (an estimated 700,000 people) in 2022–2023.



The consumption of e-cigarettes can be linked to the concept of market failure in a number of ways. Most health professionals would classify e-cigarettes as demerit goods because they cause harm to those who consume them. The Australian Government Department of Health and Aged Care states that e-cigarettes are not safe for consumption. Their research indicates that many e-cigarettes contain toxic, cancer-causing substances such as formaldehyde and acrolein. These are likely to cause negative consumption externalities because long term use may be associated with increased risk of lung disease, heart disease and cancer. Many also contain nicotine, which is highly addictive and whose consumption may be associated with a higher probability of taking up regular smoking in the future. Consumption of these products therefore imposes a cost on future generations who would need to fund the higher health care costs through their taxes. Future workers may also need to be absent from work for more days, which negatively influences the productive capacity of the economy. The fact that the producer and consumer do not consider the negative externalities in their decision to maximise profits and utility results in an overallocation of resources to the production and consumption of this good.

The decision to consume e-cigarettes is also likely to be based on asymmetric information. The manufacturer of the e-cigarettes will have more knowledge of what is in the product than the consumer. Government research has highlighted that many labels were incomplete and/or inaccurate. This means that consumers were making decisions which were not necessarily rational or well-informed. The asymmetric information also contributed to the misallocation of scarce resources because society's wellbeing would have been improved if consumers were able to make more informed decisions.

Governments have become quite active over recent years, introducing new regulations designed to reduce the consumption of e-cigarettes, especially by minors. Like cigarettes, vapes cannot be purchased by anyone under the age of 18. It is also illegal to advertise or display e-cigarettes and it is illegal to consume these products in educational settings. In addition, vapes have been categorised as therapeutic goods and can now only be purchased at a registered pharmacy by persons over the age of 18. The domestic manufacture, supply and commercial possession of non-therapeutic and disposable single use vapes became unlawful from July 2024.

Another form of government intervention is education and awareness campaigns. The Australian Government funds QUIT, an organisation dedicated to reducing the consumption of harmful substances such as cigarettes and vapes. They produce short clips and resources for schools to reduce the degree of asymmetric information and help young people make more informed decisions.

Additional resources: <https://www.quit.org.au/articles/teenvaping/>
<https://www.health.gov.au/health-topics/smoking-and-tobacco/about-smoking-and-tobacco/about-e-cigarettes>

Questions

1. Distinguish between demerit goods and goods that produce negative externalities.
2. With reference to the concept of negative consumption externalities, explain why there may be an inefficient allocation of resources with respect to e-cigarettes.
3. Identify and explain how one government regulation might affect the demand and/or supply curve for e-cigarettes resulting in a change in the market outcome.
4. Explain how education campaigns are designed to affect the demand for e-cigarettes.
5. Explain why there may be asymmetric information in the market for e-cigarettes and why this leads to an inefficient allocation of resources. [Read section 3.3 (iii) first, to develop an understanding of asymmetric information.]

choose to receive compensation for the drop in value below the price paid or a refund. This legislative approach provides incentives for firms to alter their behaviour and may provide the consumer with more confidence to engage in mutually beneficial transactions.

In some circumstances, the government will introduce regulations that ensure that the seller of a product provides a greater level of meaningful information to the consumer. For example, food-labelling laws in Australia require processed food manufacturers to list the ingredients used in descending order (by ingoing weight). The provision of this information helps to not only reduce asymmetric information, but also helps to boost the consumption and production of goods that provide positive externalities.

In the **health insurance market**, government has used its legislative powers to intervene extensively. Those who earn more than \$97,000 per annum (\$194,000 for families) will face a Medicare Levy surcharge if they do not have health insurance (between 1% to 1.5% extra tax payable). The government also imposes an additional cost on those who choose to begin purchasing health insurance after they are 30. For each year that a person does not have health insurance above this age, they need to pay an extra 2%. This means that if a person joins a private health fund when they are 40, they would pay 20% more than the stated premium each year. The government also provides a subsidy for those who choose to take out private health insurance. The amount of the subsidy is based on individual or household income (the highest rebate available is approximately 25% for individuals earning less than \$97,000 (\$194,000 for households) and cuts out when income reaches \$151,000 (\$302,000 for households).



The government can also require that people who operate in certain industries are certified and registered. For example, doctors, lawyers, teachers and other professionals have to pay an annual fee and undergo on-going professional development to maintain their registration. This reduces the likelihood of a consumer buying a service from someone who is not qualified or who has caused harm to a previous purchaser.

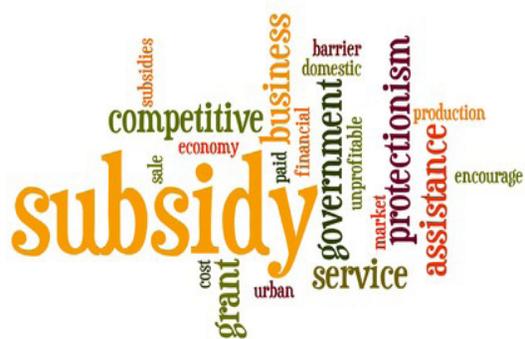
Government advertising

As was discussed in the section on positive externalities, consumers may be unaware of both the private and external benefits associated with **merit goods** (products that enhance consumer outcomes) and the private and external costs associated with demerit goods (usually harmful to the consumer in some way as well as others in society). Merit goods tend to be underprovided in a free market and demerit goods may be overprovided. This can, in part, be caused by a lack of information about the consequences of not consuming merit goods and/or excessively consuming demerit goods.

- The government could run information campaigns that highlight the benefits associated with purchasing fresh food and vegetables
- The government could inform the public about what smoking, drinking and excessive consumption of the
- wrong types of foods could do to their health

Subsidies

To increase the availability of information, the government could also subsidise firms who provide meaningful information for consumers. Documentary makers, who highlight the health consequences associated with the consumption of merit and demerit goods may be able to receive grants from the government, which increases the likelihood that potential consumers have access to meaningful information. This subsidisation indirectly alters incentives and behaviour such that a more efficient allocation of resources is achieved.



Review Questions 3.3d

1. Explain what is meant by the term asymmetric information.
2. Explain why having access to information helps to promote a more efficient allocation of resources.
3. With reference to a specific example, explain how the existence of asymmetric information might lead to a reduction in allocative efficiency.
4. With reference to a different example, explain how asymmetric information might contribute to the problem of moral hazard.
5. Explain how moral hazard might occur in the workplace and how this can result in a reduction in technical and allocative efficiency.
6. With reference to two specific examples, explain how the internet may reduce the degree of information asymmetry and help to promote a more efficient allocation of resources.
7. Visit <http://consumerlaw.gov.au/>. Outline three elements of the government's legislation that are designed to reduce the inefficiency that is caused by asymmetric information.
8. Identify and explain one other specific government initiative that has addressed the problems caused by asymmetric information and explain how this initiative has altered the market outcomes such that society's wellbeing is improved.

Activity 3f: Should Australia ban cigarettes like New Zealand?

In 2022, New Zealand became the first country in the world to start the process of banning cigarettes and other tobacco products. The proposed laws mean that anyone born after 2008 will not be able to legally purchase cigarettes in their lifetime. The goal of the policy is framed around making sure that young people never get addicted to nicotine.

A key strength of the policy is that it targets underlying factors that cause young people to start smoking (and becoming addicted while their brains may be less able to make rational choices). The ultimate aim is to get smoking rates beneath 5% of the adult population. The ban will also create the first of many smoke-free generations.

Smoking rates among the Māori population are much higher than non-Māori. Modelling by Otago University and the University of Melbourne suggests that the policy intervention will significantly reduce this health inequality. The modelling also suggested that the strategy will add an extra 600,000 health-adjusted life years (which considers not just extra years of life but also the quality of life). It is also expected that the measures could reduce health care costs in New Zealand by approximately NZ\$1.3 billion. Productivity in the workplace is also predicted to increase with fewer days lost to illness and fitter and healthier workers able to produce more per hour worked.

Prohibition has historically failed to curb the production and consumption of illicit substances in the past and concerns have been raised that the ban will lead to a growing black market for tobacco (see Activity 3j). There will be increased incentives for criminal gangs to smuggle illegal tobacco into NZ as well as incentives for illegal home grown production to take place. This increases the risks and the costs for those who would like to continue smoking, which of course is instrumental in driving demand towards zero. Some experts are concerned that a ban may also not address why people start smoking in the first place, and therefore they advocate for more funding to support education campaigns.

Questions

1. Explain why the consumption of cigarettes represents an inefficient allocation of resources.
2. With reference to the article, explain how the consumption of cigarettes impose costs on third parties.
3. Construct demand and supply diagrams to show how the ban on cigarettes might affect the market for cigarettes in 10 years, 20 years and 50 years.
4. Discuss the effectiveness of the ban in reducing the consumption of cigarettes (look at strengths and weaknesses of the policy.) You may research the impact of bans on other illegal drugs to enhance your arguments.



Activity 3g: Sugar and tobacco – negative externalities and asymmetric information

In recent times, media outlets have drawn some interesting parallels between the harm caused by sugar and tobacco. The negative health effects of cigarette smoking are well documented, including that it increases the risks of contracting cancers, heart disease and other health problems. Cigarettes are also associated with negative externalities, because those who smoke near other people impose a cost on them. The recipients of the second-hand smoke may suffer a reduction in their living standards (sometimes simply a loss of enjoyment of their life or, ultimately, the same sorts of health problems experienced by smokers themselves). The smoking of cigarettes also places an avoidable burden on the future healthcare system. The government needs to allocate a greater share of its tax revenue to treatment of those with illnesses directly linked to cigarettes, potentially leading to higher taxes and the opportunity cost of other government services that could have provided positive externalities being foregone.



Most people now are aware of the dangers associated with cigarette smoking, but at the height of their popularity, there was definitely a high degree of asymmetric information. For many years, the tobacco industry feigned ignorance of the harm caused by smoking and even employed ‘experts’ to cast doubt on any studies that suggested cigarettes were dangerous. Recent research into health problems caused by excess consumption of sugar have allowed reporters to draw some interesting parallels. Some have described sugar as ‘the new tobacco’. A number of scientific studies have linked sugar consumption to conditions such as obesity, heart disease, Alzheimer’s disease and diabetes. It could be argued therefore, that excess sugar consumption in the current period is likely to impose costs on future generations (inter-temporal inefficiency). Like tobacco, it will cause future health budgets to be devoted towards treatment of potentially avoidable medical conditions. Losing more days to illness also means that the nation’s potential output could suffer (reduction in future technical efficiency).

Like cigarette consumption, for the last 30 years many people may have been consuming excess amounts without knowing the potential dangers. The sugar industry has also been accused of spreading misinformation to protect their profits. Like the ‘Tobacco Industry’, the ‘Sugar Industry’ has funded research to cast doubt on the link between sugar consumption and poor health outcomes. The industry also sought to demonise fat, linking its consumption to heart disease (a link that has become the subject of much debate). When fat was removed from a number of processed foods, they tasted terrible, so sugar was added to make them palatable. The sugar industry also influenced the dietary recommendations advocated by the American government (and adopted in Australia), which promoted a low fat, high carbohydrate diet. Some researchers have declared that such a diet (especially when it is associated with a high sugar intake) has been the primary cause of America’s (and other nations’) obesity epidemic. It could therefore be argued that asymmetric information (caused by a lack of reliable information about the potential harm caused by sugar) may increase the incidence of negative externalities in consumption.

Some countries, such as France, Mexico and the UK, have sought to address the ‘market failure’ by implementing a ‘sugar tax’, treating the product in the same way as tobacco. As at the time of writing (September 2024) there are more than 50 countries that have introduced taxes on sugar-sweetened beverages. These types of taxes are designed to shift the supply curve to the left, resulting in a higher equilibrium price and lower sales. The sugar tax on beverages in the UK led to a 28.8% fall in the amount of sugar contained in soft drinks and a 6,500 reduction in calories from the average diet.

Governments around the world have also taken other measures to reduce the harm associated with the consumption of cigarettes and, in more recent times, sugary drinks. The Cancer Council Australia has released a number of educational advertisements to highlight the damage associated with consuming sugary drinks. This type of advertising campaign is designed to help consumers make a more informed rational decision (and in doing so, reduces asymmetric information). Governments also use regulations to curb the demand for harmful products like cigarettes. For example, it is illegal to sell cigarettes to minors and there are tight restrictions in place which ban the smoking of cigarettes (and vaping) in certain public places. In 2019, Singapore became the first country in the world to ban the advertising of beverages with a high sugar content (across a wide range of platforms). This approach mirrors the laws that the cigarette industry have been subject to for a long time, with the banning of radio and TV advertising of cigarettes in Australia in 1976. This was followed by a print ban in 1990.

Questions

1. Distinguish between a negative externality in production and a negative externality in consumption.
2. Explain why cigarettes are considered a demerit good that is associated with negative consumption externalities.
3. Identify and explain the possible negative externalities that might be associated with the consumption of products that contain sugar.
4. With reference to both the sugar and tobacco industries, explain how the respective industries actively tried to create an environment of asymmetric information.
5. Explain how the existence of asymmetric information could have contributed to an inefficient allocation of resources in either the sugar or the tobacco industries.
6. Explain how the imposition of excise taxes alter the allocation of resources and attempt to correct the market failures associated with the consumption of sugar or tobacco products.
7. Draw a fully labelled D/S diagram to illustrate your answer to Question 6.
8. Explain how different policies have been implemented to shift the demand curve for cigarettes or sugar to the left.

Activity 3h: Fakes: Do you know what you are buying?

There are thousands of instances of asymmetric information. It is rare for a consumer to be fully informed about the products that they are buying, and some unscrupulous operators have used this to their advantage to boost profits and effectively rip off their customers. Consider the following examples.



Global food production puts a lot of strain on the world's resources and provides challenges for food producers. To meet these challenges and to reduce costs of production, producers sometimes resort to fraudulent activity such as substituting ingredients with fake alternatives. In the market for olive oil, Australians are the largest consumers of olive oil outside the Mediterranean. However, journalist Tom Mueller, who undertook an extensive investigation of the industry from 2007 to 2011, discovered that up to 70% of imported olive oil was fake. He found that olive oil is often mixed with soybean oil and beta carotene to replicate the taste and consistency of extra virgin olive oil.

In relation to the market for honey, a joint investigation by Fairfax and 7.30 (an ABC current affairs program) found that of 38 honey products sold in Australia, 18% detected some form of adulteration. Some of the samples contained antibiotics, irradiated pollen and alkaloids which have the potential to cause organ damage over the long term. Others contained fake ingredients that replicate the consistency and taste of honey, such as rice malt syrup.

In the market for Indigenous art, a 2022 report from the Productivity Commission on Aboriginal and Torres Strait Islander visual arts highlighted how two-thirds of indigenous-style products, souvenirs or digital imagery sold in Australia, are fakes. Australia has no national licencing or production guidelines to protect the intellectual property (copyright) of Indigenous artists. The contracts signed by artists for the use of their work also highlights the problems associated with asymmetric information because there were clauses that were not effectively explained (and the artists may not have been able to afford lawyers who could review the contracts).

In the market for car parts, Mercedes Benz believes that counterfeit car parts are now more profitable than drug trafficking. The company claims that it seized over 1.6 million counterfeit parts in 2023 through 740 raids. This highlights the dangers of fake automotive components, since in most cases, these parts have not been tested to meet the same safety standards. This increases the risks of the cars failing and may increase the incidence of accidents. Mercedes Benz also claim that counterfeiters often produce their goods in conditions where there is little regard for human rights with poor environmental standards and unsafe working conditions.

...and what about online reviews?

One of the ways to reduce the degree of asymmetric information in a transaction is to undertake market research (screening). In such cases, consumers might read online reviews posted by previous customers. According to analysis by the World Economic Forum, Australians could be spending as much as \$900 million per year on products that are based on fake reviews. Kay Dean, a former United States federal investigator, found that companies could purchase favourable reviews, highlighted by the fact that some reviewers were able to review services from multiple providers around the world at the same time.

Fakes are an example of intellectual property (IP) theft. While in most cases the infringement of someone's IP rights is a civil matter (i.e. the remedies are sought by the infringed party suing the wrongdoer) rather than a criminal matter, counterfeiting (e.g. the imitation of another product) is indeed a crime and punishable by up to five years imprisonment or a fine of more than \$115,500. Australian governments also have a host of other laws and regulations that are designed to protect consumers from this type of activity, such as those prohibiting misleading and deceptive conduct. These laws and regulations are policed by the Australian Competition and Consumer Commission (ACCC) as well as various state government consumer bodies.

Questions

1. Explain what is meant by the term asymmetric information.
2. Choose two of the examples explored above and explain how the existence of asymmetric information in this market may lead to a decrease in living standards for the individual and society. Further research on your chosen case study may also be valuable.
3. Explain, with reference to one of the case studies, why the existence of asymmetric information might also be associated with negative externalities.
4. Explain how review sites might theoretically reduce the ability of businesses to exploit the existence of asymmetric information and therefore help to achieve a more efficient allocation of resources.
5. Choose one of the case studies and explore how government intervention can improve efficiency in the allocation of resources.

3.3 (iv) Common Access Resources

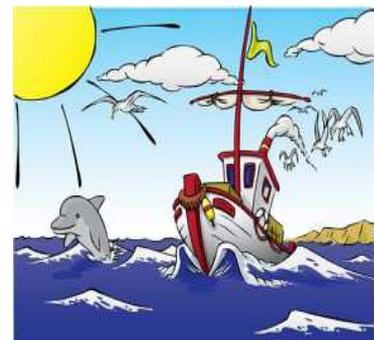
The exchange of goods and services in the market is usually associated with a mutually beneficial transaction that improves the living standards of all involved. Most of the products traded in the market are private goods, which means that due to our protection of **property rights**, someone who owns the good has the right to transfer ownership of the good to someone who is willing to pay for it.

Common access resources, however, do not fit neatly into our discussion of the market because they are, by definition, not owned by anyone, usually do not have a market price and are therefore available to anyone even if they have not paid for them. Common access resources have one similarity and one major difference to public goods:

- Like public goods, common access resources are **non-excludable**. This means that anyone can utilise these resources without having to pay for them in a market.
- Unlike public goods (and therefore being somewhat similar to private goods), common access resources are **rivalrous** in consumption. Consumption by one individual reduces the amount that is available for someone else.

Examples of common access resources

The **fish in the ocean** (or a river) may be considered a common access resource. If the fishing industry removes more fish from the ocean than the rate of reproduction, then the delicate marine ecosystem can be disrupted, and the fishing stock can be depleted (to the point where it does not return).



Clear air and a stable atmosphere could also be classified as a common access resource. Humans use the atmosphere as a dumping ground for all manner of toxic pollutants. Each time a person or business releases pollutants into the atmosphere, the availability of clean, breathable air is reduced for all users. In addition, the accumulation of greenhouse gases in Earth's shared atmosphere is the cause of human-induced climate change and a substantial risk for sustaining economic activity into the future. [This will be considered in much more detail in Chapter 10, when examining environmental policies.]

In some countries, access to **forests** is granted for the use of agriculture and the conversion of trees into saleable timber. In the long term, land may be destroyed by overgrazing (it becomes less arable and soil erosion occurs) and biodiversity may be permanently lost. Future generations experience a reduction in the amount of arable land that is available for them to grow food.

Common access resources cause market failure

Each of the above examples highlights that the unsustainable use of common access resources causes environmental problems. **Sustainable development** is an important consideration for all economies because it relates to the balance between current and future consumption. The commonly quoted definition of sustainable development comes from the Brundtland Report:

development that meets the needs of the present without compromising the ability of future generations to meet their own needs

The overuse and exploitation of common access resources by current generations reduces the amount that is available for future generations, resulting in lower living standards. The existence of common access resources highlights the possible conflict that can exist between the pursuit of economic goals and environmental goals. Attempts to boost technical efficiency in the current period, by increasing production of goods and services at a lower price, can cause a decrease in inter-temporal efficiency. For example, new technology that is invented that allows fishing crews to extract more fish from the water per hour can actually lead to falls in prices for the fish sold and greater purchasing power for the current generations. However, adoption of these fishing techniques results in more rapid depletion of stocks, reducing the living standards of future generations.

Study tip

Market failure can be discussed in terms of any of the four types of efficiency. In the case of common access resources, it is best to illustrate how the characteristics of common access resources lead to inter-temporal inefficiency because current generations increase their living standards at the expense of future generations.

The problem with common access resources was first described by Garrett Hardin in the journal *Science* in 1968 as the '**tragedy of the commons**'. Each person, acting in their own self-interest, pursues actions that maximise their own

utility or profit, but this leads to the destruction of the common access resources that sustain life. He described this as 'freedom in a commons brings ruin to all'.

The **lack of excludability** and the **absence of prices** naturally leads to excessive production and consumption of goods that use up valuable common access resources. Common access resources also share some of the market failure characteristics of negative externalities. Given that clean air and a livable atmosphere is a common access resource, the quality of this air can be reduced through activities that cause toxic pollution. The negative externality is the cost imposed on a third party, which in this case, is all future users of the common access resource who have less clean air available to them. Inter-temporal efficiency is therefore reduced by the overconsumption of common access resources.

Government intervention: Common access resources

Government regulations

Governments can use their legislative powers to reduce the current consumption of common access resources and promote sustainable development. The government can implement legislation that bans the use of certain common access resources, requires alterations to production techniques, requires users to apply for permits or licenses or change the law with regards to the setting and monitoring of quotas.

Consider the following examples of government regulations:

- Requirements that cars be fitted with catalytic converters. This was discussed in the section on negative externalities but is also relevant here because excess **pollution** reduces the amount of clean air (a common access resources) that is available, because the driver uses the atmosphere as a receptacle for their waste.
- Banning the use of certain substances. For example, CFCs have been banned since the late 80s as they created a hole in the ozone layer. The ozone layer is a common access resource because it provides protection to all from harmful UV rays.
- The government may restrict when people can undertake hunting activities. For example, in Victoria, ducks can only be hunted between predetermined dates, usually between March and June each year. Hunters also have limits on the amount of ducks they may kill each day. Certain species of duck are also banned from hunting, depending on their populations.
- Certain areas of land are excluded from **excessive development**. For example, Parks Victoria (a government authority) is responsible for the protection and enhancement of over four million hectares of important land. This land is utilised in a sustainable fashion so that future generations can utilise the resource in the same way that current generations are able to do so.
- The government may ban certain production techniques. The Victorian Government recently implemented a ban on commercial net fishing in Port Phillip and Corio bays.



Indirect taxation

Indirect taxes were discussed in Section 3.3(ii) as a possible way for the government to correct the market failure associated with negative externalities. Indirect taxes are designed to alter the structure of relative prices, which changes the incentives for producers and consumers. The most effective way to understand how these taxes work is to consider one of the most important challenges faced by society in terms of sustainability- climate change.

As noted above, it can be argued that a stable climate is one of humanity's most important common access resources. Approximately 99% of scientists agree that human action, especially the burning of fossil fuels which release carbon dioxide into the atmosphere, causes climate instability and the warming of the planet. This will reduce the ability of future generations to access the favourable weather conditions needed to maintain the high standards of living we have become accustomed to. Government-commissioned reports from around the world (including the Garnaut report in Australia and the Stern report from the UK, as well as the UN's Intergovernmental Panel on Climate Change) have predicted some of the potential costs that might be imposed on future generations as a result of **climate change**. These include:

- More erratic weather patterns that damage homes, businesses, infrastructure and common access resources.
- The incidence and intensity of drought may be more pronounced reducing the availability of food.
- Climate change would destroy one of Australia's most beautiful and income-producing common access resources- the Great Barrier Reef.

Governments can attempt to mitigate the effects of climate change through the introduction of a carbon tax. Finland was the first country to introduce a carbon tax in 1990. Since then, 20 European countries have implemented carbon taxes, ranging from less than €1 per metric ton of carbon emissions in Ukraine to more than €100 in Sweden, Liechtenstein, and Switzerland. Australia had a carbon tax between on July 1, 2012 and 1 July 2014. It was initially set at AUD23 per tonne. It worked by increasing the costs of production for the top 500 polluting firms. This provided the incentives for firms to alter their methods of production. Households also had the incentive to change their behaviour as the tax flowed through to energy prices. [The current 'safeguard mechanism' used by the federal government to reduce carbon emissions is not an example of a tax, but rather a price on carbon that has equivalent effects. See Chapter 10.]

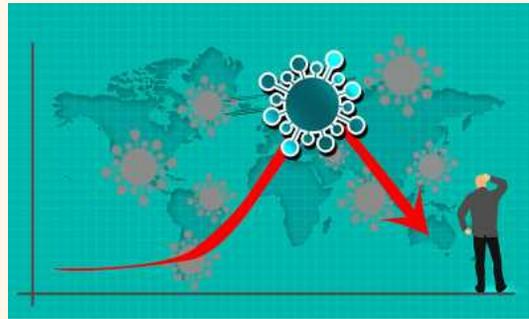
Subsidies

The use of subsidies and taxes are often employed by governments to alter relative prices and therefore incentives. For example, the government can subsidise the cost of solar panels or reduce the tax payable on electric vehicles. This alters relative prices and encourages consumers to move towards products that do less damage to common access resources.

The problem with market failure caused by overuse of common access resources is that it often spreads beyond national borders. Climate change is a key example, as stable weather patterns are a common access resource that can be affected by actions taken in all parts of the world. To effectively mitigate the effects of climate change, international cooperation is needed. The UN 'Paris Agreement' was one such attempt. Parties to the United Nations Framework Convention on Climate Change agreed to strengthen the global response to the threat of climate change. Further details can be found at <https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>.

Activity 3i - COVID-19 and Common Access resources

During most of 2020, the world experienced the COVID-19 pandemic. This highly contagious disease resulted in a significant increase in the demand for personal protective clothing, such as disposable face masks and latex gloves. The disposal of these products highlights the link between consumption, negative externalities and the impact on common access resources.



Most of the face masks sold around the world are disposable. They are worn for a short period of time and then added to the vast stock of waste that is dumped in landfill sites. Unfortunately, a large number of the masks also ended up in the oceans. This adds to the extensive amount of plastic pollution that can already be found in the oceans and other common access water resources around the world. The UN estimates that as many as 13 million tonnes of plastic goes into the oceans each year. Masks often contain polypropylene, a plastic that has a lifespan of 450 years.

It is clear that most humans now ingest plastic products indirectly. Over the past two decades, concern over the effect of microplastics on human health has grown. Some researchers have hypothesised that consumption of these plastics could contribute to hormone imbalance, damaged liver function and increase the probability of contracting certain types of cancers.

Marine biologists are also concerned that masks in the oceans will be mistaken for food by dolphins resulting in significant harm to their health and wellbeing. The masks are also washing up on beaches all around the world. Aside from the environmental damage, it is evident that there will be financial costs to future generations through the negative impacts on marine ecosystems and tourism and the need to spend additional government funds on clean-ups. Some environmentalists are concerned that governments, worried about the health risks from infected face masks might turn to open burning or incineration, which would result in the release of toxins into the atmosphere (further damaging another common access resource).

This case study illustrates how human production and consumption activities have effectively reduced the viability of a very important common access resource and imposed costs on third parties (both now and in the future). There was, however, one temporary benefit associated with COVID-19. There was a significant reduction in air travel. Many people were also forced to work from home, resulting in less travel by road. This led to lower carbon emissions and cleaner air in a number of cities around the world. According to the IMF, emissions of carbon dioxide and other greenhouse gases fell by 4.6% in 2020.

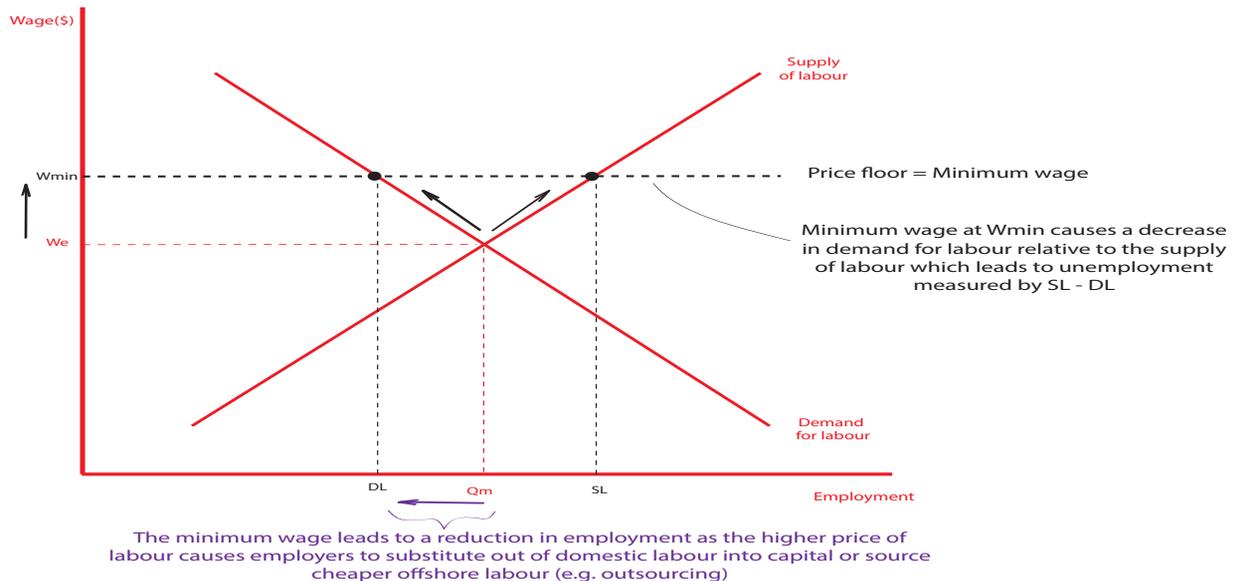
Questions

1. Explain why there is often a link between excess consumption of common access resources and negative externalities. Enhance your response with reference to an example.
2. With reference to relevant characteristics, explain why the oceans are an example of a common access resource.
3. Explain how the use and disposal of face masks and latex gloves may impose a cost on future generations. Make reference to common access resources in your answer.
4. Explain how COVID-19 might have led to changes in human behaviour that reduced the use of common access resources. Go beyond the examples referred to in the case study.
5. Brainstorm how the government might intervene in the market to reduce the costs associated with face mask use and disposal.

significant problem associated with setting minimum wages is that the market is unlikely to achieve the **equilibrium wage** (assuming it is set above the equilibrium) which creates surplus labour (or unemployment).

This is reflected in Figure 3.7, where the minimum wage (W_m) has been set above the market-clearing wage (W_e). At the minimum wage, the labour supply is greater than the labour demand, meaning that a number of people, who are willing and able to work at the going wage, are unable to obtain employment. This is clearly an inefficient allocation of resources because valuable labour is not being utilised in the production process. The country will be operating inside its PPF and the maximum volume of production, and satisfaction cannot therefore be achieved. New classical economists would suggest that, using their traditional model of the competitive labour market, Australia's higher-than-world-average minimum wage explains why it has been harder for Australia (at least up until 2022) to achieve unemployment rates lower than 4%, even when the economy is achieving its potential output. In contrast, the US has generally been able to achieve lower rates of unemployment than Australia, in part, due to its lower minimum wages.

Figure 3.7



On the other hand, a recent study by the RBA concluded that increases in the minimum wage did not cause loss of jobs or hours worked. The study suggested that it might actually contribute to increases in employment (because it raises the disposable income of the lowest paid workers who have a higher marginal propensity to consume). As more empirical studies are undertaken around the world, it might be harder to argue that the imposition of minimum wages causes the labour market to remain in a state of disequilibrium.

The 'artificially' inflated wages in some industries also alters the structure of relative prices in the economy. Australian businesses which open on Sunday are particularly affected because they are forced by law to pay penalty rates. In some instances, they choose not to open on a Sunday, resulting in a potential loss of output (operating inside the PPF).

Businesses which attempt to compete with international firms may also find it difficult to keep their prices lower. The high wage costs in Australia may go some way to explaining why Australian cities are some of the most expensive places in the world to live. We pay more for groceries, clothing, entertainment and technology. This means that the government's intervention may reduce the purchasing power of many Australians whose wages are determined by market forces.

The minimum wages also distorts the **price mechanism**. The relative wages of those whose remuneration is determined by market forces may not be affected, but relative wages might be. The wages of those professions covered by minimum wages are more than likely to be artificially inflated such that the relative wages of the skilled to unskilled might be reduced. This could affect the allocation of scarce labour resources in the economy with there being an under allocation of labour resources to certain professions because the relatively higher wage does not justify the extra training and/or effort.

Study tip

Some students have trouble visualising the impact of a price floor or price ceiling on a D/S diagram. Any artificially set price ceiling will always be below the market equilibrium price, and the price floor will always be above the market equilibrium price. One way to remember this is the saying that 'the floor is on the ceiling and the ceiling is on the floor' - to remind yourself that, when talking about government price controls, the ceiling will be closer to where we normally consider a floor to be, and the floor will be closer to what we think of as the location of a ceiling in the real world!!

Subsidies and indirect taxes

Subsidies and indirect taxes have been discussed extensively in this chapter as a potential way to correct market failures. Subsidies are generally used to encourage the production and consumption of public goods, products that convey positive externalities and to alter relative prices so that people move away from goods that impose external costs on others. A subsidy can take the form of a direct payment from the government to supplier, a tax concession, a low interest rate loan or a reduction in the price charged for government services.

Like many countries around the world, Australia provides subsidies to carbon intensive producers. Fossil fuel companies receive fuel tax credits, tax breaks for exploration and infrastructure development and the ability to depreciate assets at an accelerated rate. In 2023, the International Monetary Fund (IMF) found that Australia granted about \$10 billion in explicit fossil fuel subsidies, including tax breaks for coal and gas producers. Some estimates are higher, with research by the Australia Institute revealing that 'state and federal governments provided \$14.5 billion in subsidies to fossil fuel producers and major consumers in 2023-24'.

These subsidies significantly alter the incentives of the relevant fossil fuel users, and ultimately this affects relative prices and how resources are allocated. Even if the burning of fossil fuels did not cause climate change (which almost all scientists believe it does), the alteration to **relative prices**, in and of itself, is an unnecessary distortion to the market. It effectively lowers the cost of production for those mining the fossil fuels and any industry that relies on fossil fuels as a source of energy. This shifts their supply curve to the right resulting in a lower equilibrium price and a greater-than-free market volume being sold. The Director of the International Energy Agency noted the following in a 2022 report:

Fossil fuel subsidies are a roadblock to a more sustainable future, but the difficulty that governments face in removing them is underscored at times of high and volatile fuel prices. A surge in investment in clean energy technologies and infrastructure is the only lasting solution to today's global energy crisis and the best way to reduce the exposure of consumers to high fuel costs.'
Source: www.iea.org

In general terms, subsidies lead to a greater volume of production in the industry than what would have occurred in a free market. It makes all goods and services artificially cheap and therefore encourages more consumption of goods and services, which might not be ecologically sustainable (intertemporally inefficient). The government intervention results in a reallocation of resources to fossil fuels at the expense of other areas (as the subsidies could be allocated by the government to education or healthcare that would generate positive externalities). The governments are also actively supporting an industry that is known to add to carbon emissions (and therefore negative externalities).

Chapter 10 will explore a range of measures that the federal government has employed to accelerate the transition to renewable energy. One key component of government support is the provision of subsidies to the renewables sector to assist in technological development over time and the achievement of economies of scale. For example, the 2024-25 Budget allocated more than \$20 billion in support to the renewables sector, part of which is a commitment to provide subsidies (up to \$1 billion) for the manufacturing of solar panels in Australia. From a technical efficiency point of view, the subsidisation of solar panel manufacturing may not make a lot of sense given that China (the major global producer of solar panels with 80% of the global market) has a comparative/competitive advantage in the production of solar panels. If the sole intention of the government was to protect Australian producers and jobs (only 1% of solar panels used in Australia are manufactured in Australia), then it could represent a case of government failure given that the \$1 billion comes at an excessive opportunity cost. However, the government makes the point that the subsidy is designed (at least in part) with sovereign capability in mind. That is, it wants to reduce Australia's reliance on foreign producers and provide Australia with the security of having this capability in the event that there is a deterioration in diplomatic or economic relations with countries such as China.



In relation to **indirect taxes**, unless these are set at an 'appropriate level', they have the potential to result in unintended consequences that undermine the achievement of allocative efficiency. For example, the relatively high rate of excise on alcohol products, including alcopops (ready-to-drink sweetened alcoholic beverages), has the perverse effect of raising the price of alcohol to such a high level that young people are increasingly turning to the consumption of illicit party drugs, whose relative price continues to fall. It is argued by some that the use of indirect taxes to reduce alcohol consumption, as a means of addressing market failure over recent years, has actually created net costs for society. To

the extent that this is true, it means that the benefits stemming from the increase in these indirect taxes to their current levels (in terms of the reallocation of resources away from alcohol production) are outweighed by the costs (in terms of the reallocation of resources towards the production of illicit drugs). Accordingly, the increases in excise on alcohol can be considered an example of government failure as it results in a net reduction in (allocative) efficiency.

A similar argument applies in relation to excise on tobacco. As noted earlier when discussing indirect taxes as a means of addressing market failure, the rate of increase in excise on tobacco has been extremely high since 2013, resulting in the price of a packet of 50 cigarettes now exceeding \$100. This has also had significant unintended consequences such that it can now be argued that the overall effect on society is a negative one. The price of tobacco products in Australia is so high that the relative price of tobacco purchased on the black market (i.e. illegal tobacco that is often called 'chop chop') is very low. This has resulted in an acceleration of criminal activity in this market and the associated negative effects for society, including the 'tobacco turf wars' that has resulted in damage to retail outlets (tobacconists), assaults and fear in the community. This diverts scarce resources towards fighting crime and away from other pursuits that enhance our welfare. [See Activity 3]: Are taxes on cigarettes leading to government failure?]

Protectionism

Governments around the world try to give their local industries a competitive advantage so that they don't lose sales to foreign suppliers. This form of intervention in the market can lead to sub-optimal outcomes for society in terms of reducing efficiency and living standards over time. One method of protecting local industry is to impose a tariff (a tax) on imported goods. This can be expressed as a percentage of the imported price of the good or a fixed amount per item. Australia's motor vehicle tariffs peaked in the 1980s at rates above 100%, effectively more than doubling the price that consumers had to pay for imported (and as it turned out, domestically produced) vehicles. Since the 1990s, the tariffs on a whole range of imported goods have been reduced, with motor vehicle imports now facing a maximum tariff of only 5%. Australia has also signed a number of free trade agreements which means that imported cars from Japan and Korea are subject to no tariffs at all. While it is beneficial to have lower tariffs on cars imported from these countries, the fact that tariffs remain



on imported cars (in particular, those from Europe), means that relative prices are distorted. This alters decision making and results in **trade diversion**. Australian consumers are not necessarily purchasing the most appropriate vehicles (those that might maximise their wellbeing) because trade is being diverted from European producers (who might in some cases be the most efficient) to those who are less efficient (because they do not have to include the cost of the tariff in their final price).

In 2020 and beyond, China imposed protectionist measures on a range of Australian goods in response to the Australian governments call for an inquiry into the origins of COVID-19. This represented a retreat from trade liberalisation and included higher tariffs on wine and barley as well as non-tariff barriers restricting the import of Australian coal, cotton and lobsters into China. While these barriers were progressively eased and/or removed over 2023-24, they contributed to a less efficient allocation of global resources. Chinese consumers were faced with higher prices for Australian goods relative to that offered by other countries, resulting in trade diversion and a shifting of China's demand away from a low-cost producer (Australia has a comparative advantage in the production of goods like wine, coal and lobsters) to less efficient and higher cost producers elsewhere.

On the surface, tariffs and other forms of protection create demand for locally made goods and therefore result in employment opportunities. It might appear that labour resources are more fully employed, which, it could be argued, is an improvement in the efficiency of resource allocation. However, rather than create additional employment, the increased tariffs can result in higher prices and an increase in the unemployment rate in the long-term. Firms that use intermediate goods which have tariffs imposed, would also face higher costs of production, and tariffs also encourage complacency (reducing productivity), and can invite retaliation by trading partners. Overall, the imposition of tariffs, and other forms of protection, are usually associated with a negative effect on other types of efficiencies as outlined below.

Technical efficiency suffers. Protectionism effectively reduces the level of competition in the economy. Competition imposes a discipline on firms, such that they seek to lower their costs by making productivity improvements. When there is a 'buffer' from competition (because the price of competitors products are artificially inflated by tariffs), firms may become complacent and less concerned about finding ways to improve their performance.

Allocative efficiency suffers. Tariffs are a distortion to the price mechanism and therefore influence the incentives and behaviours of consumers and businesses. The higher relative price of imported items allows local manufacturers to charge higher prices than those that would eventuate in an unregulated market. Resources are therefore more likely to move into somewhat inefficient industries, whose ability to produce goods efficiently is inferior to those that could be made in another country. Valuable resources are not necessarily allocated to those areas which could generate greater returns for businesses (the highest end use). Society's wellbeing is not maximised because the combination of goods and services that is produced does not generate the highest level of value. The prices of both the locally made and the imported products are higher so the consumers cannot access as many goods and services with their income.

Dynamic efficiency suffers. Tariffs and other forms of protection reduce the ability of the market to provide clear price signals. The ongoing subsidisation and other forms of protection offered to the car industry meant that they paid too little attention to changing conditions of demand. For example, when Ford and Holden were operating between 2010 and 2016, higher oil and petrol prices caused consumers to show interest in vehicles that were more fuel efficient. However, both Ford and Holden made little change to the types of cars they produced and offered for sale in Australia, and instead continued to produce larger vehicles with lower fuel efficiency. Their lack of dynamic efficiency (their inability to respond to changing consumer demands) was, in part, due to the fact that they received generous subsidies from the government that meant they were still able to make a profit even when their sales were rapidly declining.

[The impact that protection has on efficiency and the economy more generally is explained further in Chapter 10.]

Moral hazard

In some circumstances, actions taken by government can result in moral hazard. Regulations and tax incentives introduced by government can result in economic agents changing their behaviour in such a way that it is sub-optimal from society's point of view. For example, during the COVID-19 induced recession of 2020, the government increased the amount payable for **JobSeeker** (unemployment benefits) from approximately \$560 per fortnight to \$1,100 per fortnight. This initial amount may have led to some unintended consequences. There were some reports that some employers found it hard to attract suitable labour as the higher payment reduced the gap between the minimum wage and the unemployment benefits. In addition, the design of the 2020 **JobKeeper** wage subsidy had an inbuilt flaw, as eligibility for six months of the subsidy hinged on businesses reporting a 30% reduction in revenue for March 2020. This resulted in well-documented cases of businesses receiving the



subsidy for the entire six months despite the fact that their revenue for the months of April – September was unimpaired. This resulted in excessive opportunity costs and allocative inefficiency as the funds could have been put to better use in assisting with the much-needed economic recovery at the time.

As each of the above examples have illustrated, government actions can have unintended consequences. As you proceed through Unit 4, you may also be exposed to other areas of government intervention that have resulted in changes in resource allocation, which may not necessarily improve the efficiency of outcomes. [Activities 3j and 3k consider the different ways that the imposition of taxes might lead to unintended consequences.]

Review Questions 3.4

1. Explain what is meant by the term 'government failure'. Link your response to the concept of unintended consequences and a less than optimal outcome with respect to any type of efficiency.
2. With reference to a specific example, explain why the government may wish to introduce a price ceiling in a market.
3. Explain how the imposition of the price ceiling, explained in Question 2, might lead to 'unintended consequences' that result in inefficient outcomes.
4. With reference to the labour market, explain the intention behind the government's decision to implement minimum wages (a price floor on wages).
5. Explain how minimum wage legislation might distort relative wages in the labour market and may lead to an inefficient allocation of scarce labour resources.
6. With reference to at least two specific examples, explain why the government may provide subsidies to private firms.
7. Identify one industry where the granting of subsidies might led to government failure.
8. Explain, with reference to one example, how protectionist policies result in allocative and technical inefficiency.
9. Explain how the increase in JobSeeker (or JobKeeper) payments may have resulted in sub-optimal labour market outcomes during 2020/21.

Activity 3j - Are taxes on cigarettes leading to government failure?

As we discovered in Activity 3g, cigarettes are an example of a demerit good and one that causes negative externalities in consumption. In a free market, there would be excess consumption of cigarettes, leading to a welfare loss for society at large. One method to address the excess consumption is to impose an excise tax. The excise tax imposed by the Federal Government was increased by 12.5% per annum between 2013 and 2020, and by a further 5% per annum for three years from September 2024. This shifts the supply curve to the left, results in higher prices for cigarettes and a contraction in demand as the purchase price now consumes a larger portion of household income (i.e. the income effect) and consumers substitute into relatively cheaper alternatives (such as vapes and 'imported illegal tobacco').



Cigarettes are, however, a product with a low price elasticity of demand. This means that the percentage increase in price will result in a proportionately smaller decrease in quantity demanded. This is linked to addiction and the perception by the smoker that the good is a necessity. For example, consumption has decreased by approximately 12% since 2016 despite the more than doubling of the retail price.

Australia now has some of the highest cigarette excise taxes in the world, but there has been a slowing in the rate at which cigarette consumption is declining. This is partly attributable to the ability for consumers to substitute into imported tobacco, colloquially referred to as 'chop chop', which typically comes in the form of loose leaf tobacco sold on the black market. This illegal tobacco is being increasingly imported from Asia and the Middle East, with the Australian Tax Office estimating that about 5% of potential tax revenue is being lost in any given year. An additional concern for governments and health practitioners is that the purchasers of these substitutes know little about what might be in the tobacco. For example, bird feathers were found in illegal tobacco sold in south-west Victoria in 2020. This could lead to more dire health outcomes than one would ordinarily associate with cigarette smoking.

The high price of cigarettes has also increased the incentives for criminals to steal large quantities, because they are rewarded handsomely on the black market. The income generated is used to fund other activities of organised crime groups. The numerous bombings of tobacco retail outlets during 2023-24 is another manifestation of the criminal activity that is linked to higher excise/tobacco prices as rival criminal gangs fight 'turf wars' as a means of gaining control of the market. This has meant that scarce government resources have had to be reallocated. In response to the rising trade in black market cigarettes, the government established the Australian Border Force's Tobacco Strike Team to investigate the illegal importing of cigarettes and loose-leaf tobacco as a means of protecting government revenue and minimising illegal activity. This has tied up valuable resources that could be allocated to alternative spending initiatives, such as investment in infrastructure, health, education or aged care.

Questions

1. Explain why cigarettes are an example of a product that causes negative externalities in consumption.
2. Explain why cigarettes have a low-price elasticity of demand.
3. Discuss the view that tobacco excise is too high. In your discussion, outline one unintended consequence associated with higher excise on tobacco and relate this to a type of (in)efficiency.
4. Explain, with reference to the facts in the case study and any additional research you might undertake, whether government intervention in this market has resulted in government failure.

Activity 3k - Government Failure: Does Australia's tax mix lead to an inefficient allocation of resources?

According to a recent OECD report, Australia's heavy reliance on income taxes and property transfer taxes is having a negative effect on the efficiency of resource allocation in Australia.

Income taxes and efficiency

Australians currently contribute a larger share of government revenue through income tax than taxpayers in most advanced economies. The OECD report highlighted that over 40% of total government revenue is derived from PAYG (Pay-As-You-Go) income taxes. Australia's tax system is progressive meaning that the rate of tax paid increases in line with income (higher income earners are subject to higher tax brackets). While progressive income taxes are likely to have a positive effect on promoting equity in the distribution of income, they may have unintended consequences with respect to the impact on efficiency of resource allocation.



When marginal tax rates are high (e.g. Australia's top marginal tax rate is 45% when income is above \$190,000), then this influences labour productivity and the willingness to increase the number of hours worked and/or the intensity of effort at the workplace. For example, a worker might be on a performance-based enterprise agreement which links their annual bonus to their productivity. If they are faced with a high marginal tax rate on the extra income, then they may have less incentive to increase effort or performance. As a result, technical efficiency might not grow by as much. The high marginal tax rates might also influence incentives for some workers who are marginally attached to the labour force. For example, the recipient of a single parent pension (or a stay at home parent) might not be significantly better off if they choose to undertake paid employment. If they take up a new job, then this will result in the gradual loss of government income support as they start paying income tax. This means that a potential worker is not added to the pool of labour resources and the economy is unable to reach a point on its production possibility frontier. As a result technical efficiency is not achieved.

High marginal tax rates might also distort decision making for people who are looking to allocate their scarce (labour) resources. For example, a person wanting to become a doctor is likely to expect to receive a salary that is multiple times the average weekly earnings. For example, according to seek.com, the average salary for a General Practitioner was \$370,000 during 2024. Before taxes, this is equal to approximately 3.7 times Average Annual Earnings in Australia of \$100,000. The progressive tax system means that the GP will pay an average tax rate of 36% (i.e. a total tax liability of \$132,600) compared to the 25% (or \$24,600 in total) paid by a person receiving average earnings. This changes the ratio of relative wages from 3.7 to 3.1 given that the after-tax wages for each become \$237,400 and \$75,400 respectively. While this might not seem significant in terms of the change in the relative price of wages (labour), it does affect decision making, particularly given that a doctor needs to undertake up to 10 years of post-secondary-school training.

Stamp duty

Stamp duty is a state-based tax that is levied on the transfer of key assets like property and cars. For example, the stamp duty payable on the purchase of a median price home in Melbourne (\$1.032 million at the time of writing in 2024) was \$59,400. Stamp duty may therefore also distort decision making and lead to an inefficient allocation of resources. For markets to operate efficiently, there needs to be a high mobility of labour. Resources should move freely to where there are profit-making opportunities. This might mean that people have to move house in order to allocate their scarce resource to where they might access better opportunities and more remuneration. With high stamp duty, however, people may decide that it is too expensive to move – losing such a large sum of money may set a family back in terms of their long-term wealth goals. At the margin, some people may decide to reject the offer to move and key resources are therefore not allocated to their highest end-use (where they can add the most value). As a result, dynamic and technical efficiency is compromised and society's wellbeing is not maximised.

Stamp duty may also encourage people to hang onto property, even when it is no longer fit for purpose. It is not unusual for retirees, whose children have left home, to be living in homes that are larger than what they need. Rather than pay the large transfer fees, they decide to stay in their family size house, making it more difficult for young families to find suitable accommodation at affordable prices. This negatively impacts on allocative efficiency. [At the time of writing, changes were taking place in NSW where some purchasers of property will have an option to pay a land tax over time rather than the upfront fee of the stamp duty. This is seen by most economists as a more equitable and efficient method to tax the ownership of property because it makes all homeowners pay an amount linked to the value of their home, irrespective of whether they move or not.]

Questions

1. Distinguish between technical and allocative efficiency.
2. Explain how the Australian Government's reliance on income taxes might have a negative impact on technical efficiency.
3. Explain how high marginal tax rates might influence the allocation of scarce labour resources.
4. Explain why economists might refer to stamp duty as an inequitable and inefficient way to collect government revenue. In your response, make reference to dynamic and/or allocative efficiency.
5. In July 2024, the 'Stage 3' of the Personal Income Tax Plan were implemented. This involved a general reduction in the personal income tax burden. Discuss how this might influence efficiency in the allocation of resources.

Multiple choice review questions

1. **A highly competitive market is likely to result in:**
 - a) huge profits that can be invested into research and development
 - b) a high degree of product differentiation
 - c) a lack of allocative efficiency
 - d) increased purchasing power for consumers

2. **A competitive market might result in a reduction in living standards if:**
 - a) the prices of goods and services are lower for households
 - b) resources are allocated to areas of highest end-use
 - c) workers are constantly asked to increase their productivity in the workplace
 - d) resources are quickly moved to areas where they generate the most value-added

3. **Market failure is most likely to occur when:**
 - a) the government imposes taxes on cigarettes
 - b) the consumption of sugar decreases
 - c) the consumption of fresh fruit and vegetables increases
 - d) businesses do not reveal all of the ingredients in their processed food

4. **Which of the following combination of characteristics, best describes a public good?**
 - a) non-excludable and non-rivalrous
 - b) excludable and non-rivalrous
 - c) excludable and rivalrous
 - d) non-excludable and rivalrous

5. **The consumption of which products is likely to cause the most negative externalities?**
 - a) Coal-fired electricity
 - b) Organic vegetables
 - c) Education
 - d) Medicine

6. **Which of the following products is least likely to create a positive externality in consumption?**
 - a) Gardening services
 - b) Education services
 - c) Medical services
 - d) Gambling services

7. **A decision by the Victorian government to remove the fringe benefits tax on electric vehicles is most likely to:**
 - a) Reduce negative externalities in production
 - b) Reduce negative externalities in consumption
 - c) Increase positive externalities in production
 - d) Increase positive externalities in consumption

8. **In a free market, public goods, like street lights, are likely to be:**
 - a) environmentally friendly
 - b) unprofitable for private firms due to the free rider problem
 - c) provided by multinational companies because they have more funds to invest
 - d) over produced by the government

9. **A government website that allows consumers to compare the prices offered by different electricity retailers is designed to reduce the market failure associated with:**
 - a) positive consumption externalities
 - b) asymmetric information
 - c) negative externalities in production
 - d) public goods

- 10. A decision by the government to place warnings on cigarette packages is designed to reduce negative externalities in consumption by :**
- shifting the supply curve to the right and the demand curve to the left
 - shifting the supply curve to the left and the demand curve to the left
 - shifting the demand curve to the left
 - shifting the supply curve to the left
- 11. The government could attempt to correct the market failure associated with the under consumption of merit goods, such as fresh vegetables, by:**
- Subsidising fruit and vegetable farmers
 - imposing a price floor on vegetables
 - expanding the GST to include all foods
 - increasing licence fees for farmers
- 12. The government's decision to ban the sale of illicit drugs is designed to:**
- shift the demand curve to the left, resulting in a lower quantity consumed
 - shift the supply curve to the left, resulting in a lower quantity consumed
 - shift the demand curve and the supply curve to the left, resulting in a lower quantity consumed
 - increase government tax revenue to spend on education
- 13. The asymmetric information associated with vehicle repairs services provided by a mechanic might result in:**
- an underallocation of resources to the parts used to fix the cars
 - an increase in the incidence of tariffs as a form of protection
 - an increase in technical efficiency across the economy
 - an increased demand for new cars that come with long term warranties
- 14. Which of the following is likely to increase the degree of information asymmetry in the food market?**
- A tightening of Australian consumer law which forces businesses to replace food that is not fit for purpose.
 - A law that requires all companies to declare the ingredients that have been used in a food product
 - An increased reliance on imported food
 - Advances in technology that allow consumers to trace the origins of their purchased food
- 15. Moral hazard is likely to occur if:**
- governments require companies to declare all of their earnings in their tax returns
 - a law is introduced imposing huge penalties on those completing contracts dishonestly
 - the government employs tax investigators
 - the government guarantees all bank deposits
- 16. Common access resources, like fish, tend to be overconsumed because:**
- fishing licences are too expensive
 - fish are non-rivalrous in consumption
 - the large fish tend to eat the small fish
 - fish are non-excludable in a free market
- 17. Market failure is most likely to be reduced by which of the following actions?**
- An excise tax on heroin
 - A quota on the consumption of fresh vegetables
 - A tax on the kilometres driven in an electric vehicle
 - Regulations that require teachers to be vaccinated against COVID-19
- 18. A tax on carbon emissions is likely to result in:**
- an increase in the relative price of bicycles and increased exploitation of common access resources
 - a decrease in the relative price of renewable energy and a reduction in negative externalities
 - a decrease in the relative price of petrol and an increase in positive externalities
 - an increase in government revenue and a reduction in the funding allocated to public goods
- 19. Which of the following policies is least likely to reduce the consumption of demerit goods such as alcohol?**
- an excise tax
 - a price floor on alcohol
 - a price ceiling on alcohol
 - restricting the consumption of alcohol to those over 18

- 20. Which of the following forms of government intervention is most likely to lead to a reduction in the efficiency of resource allocation?**
- The removal of tariffs on all imported solar panels
 - The provision of free or subsidised medical services
 - The provision of the defence force
 - High marginal tax rates

Chapter summary

- Perfect competition is seen as the benchmark of comparison as it is the most competitive of all market structures.
- Perfectly competitive markets have low barriers to entry, as it is relatively cheap and easy to set up a business in the market.
- Perfectly competitive markets have a large number of fully informed buyers and sellers, meaning that all economic agents are price takers.
- Products sold in a competitive market are assumed to be homogenous.
- Competitive markets are usually associated with mobile resources, minimal government intervention and perfect information.
- Competition promotes allocative efficiency because producers, whose income depends on what they sell, will look to offer those goods and services that are in high demand. Competition also tends to result in lower prices for the consumers meaning that more needs and wants can be met.
- Competition promotes technical efficiency because firms selling homogenous goods will need to lower their prices to attract customers.
- Competition promotes dynamic efficiency because firms will not want to waste resources producing products that are no longer in demand and less profitable. They will look to shift resources quickly to meet the changing needs and wants of consumers.
- Competition might result in a reduction in inter-temporal efficiency because producers and consumers might not consider the environmental consequences of their actions.
- Competition is usually associated with improvements in material living standards because it tends to result in lower prices for consumers (and therefore purchasing power).
- Competition, in some cases, might lead to a reduction in non-material living standards because it could lead to more rapid depletion of natural resources and increased stress levels in the workplace.
- Market failure exists when unregulated markets are unable to direct resources to the production of goods and services that maximise society's wellbeing.
- Public goods are non-rival in consumption and non-excludable which makes it difficult for firms to extract an adequate profit from production.
- The characteristics of public goods results in the free rider problem because people can consume the product without paying for it. This leads to an under allocation of resources in a free market.
- Governments will tend to subsidise or directly provide public goods that are generally perceived to be in society's best interest.
- Externalities are costs or benefits that are imposed or received by a third party who is not involved in a transaction.
- Negative externalities (in production or consumption) result in an over-allocation of resources towards some products because the producer and/or consumer do not pay for the external costs imposed on a third party.
- To correct the market failure associated with negative externalities the government may seek to internalise the external cost by imposing a tax on the producer. This shifts the supply curve to the left and reduces the amount produced and consumed in the market.
- The government can also reduce the incidence of negative externalities through new regulations that might ban a product or impose conditions on the methods of production that are undertaken.
- Negative externalities can be reduced through effective information campaigns
- Positive externalities occur when the consumption or production of a good or service confers a benefit to someone not involved in the transaction.
- Positive externalities result in an under-allocation of resources towards some products because the producer and/or consumer are not compensated for the benefit enjoyed by a third party/society.
- Governments will tend to subsidise the production of those goods and services that generate positive externalities. This shifts the supply curve to the right, resulting in a lower equilibrium price and a greater quantity sold in the market
- Asymmetric information exists when one party in a transaction (exchange) has greater information about the product than the other.
- Asymmetric information can lead to the problem of adverse selection. This involves decisions that are made which result in an inefficient allocation of resources.

26. Moral hazard may arise after contracts that establish an on-going commitment between the buyer and seller have been signed. This occurs when economic agents change their 'unobservable' behaviour so that it is less favourable from society's point of view.
27. Markets may correct some degree of asymmetric information without the need for government intervention. Access to reliable information, which might involve screening and/or signaling, can reduce information asymmetry and lead to more rational and fully informed decisions that maximise wellbeing.
28. The government intervenes in markets to protect consumers who have less information available to them than the seller. Australian Consumer Law imposes responsibilities on sellers and gives consumers access to effective redress if they have been sold faulty products.
29. On a number of occasions, attempts by governments to correct perceived market failures has resulted in unintended consequences whereby it is difficult to determine whether society's wellbeing has been improved. This is sometimes referred to as Government Failure.
30. Government failure can also occur when governments seek to undertake measures to promote equity in the distribution of income (by making marginal tax rates high for example). Incentives are altered and technical and allocative efficiency might suffer.
31. Protecting local industries (by imposing tariffs or granting subsidies), while promoting employment in the protected sector, may lead to an inefficient allocation of resources because the price system is distorted. This reduces competitive pressures in the economy that may have promoted both technical and allocative efficiency.
32. Due to political lobbying, governments may also provide favourable subsidies to industries that do not need them. This also distorts the price mechanism and results in a misallocation of the nation's resources.

Activity Centre: Unit 3 Outcome 1

This activity centre contains a sample of practice SAC and exam questions relating only to those key knowledge dot points covered in Area of Study 1 (Unit 3) of the VCE Economics Study Design (2023-27). It also contains a crossword puzzle to help students familiarise themselves with some of the key definitions or concepts relating to this area of study. The answers to all of the questions and crossword can be found at the CPAP website at www.commpap.com.

Question 1

Case Study 1 – A2 Milk

Most milk sold in the supermarket contains both the A1 and A2 protein strains. The a2 Milk Company claim that their milk is easier to digest than regular milk (because it contains only A2 protein) and that people who previously thought they were lactose intolerant may be able to consume this product. The table below shows the demand and supply for a2 Milk for a particular week. All other factors affecting the demand for a2 Milk are initially assumed to be held constant.

Market for a2 Milk		
Price per litre (\$)	Litres demanded	Litres Supplied
0.50	350,000	0
1.00	300,000	160,000
1.50	250,000	180,000
2.00	200,000	200,000
2.50	150,000	220,000
3.00	100,000	240,000

- Using the data in Table 1, construct an accurately labelled demand and supply diagram. (3 marks)
- Identify the equilibrium price and quantity traded. (3 marks)

Dairy Farmers, a competitor in the milk market, launched a campaign stating that their milk also contained the A2 strain.

- Illustrate on your diagram how the advertising campaign by Dairy Farmers might affect the market for a2 Milk. (1 mark)
- Explain how the market for a2 Milk might adjust to the new equilibrium following the change illustrated in part c). (2 marks)
- With reference to at least one relevant factor, explain why the price elasticity of demand (PED) for a2 Milk is likely to be higher than the PED for cigarettes. (2 marks)

After the successful advertising campaign by Dairy Farmers, sales of their milk increased. Unfortunately, a number of people who consumed the milk became ill because Dairy Farmers milk also contains the A1 protein (which many people cannot tolerate and were not aware was in the milk).

- With reference to the concept of asymmetric information and the information contained in the case study, explain why the market may have failed to efficiently allocate resources. (3 marks)
- Suggest and explain one form of government intervention that could be utilised to address the potential market failure caused by asymmetric information. Your answer can relate to an alternative example – it does not have to relate to the market for milk. (3 marks)

Question 2

The following case study is based on the article 'Global fish production approaching sustainable limits, UN warns', published in *The Guardian*, 8th July 2016

Global fish production is approaching its sustainable limit, with around 90% of the world's stocks now fully or overfished and a 17% increase in production forecast by 2025, according to the UN Food and Agriculture Organisation (FAO). Overexploitation of the planet's fish has more than tripled since the 1970s, with 40% of popular species like tuna now being caught unsustainably, the UN FAO's biannual State of the world's fisheries report says. [The full article can be found at the following link: <https://www.theguardian.com/environment/2016/jul/07/global-fish-production-approaching-sustainable-limit-un-warns>]

- With reference to the source material and the concept of common access resources, explain why there may be an inefficient allocation of resources in the fish market. (3 marks)
- Identify and explain one form of government intervention that could be utilised to reduce the degree of market failure when considering common access resources such as fish stocks. Note: You may refer to other examples of common access resources to help illustrate your point. (3 marks)
- Explain why the consumption of fish may be associated with positive externalities. (3 marks)
- Use a suitably labelled demand and supply diagram to illustrate how the government might intervene in the market for goods and services with positive externalities. On your diagram show how the allocation of resources changes following the government intervention. (Again, the response does not have to relate to the market for fish.) (3 marks)
- Briefly explain the effect of the government intervention on the market outcome (as illustrated in diagram in your answer to part d)) and explain why it helps to maximise society's wellbeing. (3 marks)
- With reference to at least one relevant factor, explain whether the price elasticity of supply (PES) for fish would be high or low. (2 marks)

Question 3

Consider the following quotes:

Friedrich Hayek argued that markets were the most efficient mechanism for allocating resources because they represented the individual decisions of millions of consumers and thousands of producers—the wisdom of crowds, if you like. Bureaucrats and politicians would never have enough information to allocate resources as efficiently. Source: *The Economist*, August 12, 2010

Markets fail to work well if some decisions affect bystanders. Markets also fail to work well if some decision makers lack information. Source: *Tim Harford, The Undercover Economist*, p80

- Evaluate the role of competitive markets with respect to the efficiency of resource allocation and the effect on living standards. (10 marks)
- With reference to one example, explain how government intervention in a market (or markets) might have unintentionally led to a reduction in society's wellbeing. (3 marks)

Question 4

Market failure does not necessarily lessen the market's significance as a mechanism that can advance wellbeing of societies; instead it highlights the need for government intervention so that the market can achieve its potential.

- Explain why competitive markets are likely to promote an allocation of resources that improves the wellbeing of a country's citizens. (3 marks)
- Explain, with reference to the above quote, what is meant by the term market failure. (2 marks)
- Explain, with reference to the free rider problem, why public goods would tend to be under-provided in a free market. (3 marks)
- Identify and explain one form of government intervention and explain how it leads to an increase in allocative efficiency. (3 marks)

Crossword Puzzle - AOS 1 Unit 3

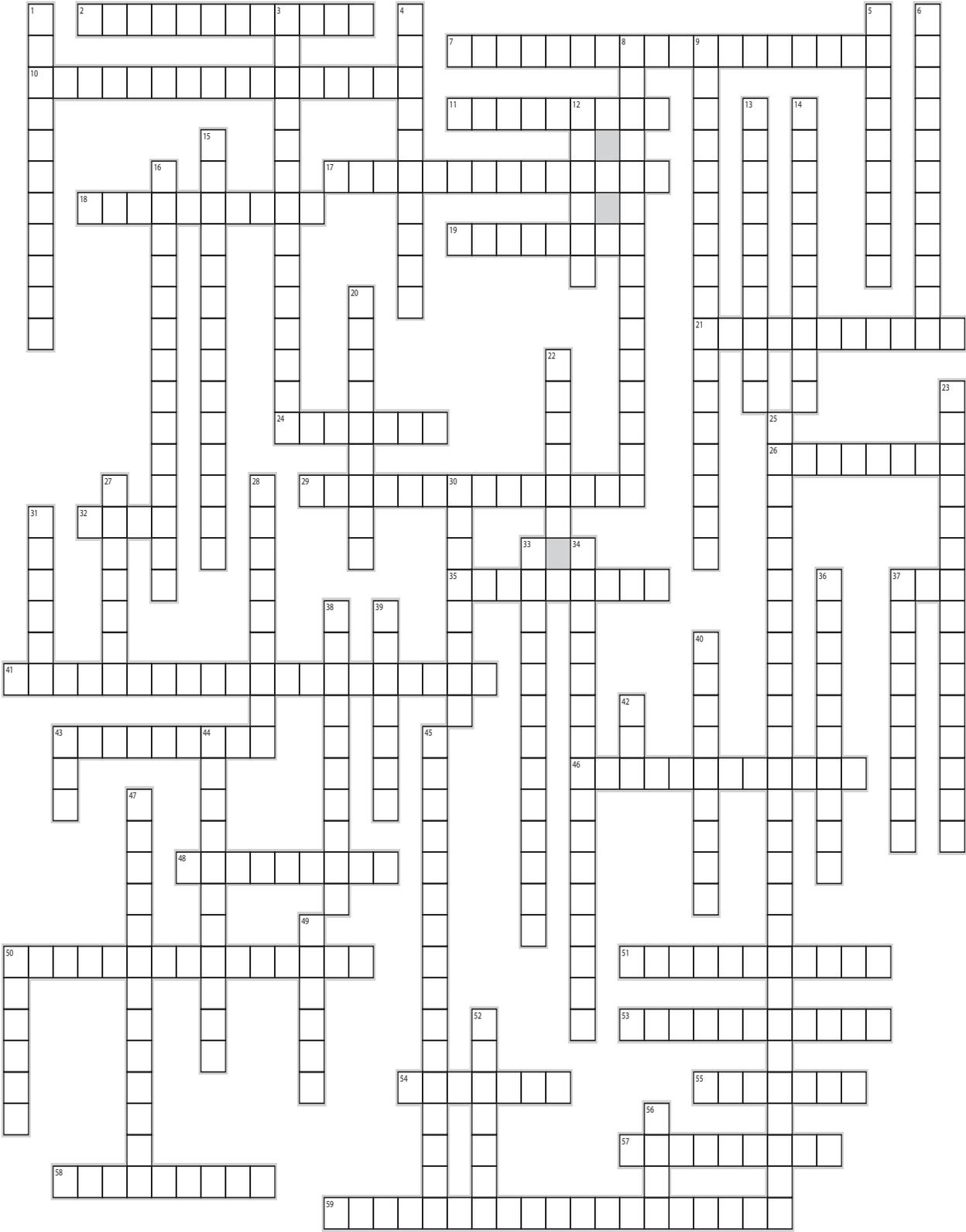
Across

2. these types of resources are over-consumed and represent one of the market failures (2 words)
7. A market structure where there are: many buyers and many sellers, homogenous products, freedom of entry and exit to the market, perfect information, high mobility of resources and where producers seek to maximise profit whilst consumers seek to maximise utility (2 words)
10. A system where the market allocates resources based on the buying and selling decisions of consumers and producers and where the majority of productive resources are owned by private individuals and firms (2 words)
11. Related to asymmetric information and is a way of dealing with adverse selection and involves the process of placing economic agents through a number of processes in order to glean information that was otherwise unknown.
17. When the market is in a state of excess demand or excess supply due to price being too low or too high
18. The depletion of natural resources as a negative externality in production (re market failure) is an example of this (2 words)
19. Where the quantity demanded exceeds the quantity supplied (excess demand).
21. Goods or services that are both non-excludable and non-rival (non-depletable) in consumption. A person who does not pay for the good cannot be excluded from consuming it and one person's enjoyment does not lessen another's enjoyment (2 words)
24. Where the quantity supplied exceeds the quantity demanded (excess supply or glut).
26. Goods whose demand will tend to decrease with an increase in disposable income.
29. Any individual or group in society that make economic decisions, such as workers, consumers, businesses, governments, and investors (2 words)
32. Where the quantity supplied exceeds the quantity demanded (surplus or excess supply).
35. A demand factor that affects the demand for goods and services via its direct impact on disposable income
37. The government body responsible for gathering and reporting statistical information (acronym)
41. A type of efficiency measured by how well resources are being allocated in the economy. The most efficient allocation of resources occurs when living standards and welfare are maximised and it is not possible to further increase living standards by changing the way resources are allocated (2 words)
43. Economic agents who are involved in the production process via the provision of goods or services.
46. Where the quantity demanded exceeds the quantity supplied (shortage) (2 words)
48. An industry where a few (very large) firms tend to dominate the industry in terms of market share and volumes sold and there is limited competition
50. The way different industries are organised in terms of the numbers and type of buyers and sellers and the conditions under which they exchange. They range from ones that are highly competitive (e.g. perfect competition) to ones that are highly un-competitive or highly concentrated (e.g. monopoly) (2 words)
51. When a third party is affected (either positively or negatively) from a transaction between two or more other parties. They can occur in the production or the consumption of a good and/or service.
53. As the price increases for a good or service there will generally be an increase in the quantity supplied (3 words)
54. A place where scarce resources are allocated among competing uses and goods/services are bought and sold.
55. Resources which have been made by combining labour and natural resources to create a more sophisticated input in the production process (e.g. machinery).
57. A social science that studies the decisions made by individuals, businesses, governments and other groups about how scarce resources are allocated.
58. An economic agent who receives the benefit from a public good but does not pay for it (2 words)
59. When it is not possible to increase output without increasing inputs (resources). Therefore the most technically efficient point of production occurs where productivity is at a maximum and where average costs are at a minimum (2 words)

Down

1. This type of market, in its pure form, involves all economic agents being price takers. No individual buyer or seller has the market power to influence prices.
3. Latin phrase meaning 'all other things being equal.' It is used in economics to isolate the cause and/or effect of a change(s) in variables (2 words)
4. A good or service that tends to be consumed with another good or service such that if the price for one increases the demand for the other should decrease.
5. Refers to either demand or supply curve where the responsiveness of demand (or supply) to a change in price is low.

6. As the price of a product increases the quantity demanded will tend to decrease conversely if the price of the product decreases, the quantity demanded will tend to increase (3 words)
8. What consumers receive if they obtain the good or service for less than the maximum they are willing to pay (2 words)
9. An unusual economic system may evolve whereby the government directs the owners of productive assets to produce certain goods and services (2 words)
12. These goods will tend to experience an increase in demand when there is an increase in disposable income
13. Public goods don't have this character which means that people will free-ride.
14. Related to asymmetric information and occurs when one economic agent passes on some valuable information to another economic agent to assist decision making that relates to something that is otherwise unobservable.
15. Changes in these send clear signals to producers and consumers and therefore direct resources to their most profitable ends (2 words)
16. Products have this characteristic if they are not homogenous or perfect substitutes for other products.
20. A term used to describe a market where there is a single buyer for a product.
22. Any place (which may or may not be a physical space) that allows buyers and sellers to interact and exchange goods and services.
23. An economic system where the government owns most of the resources but markets determine what goods and services are ultimately produced (2 words)
25. Occurs when the more of a good or service that is consumed per period, the smaller the increase in total utility (or satisfaction) that is generated from the last unit (3 words)
27. Refers to either the demand or supply curve where the responsiveness of demand (or supply) to a change in price is high.
28. Economic agents who purchase goods and services.
30. This type of tax is paid by economic agents via their purchases of goods and/or services (such as the GST).
31. These benefits are enjoyed by a country that are non-economic in nature, such as the benefits of education that are related to positive externalities (re market failure)
33. A high degree of this in a market signifies a small number of firms control the market (e.g. an oligopoly)
34. A situation where resources are limited compared to the demands placed upon those resources via wants and needs (2 words)
36. Products that are essentially the same or undifferentiated.
37. The addictive pursuit of more and more goods and services.
38. Australia's minimum wage laws are an example of this government intervention that causes a distortion in labour markets and creates some unemployment (2 words)
39. These are goods or services that are opposite in nature to public goods as they are both excludable and rival in consumption.
40. A good or service that it is needed by consumers, such as food and clothing.
42. Measures the change in consumption that would result from a one dollar increase in income. It is typically expressed as a number between zero and one (acronym)
43. A diagram illustrating the choices or options available when deciding how to allocate scarce resources. Any allocation of resources to the production of certain goods and services will mean that an alternative combination cannot be achieved. It is often used to illustrate the concept of opportunity cost. Acronym
44. The price at which the quantity demanded is equal to the quantity supplied.
45. A form of market failure (that is associated with asymmetric information) where the seller knows more about the product than the buyer does, resulting in an overallocation of resources to the production of that good or service (2 words)
47. When an unregulated market is unable to allocate resources efficiently or where resources are allocated in such a way that national living standards or welfare is not maximised. It will result in an over allocation of resources to the production of some goods and services and/or an under-allocation to others (2 words)
49. A good or service that is not a necessity and whose demand tends to increase as income increases to high(er) levels.
50. When two or more firms join as one which can substantially lessen competition in a particular market.
52. A type of efficiency relating to how quickly an economy can reallocate resources to achieve allocative efficiency
56. An acronym for the government body responsible for policing competition laws.



Chapter 4 The nature and purpose of economic activity

4.1 The nature of macroeconomic activity

Chapters 1 to 3 focused on the role of markets in allocating scarce resources and how the decisions made by households, businesses and governments influenced prices and the key economic decisions of what, how and for whom to produce. The final combination of goods and services that is produced at any point in time is also likely to have macroeconomic ramifications. This chapter is an introduction to macroeconomics, which is the study of economy-wide issues. Macroeconomists examine the causes and effects of changes in key aggregate measures of the economy such as national **production**, **income** and **expenditure**, unemployment, inflation and foreign debt. Macroeconomics is concerned with the 'big picture' of how the Australian economy performs (based on a number of benchmarks), the response of macroeconomic variables to changes in key factors and the role of government in influencing the level of economic activity.

Ultimately, the goal is to use the knowledge about the macroeconomy to develop policies (see Chapters 8 - 10) that can help to achieve a number of domestic economic goals (Chapter 5), which are directly and indirectly linked to improvements in living standards. Events or factors such as the COVID-19 pandemic afflicting the globe since 2020, global conflict (e.g. in Ukraine and the Middle East) and the effects of natural disasters (such as floods and bushfires over recent years) are perfect illustrations of the way that a knowledge of macroeconomics helps us to understand how living standards are influenced by domestic or global events (or 'shocks') and how policy makers respond.



The link between **microeconomics** and **macroeconomics** is a strong one. It is important to understand how individual markets work if one is to draw conclusions about the macroeconomy. For example, in order to understand how a change in a macroeconomic factor, such as interest rates, will affect the total demand and supply across the economy, it is necessary to understand how people respond to the changes in relative prices, including interest rates (which is the price of money).

Macroeconomics therefore focuses heavily on the causes and consequences of changes in economic activity, where economic activity refers to the production, income and expenditure that occurs in an economy over time. Economic activity therefore generates the goods and services that meets the needs and wants of households (the end users of the production).

The most comprehensive statistic that measures economic activity is **Gross Domestic Product (GDP)**, which is defined as the final market value of all goods and services produced in the (Australian) economy over a given period of time. GDP is usually calculated and reported every three months. GDP will also be a major focus in Chapter 5, when the three domestic macroeconomic goals of strong and sustainable economic growth, full employment and low inflation (price stability) are considered.

Review Questions 4.1

1. Distinguish between what is studied in microeconomics and macroeconomics.
2. Explain why knowledge of microeconomic theory is important for macroeconomic analysis.
3. Explain what economists are referring to when they discuss 'economic activity'. What is the most commonly used indicator for measuring economic activity?

4.2 Living Standards

When economists look at the impact of economic activity or changes in government policy, they will want to ascertain how living standards have been affected. **Living standards** can only ever be an average measure, as each person in the economy will have different access to the elements that are discussed in the subsequent sections. Economists start their discussion of living standards by looking at the distinction between **material** and **non-material** factors that influence our quality of life. This was briefly discussed in Chapter 1, but will now be analysed in terms of some of the key factors that affect living standards.

Material living standards

Economic activity is designed to meet the needs and wants of people, and most economies have evolved into sets of interdependent markets designed to allocate scarce resources. Governments all around the world also intervene in the market (to differing degrees) in the hope that they can allocate resources more efficiently or more equitably. Given that economists sometimes disagree on the best way to achieve **allocative efficiency**, and the citizens of a country might have different values and goals themselves, it is often difficult to determine the aggregate outcome of any change on living standards.



Material living standards primarily relates to the ability of individuals to access goods and services. In a market-orientated economy, this will be heavily influenced by households' **purchasing power**. Can households buy the goods and services they need and want with the income they receive? Incomes received from the contribution to productive effort will be more than sufficient for some, but insufficient for others. However, through government intervention, this access to goods and services can be altered, increased for some groups and reduced for others. Those who believe that increases in the consumption of goods and services leads to a more enjoyable and fulfilling life will see improvements in material living standards as very important. Much of the focus of economic policy making in the last 50 years has been skewed towards the promotion of activities that essentially make the average person materially richer.

Non-material living standards

Economics has sometimes been criticised for its bias towards materialism and the promotion of excessive consumption. There is an inherent assumption in most standard economic models that wellbeing is improved if utility (satisfaction or wellbeing) and profits are maximised. Even with the existence of **diminishing marginal utility** (each additional unit of a good or service that is consumed generates less utility than the previous one), the assumption is that, for the most part, 'more is better'. The production of more goods and services is likely to boost real incomes and therefore purchasing power over time. However, the economic models may lose their predictive powers if, over time, humans re-evaluated their obsession with material possessions and found a new level of contentment. In reality, a person's quality of life is multi-faceted and economists are increasingly working with experts in other professions to try and understand the factors, other than access to goods and services, that might lead to a higher quality of life.

A study of **non-material living standards** will therefore look at a wider range of the factors other than purchasing power that affect a person's wellbeing – their overall 'quality of life'. The factors that affect non-material living standards are looked at in terms of the 'hard-to-measure' concepts like happiness and life satisfaction. While measuring material living standards is relatively easy (at least on an average level), knowledge of non-material living standards requires a deeper understanding of the human condition. Increasingly, policy makers around the world are paying more attention to broader quality of life indicators, beyond real GDP per capita, to guide policy making. This includes the Human Development Index, the Genuine Progress Indicator and the increasingly popular reference to doughnut economics, which has a heavy focus on the environmental impact of economic activity.

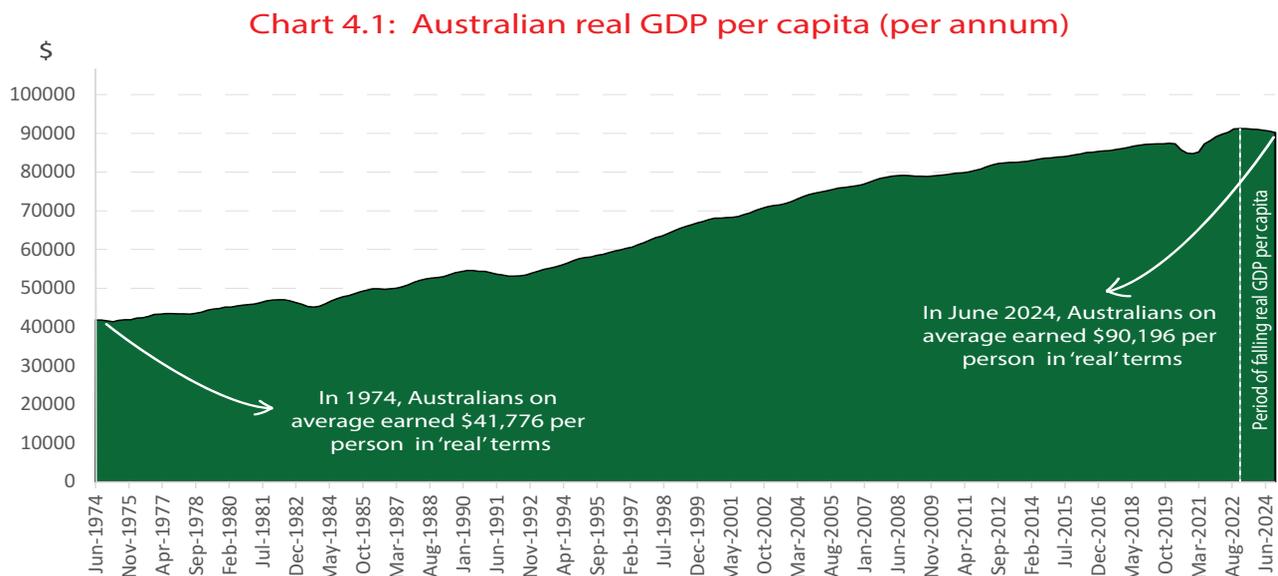
Factors affecting living standards

Access to goods and services

To measure material living standards, economists will generally rely on an aggregate measure of national production called GDP and, over time, a nation will tend to experience an increase in GDP. While this will indicate that the value of production has increased, only some of this increase will be 'real' in the sense that it represents more goods and services being produced (which of course helps to boost our material standards of living). Some of the increase in GDP will have occurred because of rising prices rather than rising volumes. To remove the price effects, the ABS calculates a measure referred to as **real GDP**. [The derivation and importance of these measures will be discussed in Section 5.2 of Chapter 5.]

When real GDP increases, it means more goods and services will be produced than the year before, which typically means that national income and expenditure will be higher (see Section 4.3 on the circular flow of income) and economic growth has taken place.

Real GDP can also be divided by the population to give another aggregate measure, called **real GDP per capita**. When real GDP per capita increases, this means that average real incomes per person increases over time and citizens of a country will, on average, be able to purchase more goods and services. Chart 4.1 highlights the growth in real GDP per capita for Australians on average since 1974, where it has more than doubled, from an annual \$41,776 in June 1974 to \$90,196 by June 2024. While there have been several periods where real GDP per capita has fallen, including the 2020 recession as well as every period since December 2022, there is no doubt that incomes have increased over almost the whole time period and Australians, on average, can purchase more goods and services today than they could in the past.



The continual fall in real GDP per capita over the past six quarters (between December 2022 and June 2024) reflects the fact that economic growth (i.e. growth in real GDP) has been below the rate of population growth. This represents a decline in Australian material living standards, on average, and many economists refer to Australia being in the midst of a 'per capita recession' (i.e. more than two consecutive quarters of negative GDP per capita growth).

How reliable is GDP per capita as an indicator of living standards?

Real GDP per capita is an unreliable indicator of material living standards. It can, at best, provide an estimate of the average access to goods and services but it fails to include a number of key factors and/or transactions that influence both material and non-material living standards. For example, by definition, real GDP per capita does not provide an indication of how the income is distributed amongst the population. So, for an oil rich country like Qatar, a real GDP per capita of approximately \$100,000 suggests that its citizens have a high material standard of living. However, there is a high level of income (and wealth) inequality, with the highest 10% of income earners receiving close to 70% of all income and the richest Qataris earning thirteen times as much as the poorest. So 'averages' (like real GDP per capita) can be misleading and the majority of Qataris do not enjoy as high a standard of living as the figures suggest.

Growth in real GDP per capita, or greater consumption of goods and services more generally, can also overestimate improvements in living standards once we take into account the existence of '**de-merit goods**' and/or goods containing **negative externalities** (which were covered in Chapter 3). To illustrate, if a person purchases a packet of cigarettes (and smoke them around other people), the transaction will be included in the calculations for GDP per capita, highlighting an increased 'access to goods and services' and suggesting an improvement in material living standards. However, as seen in Chapter 3, the consumption of cigarettes damages the health of smokers (i.e. it can be considered a 'bad' rather than a 'good') and can cause a net deterioration in material living standards. In addition, the consumption of this demerit good could also negatively influence non-material living standards, as passive smokers are likely to experience a reduced enjoyment of life. The GDP figures do not subtract any of the negative externalities associated with the consumption of the product.

Some researchers have also suggested that excessive *material* consumption can actually lead to a decrease in non-material living standards. The argument here is based on the hypothesis that is associated with a non-medically diagnosed

condition called **affluenza**. Affluenza refers to the idea that the addictive pursuit of more and more goods and services is damaging to the mental health of the individual, as their desires cannot be satisfied. This is sometimes referred to as the '**hedonic treadmill**' because the satisfaction from the consumption of goods and services is fleeting and the consumer seeks satisfaction from external sources rather than through intrinsic (internal) factors such as achievement or a sense of purpose. As illustrated in Chart 4.1, with the exception of the past couple of years, Australians in the modern era have, on average, greater access to goods and services than ever before, but there is no certainty that Australians today are happier or live more fulfilling lives than previous generations.

It is also true that real GDP per capita can understate material living standards. In particular, people may have access to more goods and services than what is measured by real GDP per capita because they may:

- Produce some of their own goods and services
- Purchase some goods and services in the black market or informal sector (transactions for which the government has limited data)
- Receive goods or services for free which have been provided by charitable organisations.

While measuring living standards by examining 'access to goods and services' is a useful place to start, it is important to go further into the data to discover the degree of *equality of income distribution* as well as the *types of goods and services* that are produced and consumed in the economy. A discussion of living standards will therefore involve some value judgements because how an action affects a person's quality of life is inherently difficult to determine - especially given that every person in the country is not going to be asked to report on their material and non-material living standards.



Environmental quality

Economists are often criticised for many of their models of the economy, which effectively ignore the role of the environment in sustaining life. Environmental quality can be looked at from a number of perspectives that include:

- The availability of perpetual, renewable and non-renewable resources so that life can be sustained and humans can access valuable resources that are used as inputs in the production of marketable goods and services and other amenities that can be provided free of charge (such as access to nature for walks and the 'common access resources' discussed in Chapter 3.)
- The level of negative externalities that might be present in the natural environment. Production and consumption activities might pollute the air we breathe, the oceans which sustain the fish we eat, the land on which we grow our food, and even the houses we live in. Excess carbon emissions from the production and consumption of goods and services, and the impact on climate change, is the most common contemporary example of negative externalities and the impact on environmental quality and living standards.

Environmental quality and living standards

All economic activity is ultimately dependent upon the environment. If resources are depleted at an excessive rate, then in the short or long term, **material living standards** might start to decline. For example, if the world economy reaches 'peak oil' (where half of the world's known oil supply has been consumed), it will be much harder in the future to extract this important resource. This will increase the cost of production for firms and may lead to reduced purchasing power for households. Excessive consumption of common access resources such as the world's fishing stocks might also lead to reduced income earning opportunities in the future and reduced access to key goods and services. Pollution of the world's atmosphere and ecosystems will also have long term ramifications on the ability of humans to earn an income and therefore access goods and services in the future. For example, unabated climate change is expected to negatively impact on productive capacity in the future. Similarly, the use of certain herbicides in the production of food may affect the ability of the human body to heal itself and could lead to a number of health-related issues in the future. This could negatively affect the productivity of the workforce, which ultimately affects the volume of goods and services that can be produced in the future.

Human beings' quality of life is intrinsically linked to the quality of environmental resources that they have available to them. This, like many aspects of **non-material living standards**, is hard to quantify and difficult to obtain statistical evidence on. Nevertheless, intuitively, people know that being in nature is good for them. They may feel energised

from spending time at the beach or hiking through a national park. It is also difficult to measure the effect of excessive pollution on a person's quality of life but it would seem obvious that those who live in a city that suffers from heavy air pollution will experience less enjoyment of life than those who can breathe freely (assuming all other factors are held constant). The quality of the food we eat is intrinsically linked to the level of toxins that can be found in the food chain. Scientific researchers are increasingly finding links between the quality of the food consumed by a person and their physical and mental health outcomes, factors that clearly affect a person's quality of life.

Physical and mental health

Health outcomes are also an important factor that affects the ability of a person to access goods and services and has a huge impact on one's quality of life. A **healthy population** (from both a physical and mental perspective) is likely to be more productive. A healthy person may also be able to work longer hours (when there is demand for their labour) and be able to create new solutions to problems, be entrepreneurial and develop new and innovative technology. If a person experiences on-going illness, from either a physical or a mental condition, then their ability to participate in the production process may be hampered. They may have to withdraw from the labour force altogether and rely upon the government disability pension. This payment is more than likely going to be an amount that is less than what the person could earn through the provision of their labour, so their access to goods and services is likely to be reduced. The government, which usually subsidises or provides such services, will require more funds if the health outcomes of the country deteriorate. One way to deal with the funding shortfall would be to increase taxes. However, this would cause income earning households to experience a decrease in material living standards as disposable incomes fall.



Being healthy is also a factor that influences a person's non-material living standards. The inability to undertake and participate in leisure or work activities can negatively affect a person's enjoyment of life and level of happiness. Mental health issues may cause someone to feel disconnected from other people and lead to a feeling of isolation, which also negatively affects their quality of life. The government responses to the COVID-19 pandemic, which included social distancing measures and forced closure of parts of the economy, highlighted the importance of mental health to living standards. During the Stage 3 and 4 restrictions in Victoria, there were calls for the government to ease the restrictions earlier (i.e. before the disease infection rate came down to 'safe' levels) on account of the negative influence the restrictions were having on the mental health of Victorians. It became evident that Victorians were increasingly prepared to take the risk of contracting the disease if it meant that they could enjoy the benefits that return to work and/or more social interaction provided them. In early 2022, the World Health Organisation produced a report highlighting that the COVID-19 pandemic had a severe impact on the mental health and wellbeing of people around the world, with a reported 25% increase in the incidence of anxiety and depression worldwide.

As noted earlier when discussing 'affluenza', an excessive focus on material consumption can also have a negative impact on both physical and mental health outcomes. If a person feels the need to work harder to obtain more goods and services, this might lead to a neglect of their physical and emotional needs. Their relationships might suffer (which has a huge impact on mental and physical health), they may not eat properly, and their enjoyment of life may deteriorate. There is a growing body of medical professionals who are beginning to show strong links between mental and physical health and that deterioration in one is often intrinsically linked to a decline in the other.

Life expectancy

Life expectancy refers to the number of years an average person in a nation can expect to live. It is one of the measures used to determine the level of economic development in a nation and is used by the UN to calculate the composite measure called the **Human Development Index**. A longer life expectancy will generally have a positive impact on material living standards. If a person lives for a longer time, then they may be able to work for a longer time and this can affect their ability to earn an income and therefore purchase more goods and services.

A longer life expectancy has, however, created additional challenges for economies around the world and could lead to slower growth rates and negative impacts on future living standards. While greater life expectancy can contribute to more years working, it has not necessarily turned out this way. People may be retiring at the same age they have done in the past, but then they are living longer once they have retired. Most people in Australia have inadequate funds to finance their own retirement and therefore they rely upon the pensions provided by the government. This is predicted

to cause on-going budget deficits in the future, unless the government changes how it collects revenues or how it spends this revenue. The **ageing population** will also be associated with increased spending on healthcare, with an increased need to raise additional taxes from the existing workforce or the government's borrowing requirement could increase (meaning that interest payments in the future will also increase, further worsening the budget outcome).

Life expectancy will also have an impact on non-material living standards. While life expectancy is a measure used to determine the level of economic development, it may be hard to determine how it impacts all aspects of non-material living standards. In aggregate, a person's life may include the sum total of more positive experiences if they remain on the planet for longer. They may also feel more satisfied with life, knowing that they will be alive for a long time. Longer life expectancy has generally been associated with the effective eradication of many preventable diseases and a greater understanding of the causes of illness. This too, could be associated with better health outcomes and a higher quality of life.

While most would agree that higher life expectancy is associated with higher non-material living standards there are some exceptions. For example, while the body may be able to sustain itself well into the future, the chances of being diagnosed with Alzheimer's disease increases with age. Approximately 10% of people over the age of 65 will get Alzheimer's, and this figure increases to 30% once a person reaches the age of 85. Alzheimer's disease can significantly reduce the quality of life for the person affected as well as that of their family and friends.

Crime rates

Crime imposes a material cost on all citizens of a country. Shop stealing for example, represents a cost associated with running a retail outlet, including the cost of the stock lost, as well as the costs associated with the installation of security measures, such as CCTV cameras and security guards. Crimes, such as credit card fraud, embezzlement, money laundering, and corporate fraud (often referred to as 'white collar crimes') also raise costs for businesses either directly (e.g. embezzled funds being written off as a business expense), or indirectly in terms of higher insurance premiums and legal costs. Overall, the added costs imposed by crimes are ultimately passed onto consumers (the supply curve shifts to the left leading to an increase in the equilibrium price), which leads to a decrease in the **purchasing power** of households and a reduction in **material living standards**.



Crime rates can also have a negative influence on **non-material living standards**. The victims of crime are likely to be the most directly affected because their physical or mental well-being has been affected. The families of murder victims would suffer a significant deterioration in non-material living standards as feelings of grief and anger can endure for many years. Higher crime rates can also be associated with increased anxiety amongst the general community as they feel less safe going about their daily lives. Terrorist attacks around the world have certainly contributed to this anxiety and have caused people to become distrustful of others in the community. Further, when crime rates increase, people often look to blame governments, who sometimes respond by introducing measures that encroach on our freedoms and privacy, such as much tighter security checks and the consequent delays at airports. While these types of measures certainly have the benefit of helping to discourage crime, they negatively impact on non-material living standards in other ways.

In a peculiar way, criminal activity can also have a positive effect on **economic growth** and **material living standards**. For example, if a person's house is burgled, they will (temporarily) be deprived of some of the goods and services that they otherwise relied on to enjoy life, such as a smart phone, tablet, TV, artwork, jewelry, etc. However, they will eventually seek to replace those items over time (most likely with the help of funds received from their insurance company), which actually adds to economic activity once the items are purchased. The additional employment and income that is created will then increase the material living standards for those connected with the businesses. Of course, crime creates a whole industry operating around insurance, security and crime prevention, providing employment and incomes for those with expertise in the field. Once again, this impacts favourably upon the ability to purchase goods and services.

Literacy rates

The adult literacy rate measures the percentage of the population, aged 15 or over, who can both read and write. A literate individual has a much higher ability to participate in the market economy. A large proportion of jobs require reading and writing skills, and as the economy becomes more technologically developed, higher skills in this area will become increasingly necessary. The inability of a person to read or write reduces their probability of employment, which means that their ability to earn an income is significantly reduced. This negatively affects their ability to purchase goods and services and reduces their **material standard of living**.

At a macroeconomic level, literacy rates may also be important for a country’s ability to compete in a **globalised economy**. International trade is now an integral factor influencing the rate of economic growth in a nation. Countries with low literacy rates may not be able to offer goods and services that are the most valuable in the world economy. Literacy rates are an indicator of **educational outcomes**, such that, when a society becomes more educated, its workforce can participate in more sophisticated areas of production so that more revenue can be earned for the nation. This increases GDP per capita, which boosts average material living standards..



The ability to read and write is also very important for a person’s **non-material living standards**. Communication is a key facet of the human experience. Enjoyment of life can be significantly improved through the reading of interesting and thought-provoking ideas, and the debating of contentious issue. It also helps to develop new neural pathways that promote self-actualisation. Literacy increases the ability of the person to participate in the production process, which can be associated with a greater sense of wellbeing, the benefits associated with social interaction and a positive feeling knowing that he or she is making the world a better place to live in. Literacy will also improve a person’s ability to participate effectively in the broader community and, in the context of the broader political system, to contribute to democratic decision-making in an informed way.

In 2023, the Australian government introduced a new framework that is now updated by the ABS referred to as **Measuring What Matters**. It represents an attempt to move beyond a focus on the more traditional measures of living standards (e.g. real GDP per capita) and tracks Australia’s progress across the following five wellbeing themes:

- Health
- Security
- Sustainability
- Cohesiveness
- Prosperity

These themes of the Framework are supported by 12 dimensions that describe aspects of the wellbeing themes and 50 key indicators, to monitor and track progress. An overall life satisfaction rating is also included. The latest results reveal some negatives, including a higher proportion of adults experiencing high levels of psychological distress, a higher incidence of chronic health conditions, increased barriers to accessing health services, lower levels of biological biodiversity, and a reduced sense of belonging. The positives included an increasing acceptance of immigrants, a decline in our ‘material footprint’ and improved job satisfaction.

Activity 4a: Material vs non-material living standards

Draw up a table similar to that below, in your notebook or in a Word document. For each factor, summarise how it affects material and non-material living standards. Provide at least one argument/justification for your identified effect (it is important not to simply assert that it increases or decreases). Some factors could have both positive and negative effects, so you may like to include both sides to consolidate your knowledge in the area.

Factor	Impact on material living standards	Impact on non-material living standards
An increase in the nation’s average income		
A shortage of oil due to increased conflict in the Middle East		
The replacement of workers with artificial intelligence		
Increased government spending on the promotion of merit goods		
A reduction in the retirement age		
A downward trend in the crime rate across Victoria		
Depletion of natural resources through increased economic activity		
An increase in production resulting from increased productivity and/or longer work hours		
Improved health outcomes resulting from preventative health measures		
An increase in gang violence		

Activity 4b: COVID-19 and Australian living standards

The COVID-19 pandemic has led to a significant reduction in Australian living standards since 2020. In the first instance, the quick spread of the infection created a health crisis that resulted in many Australians either being hospitalised or losing their lives. This impaired the quality of life for those who recovered from the virus, as well as their families, and clearly had a negative impact on the family and friends of those who ultimately succumbed to the virus. Non-material living standards of Australians were also impaired by the anxiety and uncertainty surrounding the longevity of the virus and its ongoing threats, as well as the isolation and loneliness experienced during lockdowns.



In material terms, the virus has had major negative impacts for Australians. First, the virus itself disrupted supply chains around the world, given that it commenced in China which is regarded by many as 'the factory of the world'. This restricted the ability of many Australian to produce goods and services, reducing employment and incomes, and also created shortages of some goods and services, which in turn created panic buying of 'essential' items, such as toilet paper and hand sanitizer. Second, and more detrimental, was the federal and state government responses to the pandemic. In an effort to slow the spread of the infection, governments imposed restrictions on social engagement (e.g. social distancing laws and lockdown measures) which severely restricted both the ability of businesses to produce, and the ability of consumers to purchase many goods and services.

Ultimately, Australian governments were motivated by the need to protect the health and well-being of Australians. They knew that the social distancing/lockdown measures would cause major economic upheaval and result in a significant reduction in living standards. However, to do otherwise, and allow the virus to spread more aggressively through communities was considered to be an unpalatable option, worsening Australian living standards in the long-term. [Indeed, subsequent events in the unfolding of the pandemic have revealed that even those economies that remained relatively 'open' and allowed the virus to spread, in hopes of protecting their economy, still suffered significant economic downturns.]

Overall, both the COVID-19 pandemic and the government responses to the pandemic caused the largest economic contraction experienced by Australia for decades. Australia experienced its first 'technical' recession since 1990-91, evidenced by real GDP contracting for two consecutive quarters (March and June quarters). Employment also fell by more than one million people, leading to an 'effective' rate of unemployment well above 10%, and the need for expansionary economic policies (see chapters 9 and 10). While governments introduced income support measures (e.g. JobKeeper and JobSeeker) that helped to protect the incomes of affected groups (e.g. the unemployed and business owners), the incomes 'earned' on average by Australians fell over the course of 2020. This is consistent with the reduction in real GDP per capita that was recorded over this time and reflected a fall in the material standards of living for the average Australian. However, the government stimulus measures referred to above contributed to a rise in 'disposable incomes' from the middle of 2020, helping to protect material living standards during this time (See Chapter 9).

During 2020 and 2021, Victoria went through periods of relatively severe Stage 4 restrictions, finally ending its sixth lockdown in late 2021 after 263 cumulative days of lockdowns, reported to be the most time spent in lockdowns for any region in the world. While these restrictions had success in reducing the rate of infection, it was clear that many Victorians were deeply affected by the lockdowns. Health authorities concern about the mental health and well-being of Victorians in general, with an increased incidence of depression and anxiety. This was no doubt a factor behind both the ending of the lockdowns in 2021, and the ongoing reluctance to impose further harsh restrictions in 2022 despite the growth in new variants of the disease and the continuing high infection rates. It once again highlights a delicate trade-off that governments are forced to make. Any attempts to avoid further restrictions in an effort to protect the economy and mental health, is likely to come at the expense of an increased risk of infection, more deaths and potentially a longer period in which the virus is with us. While the virus remains in our lives during 2024, its severity and impact is much less problematic such that we have accepted the presence of the virus in our lives and have become more resilient to future strains and/or future pandemics.

Questions

1. Explain how COVID-19 itself affected both material and non-material living standards of Australians.
2. Describe how government responses to the COVID-19 (i.e. measures to prevent the spread of the virus) caused a deterioration in both material and non-material living standards of Australians.
3. Outline one piece of evidence that might support the contention that material living standards fell since 2020.
4. Describe the nature of the trade-off faced by governments when deciding on the best response to protect Australians from the spread of the virus.

Review Questions 4.2

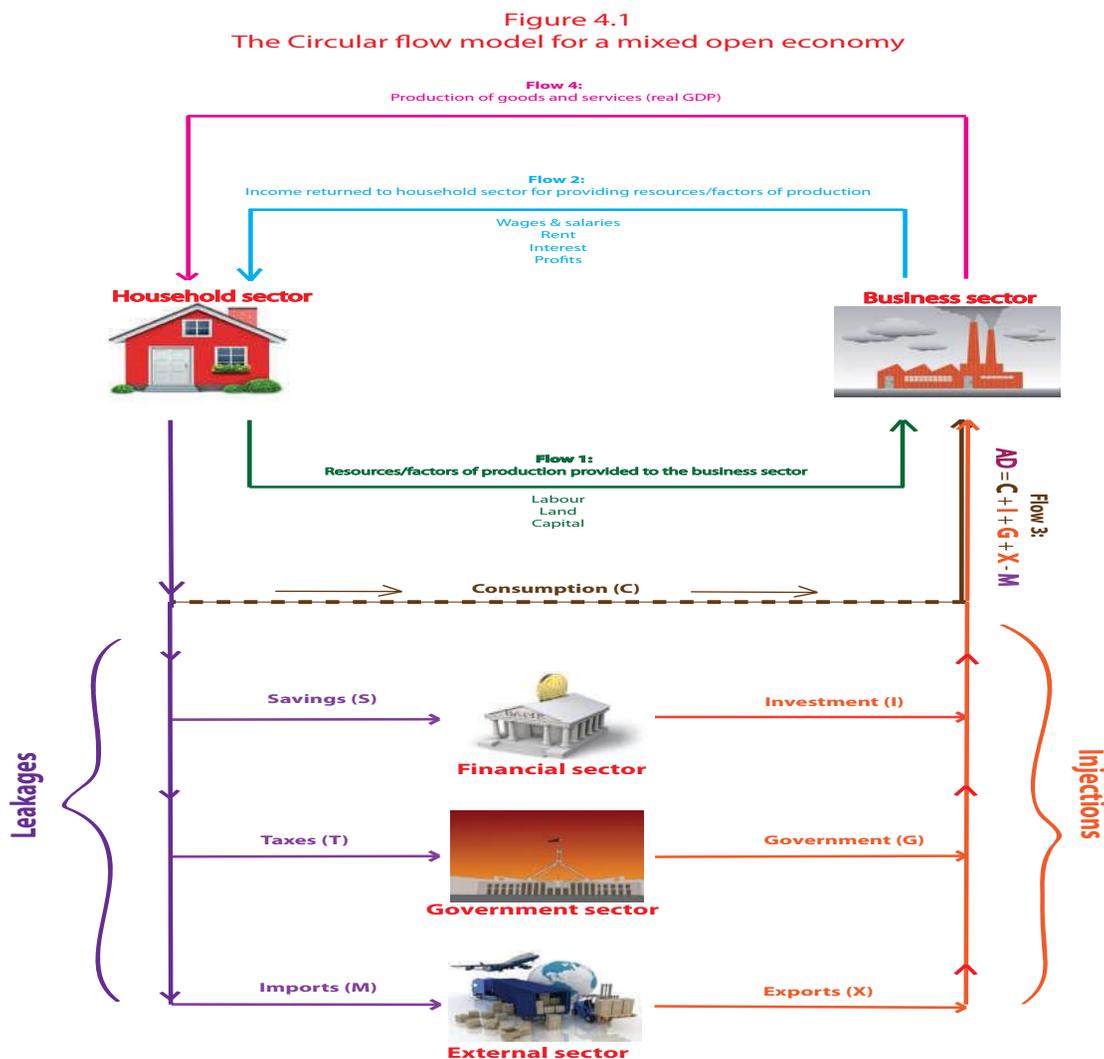
1. Explain what is meant by the terms 'material living standards' and 'non-material living standards'.
2. With reference to one of the factors discussed in Section 4.2, explain why it may cause material living standards to increase but cause non-material living standards to decrease.
3. With reference to a different factor discussed in Section 4.2, explain why it may cause non-material living standards to increase but cause material living standards to decrease.
4. Explain how an increase in crime can have both a positive and negative effect on material living standards.
5. Outline how low levels of literacy influence living standards at both a microeconomic and macroeconomic level.
6. Identify one reason an increase in material living standards may also be compatible with an improvement in non-material living standards.

4.3 The circular flow model of income

One of the first models that can be used to illustrate some of the key macroeconomic concepts and relationships is the **circular flow model of income**. This is a model that shows the flow of money, resources and goods and services in an economy.

There are a number of models that have been developed in this area, with varying degrees of detail and sophistication. At the core of any circular flow model is the interaction between households and businesses in product and factor markets. These economic agents are the key decision makers in the economy and their actions have the most significant effect on the amount of income that is generated and that flows throughout the economy.

The model shows that there are four separate flows between households and businesses (which are continuous flows so it doesn't matter where the flow begins). Two of the flows move from the households to the businesses while the other two movements are in the other direction. For each flow there is a corresponding movement of income - hence the name of the model. The flows that are described below correspond to the appropriately numbered sections in Figure 4.1.



Flow 1: The factors of production flow from households to businesses

The three factors of production were discussed in Chapter 1. Members of the households (i.e. the **Household Sector** in the model) provide **natural resources, labour and capital** to businesses. People are obviously free to provide their labour to firms but households also own the other factors of production (in a market capitalist system, where resources are owned by private individuals) and these are provided as inputs in the production process. Firms see these as part of their cost of production but their purchase is a necessity if businesses are to produce the goods and services to the market.

Flow 2: The businesses pay income to those who provide the factors of production

The market capitalist economic system rewards those who provide firms with the factors of production. This becomes the **income** for households and may take the following forms:

- From the provision of labour, households may receive wages, salaries, commissions, royalties etc.
- From the provision of land the households may receive rent.
- From the provision of capital the household may receive dividends, interest and profits.

This section of the circular flow model therefore highlights a wide range of incomes that are received in exchange for factors of production

Flow 3: Demand for goods and services

Part of the income received by households in **Flow 2** is then 'consumed' via the purchase of goods and services (i.e. **Consumption**), which forms part of **Flow 3**. However, part of the income earned by households does not immediately result in demand for Australian goods and services (i.e. **Aggregate Demand**) because the income is diverted through the **Financial, Government and External sectors** in the three ways described below. The funds that are diverted away from Consumption are referred to as **leakages** in the model and are represented by the downward purple arrow on the left hand side. An increase in leakages will tend to reduce the level of economic activity.

Leakages

Savings (S): It is unlikely that consumers will spend all of their income on goods and services in the market. In our model of the economy, it is assumed that **savings** will be redirected through the **Financial Sector** of the economy. Households will make deposits with financial institutions such as banks. When households do not spend their income but rather save it, the income is effectively removed from the core of the economy and will not boost Aggregate Demand (AD) until the funds are eventually injected back into the economy via Investment (see Injections below).



Taxes (T): Australia is considered a mixed economy because, although the market is the primary mechanism by which resources are allocated, the government intervenes in markets and alters not only the allocation of resources but also the total level of economic activity. Households in Australia do not get to keep all of the income that they earn. They must legally pay part of it in **taxes** to the **Government Sector**. They also pay tax when they purchase goods and services that have an indirect tax imposed upon them (e.g. the GST). Taxes are also seen as a **leakage** because they represent a reduction in the capacity of households and businesses to purchase goods and services.

Imports (M): Australia is also considered an open economy. This means that trade takes place between Australia and other countries. Spending on **imports** by Australians (the purchase by Australians of foreign made goods and services) is considered a leakage from the core of the economy. The spending effectively leaves the country through the **External Sector** and helps to boost economic activity in another nation.

The impact of these leakages on AD and economic activity will ultimately be offset by **injections**. These are instances where there is an increase in funds flowing back into the core of the economy. In the model, they are represented by the upward orange arrow on the right hand side. These injections result in an **increase** in the level of economic activity.

Injections

Overall, the total demand placed on Australia's Business sector is made up of AD (**Flow 3**) which then determines the total real value of production in the economy (i.e. **Flow 4**).

Investment (I): The funds that are saved become available to the firms in the **Financial Sector**. Firms are able to borrow money (or issue equity) to finance the purchase of new capital or land for example. This spending is seen as **Investment**, as the productive capacity of the firm increases. This is an **injection** because the money flows back into the core economy because the purchase of machinery, for example, creates income for the manufacturer of the machinery.

Government (G): The government will eventually use the tax revenue it receives from the private sector. The funds are **injected** back into the economy through a number of **Government spending** initiatives. The funds may be redistributed back to some households as transfer payments (thereby contributing to more activity in the core economy) or used to purchase goods and services that could be provided by the private (business) sector (which then helps to generate additional incomes for households).

Exports: In contrast to the leakage of the model in the form of imports, the income earned from the sale of exports (Australian made products that are purchased by foreigners) become an **injection**. While the income is generated from the spending of consumers overseas, it is injected into the Australian economy and therefore becomes another important component of AD.

Overall, the total demand for goods and services (**Flow 3**) is made up of **Consumption demand**, in addition to value of the **injections** that come through the Financial Sector (i.e. **Investment demand**), the Government Sector (i.e. **Government demand**) and the External Sector (i.e. **Export demand**). However, within this demand is a portion of spending on foreign goods and services (i.e. the leakage 'imports') that must be deducted in order to arrive at an accurate value for the demand placed on Australia's business sector. [See Box 4.1 within Section 4.5 which explores this in more detail.] We call flow 3 **Aggregate Demand (AD)** for Australian made goods and services, which becomes $C + I + G + X - M$.

Flow 4: Production of goods and services (real GDP)

As discussed above, the total demand placed on Australia's **Business sector** is made up of AD (**Flow 3**). It is AD that determines the total real value of production (i.e. real GDP) in the economy, which is **Flow 4** in the model. [The meaning and importance of AD, including the factors affecting AD will be explored in some detail from Section 4.5.]

The use of the model is illustrative because it helps us to gain a better understanding of the influences affecting AD and economic activity. For example, it should be apparent that any decision by the Household sector to increase their rate of **Savings** (e.g. because householders have lost confidence in the economy) will tend to reduce the growth of AD and economic activity unless the Business sector is immediately willing to use the increased flow of funds in the Financial Sector to increase **Investment** spending by the same amount. If the Business sector is also experiencing low confidence levels then an equivalent amount of Investment is unlikely to occur, even in spite of a fall in interest rates that should occur when savings increase. Similarly, a decision by the Government sector to raise **Taxes** without any corresponding increase in **Government spending** (i.e. increase budget surpluses) should also act as a further constraint on AD and economic activity. With respect to the External sector, a decrease in the international competitiveness of Australian exporters and import competing producers should also serve to constrain AD as Australians will tend to purchase more **imports** (rather than local products) and foreigners will tend to purchase **exports** from Australian competitors (such as New Zealand).



In each of the cases above, the leakages from the economy will exceed the injections for a period of time, which ultimately has a negative influence on economic growth. Alternatively, there may be periods of time where the injections are greater than the leakages, stimulating economic growth. However, this could lead to excessive spending in the economy which may put upwards pressure on prices, which then has negative implications for future rates of economic growth. This was the situation facing Australia in 2022 following a period of government of heavy government stimulus to the economy. In particular, following the onset of COVID-19, the government significantly increased government expenditure relative to government revenue, causing injections to rise relative to leakages and contributing to a stronger rate of growth in AD (Flow 3) and real GDP (Flow 4).

The problems associated with an unbalanced circular flow of income are the focus of later chapters in this book. The Australian government tries to achieve an optimal rate of increase in the volume of goods and services produced, an optimal level of employment and an optimal increase in the rate at which prices increase. To do this they can, in

conjunction with the use of other policy instruments, alter their effect on leakages from and injections into the core section of the macroeconomy. As each of the government goals and the appropriate policy responses are discussed in subsequent chapters, it can be useful to refer back to and use the circular flow model to enhance your level of understanding of the effect of these actions on the overall economy.

Review Question 4.3

1. Which two sectors form the core of the circular flow model? Explain why they are considered the 'drivers' of economic activity.
2. Explain what is exchanged between households and businesses in the product markets and the factor markets.
3. Explain how households and businesses are both buyers and sellers in the circular flow model of the economy.
4. Identify and describe examples of the income that is generated by each of the factors of production.
5. Distinguish between leakages and injections in the circular flow model. Explain how each will lead to changes in the total level of economic activity.
6. Identify the leakages and injections that are connected to the government sector in the circular flow model, and provide two examples for each.
7. Identify the leakages and injections that are connected to the financial sector in the circular flow model, and provide two examples for each.
8. Identify the leakages and injections that are connected to the transactions with other countries in the circular flow model, and provide two examples for each.
9. In sections 4.5 and 4.6 of the text, you will look at the factors that can influence the level of economic activity. Predict five factors that could lead to an increase in injections and/or leakages that would affect the level of economic activity. Refer back to your answer after you have had the chance to study these sections. Reflect upon the accuracy of your predictions.

4.4 The nature and causes of the business cycle

Over time, the level of economic activity (and therefore the rate of economic growth) fluctuates. Economists have observed that the level of economic activity tends to go through a cyclical movement, with periods of above average or excessive rates of economic growth, and periods of negative or low rates of growth. Examining the rate of economic growth over an extended period, there appears to be **peaks**, **troughs**, **recoveries** and **downturns**. Booms are associated with very high rates of growth in production, but not all peaks in the business cycle will be considered booms. Conversely, troughs are associated with very low rates of growth in production, but not all troughs will be considered a recession. For example, over 2008-9, the Australian economy went through a trough but managed to avoid a technical recession, which is defined as two successive quarters of negative economic growth. The economy also experienced another trough in the first quarter of 2011, but this too was not considered a recession, unlike the trough of 2020 which was considered a recession because it was characterised by two successive quarters of negative growth. The slowdown in the rate of economic growth over 2023-24, with growth in real GDP only marginally above 0% for three consecutive quarters, can also be considered a trough, but not a recession. This is despite the fact that the growth in real GDP per capita was negative over the same period – coined by many as a per capita recession.

Study tip

The business cycle is also referred to as the 'trade cycle' or the 'economic cycle'.

The business cycle looks at the fluctuations in the growth in output (economic activity) that takes place over an extended time frame. In particular, it suggests that economic activity follows some sort of pattern with periods of expansion (where there is positive rates of growth) and periods of contraction (where economies may sometimes produce less than they did the year before). The notion of a business cycle has been developed from observations of historical data that shows that economic activity or rates of economic growth are rarely the same from year to year.

A complete 'cycle' of the business cycle – from peak through trough and then back to a peak - can take a short or a reasonably long period of time. The time frame for each phase of the cycle will depend upon a range of factors that will be considered in later chapters. No two business cycles are identical and Australia enjoyed an extended period of positive economic growth between 1991 and 2019, before the COVID-19 induced technical recession and economic trough experienced in Australia during 2020 .

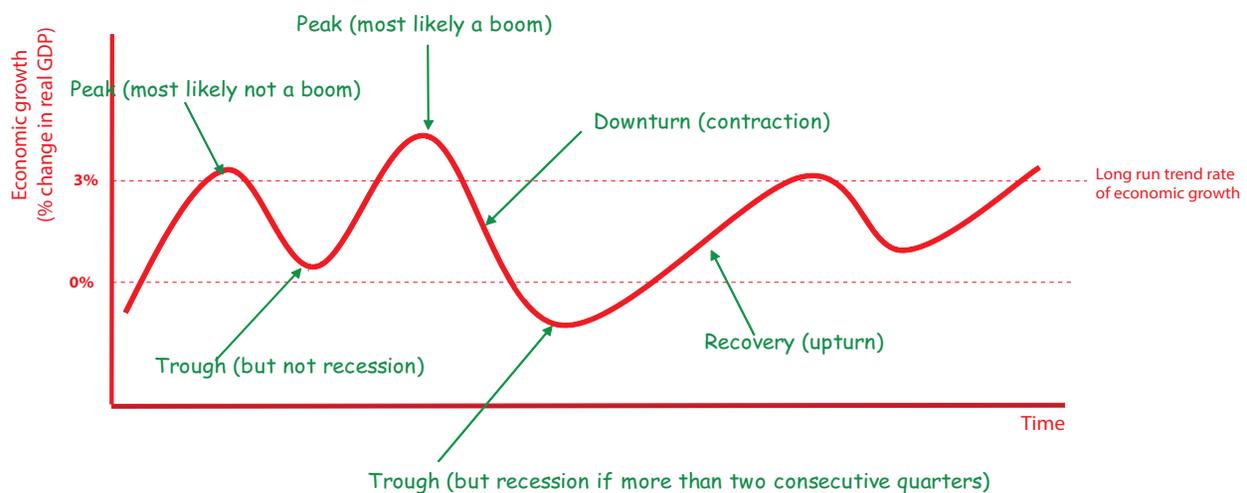
Phases of the business cycle

The business cycle has four distinct phases/stages and each is characterised by changes in key economic indicators. Analysis can begin at any of the four phases/stages.

Stage 1: Peak

During a peak the economy is usually experiencing strong rates of economic growth. Consumer and business confidence are high, which should encourage a greater propensity to spend, a reduction in savings and a willingness to take on new debt. The strong growth in demand will encourage firms to expand production, leading to an increase in the derived demand for labour. Referring back to the circular flow model in Section 4.3, this will mean that leakages will be falling relative to injections, leading to (rapidly) rising economic activity. If the peak is considered to be a **boom**, then the rate of economic growth generally becomes excessive and unsustainable. Inflationary pressures increase in response to AD accelerating beyond productive capacity. This is reflected in product markets by businesses lifting the prices of goods and services for sale in response to the development of shortages. Labour markets will also tighten as the demand for labour rises (and shortages develop) which increases wages and further adds to inflationary pressures. The prices of other key assets will also increase, such as the price of money (i.e. interest rates) as the demand for borrowing rises, and the prices of shares and properties. Generally, a boom and the associated price rises is not sustainable and the economy will eventually move to the next phase of the business cycle.

Figure 4.2 Business cycle



Stage 2: A contraction or downturn

The excessive rates of inflation and the existence of capacity constraints that characterise a boom (or peak) in the business cycle should mean that increasing the volume of production becomes increasingly difficult. High inflation, higher interest rates and strong growth in asset prices (or '**asset bubbles**') result in overvalued assets (such as shares or property). This will then typically result in a market 'correction' that eventually leads to a fall in private consumption and investment as more households save and deleverage (reduce their debt burden). Referring back to the circular flow model in Section 4.3, this will mean that injections will start to fall relative to leakages, leading to slower growth in economic activity. The rate of economic growth will therefore fall, some resources will become unemployed, confidence deteriorates further and inflation falls back to levels that don't encourage excessive growth in credit and consumption.

Stage 3: Trough

The downturn will eventually reach a point where the level of economic activity reaches its minimum point in the cycle, and this trough may or may not turn out to be a **recession**. The most commonly accepted definition of a technical recession is two consecutive quarters of negative economic growth, which is precisely what Australia experienced during 2020, with negative growth recorded in both the March and June quarters. It is useful to note that this trough/recession experienced in 2020 was not due to the normal workings of the business cycle. In other words, the 2020 trough was not triggered (or did not follow) a period of strong economic growth (or a boom). Instead, the dire state of the economy in 2020 was due to an 'economic shock' in the form of a health pandemic, which triggered government responses (designed to reduce the spread of the coronavirus) that effectively put the economy into 'hibernation'. A prolonged recession is referred to as a **depression** and this has not occurred in Australia since the 1930s.

The low or negative rates of growth in the trough/recession mean that firms will need fewer factors of production and the rate of unemployment (or underemployment) would be high. Referring back to the circular flow model in Section 4.3, this means that leakages will be high relative to injections, leading to falling economic activity. During the recession of 2020, the 'official' rate of unemployment climbed from approximately 5% towards 8%. However, this understated the true level of unemployment because the government's JobKeeper program ensured that thousands of Australian workers were still classified as 'employed' despite the fact that many were working zero hours per week. The 'effective' rate of unemployment was therefore much higher, approaching 15%, particularly if the pool of hidden unemployed (see Section 5.5 of Chapter 5) were added to the figures.

A trough or recession will generally be accompanied by a reduction in the rate of inflation (i.e. disinflation), or even falling prices (i.e. deflation) given that there will be spare capacity in product markets, labour markets and financial markets. For example, excess supply of labour (i.e. unemployment) exerts downward pressure on the price of labour (e.g. wages); excess supply of goods and services more generally exerts downward pressure on the price of products; and excess supply of savings drives down interest rates. This is what occurred during the 2020 recession, with excess capacity ultimately leading to deflation in the June quarter 2020.

Stage 4: Recovery

During the trough or recession, the relatively low inflation rate (or even deflation) combines with lower labour costs and lower interest rates to eventually spark an economic recovery. Consumption, Investment and Net Exports will all start to pick up over time, helping to promote growth in production, employment, income and expenditure. Referring back to the circular flow model in Section 4.3, this will mean that injections will be rising relative to leakages, leading to increasing economic activity. Eventually the economy will recover and continue to grow until we reach the next peak in the business cycle and the process continues.



While an economy will, over time, tend to be self-correcting, particularly when prices (including the price of labour) are free to move in response to the demand/supply pressures in each market, the period of adjustment will often be quite protracted. The Government will therefore tend to use its macroeconomic demand management **stabilisation policies** to temporarily replace the lack of demand during a trough (or constrain growth during a peak). This was no more evident than during the period covering 2020-21, with the government recognising that a failure to provide budgetary policy and monetary policy support to the economy would have resulted in a more severe and prolonged period of economic decline. [The government's recent use of its macroeconomic demand management policies to manipulate the business cycle will be fully explored in chapters 8 and 9.]

While a boom is normally characterised by strong production, high inflation and low unemployment and a recession is associated with weak production, low inflation and high unemployment, it is possible to have periods of low economic growth, high unemployment rates and high inflation rates. Such a situation is referred to as **stagflation**. This occurred in Australia between 1973 and 1983 with unemployment reaching a peak of 10.2% in 1983 and inflation averaging 11.6% per annum over the entire period.

The global supply shocks affecting Australia and the global economy since the start of 2022 (due primarily to ongoing global conflict and continuing COVID-19 supply chain disruptions) resulted in conditions akin to stagflation over the past couple of years. Costs of production increased significantly, causing inflation to accelerate well beyond levels that are considered acceptable, which exerted a negative influence on AD and economic growth. This manifested in low rates of economic growth over the past couple of years combined with excessive rates of inflation. The policy responses included a change in monetary policy settings from expansionary (highlighted by very low rates of interest) to restrictive, with higher interest rates designed to reduce inflationary pressures [see Chapter 9].

Activity 4c: Analysis exercise

In your notebook, create a table like the one below. Based on information in the section above, complete the table. Use words like high, low, rising, falling, worsening, improving to describe the likely economic conditions in place during the different stages of the business cycle.

Stage of business cycle	Inflation	Economic Growth	Unemployment	Interest rates
Peak				
Downturn / contraction				
Trough				
Recovery				

Review Questions 4.4

1. Describe the four phases of the business cycle using a diagram to illustrate your response.
2. Define the term 'technical recession'. At what stage of the business cycle do economies usually experience a recession?
3. Outline why Australia experienced a recession during 2020.
4. Explain why the 'boom' phase of the business cycle is unlikely to last for an extended period of time.
5. Provide one reason to support the assertion that economic conditions in the boom will eventually create the conditions for a downturn.
6. Explain why a trough or a downturn is likely to be accompanied by lower prices for both goods and services and a lower price of labour.
7. Explain why flexible prices in the economy is likely to mean that the economy will recover more quickly after entering a downturn/trough.
8. Explain why governments used macroeconomic stabilisation policies to stimulate the economy during 2020 when economic theory suggests that the economy would have recovered over time without any government support.
9. Define stagflation and outline whether Australia has experienced conditions akin to stagflation over 2023-24.

4.5 The meaning and importance of aggregate demand

The total expenditure on new final Australian made-goods and services is referred to as **Aggregate Demand (AD)**. AD influences the level of economic activity because it provides the incentives for firms to increase production levels, thereby requiring the increased use of factors of production and generating income growth in the country. The focus is on **final goods and services** because there will be many transactions that take place in the economy that involve intermediate products (goods that are used to make other goods and services). If the intermediate products were to be included in our calculation of AD, then the same goods and services would be counted twice. For example, if a new car is purchased, the final amount paid represents all of the value added. If the tyres were also included (the car manufacturer will have purchased these from another supplier), then this item would be counted twice, giving an inaccurate picture of total economic activity or production. We also emphasise that the goods being sold are new so that we don't include the value of goods that have been included in previous calculations of AD and GDP (when they were first purchased). The sale of second-hand goods can contribute something to AD (such as the 'service' provider by the seller) but they generally do not involve new production.

Changes in the level of AD therefore have a major influence on the phases of the **business cycle**. Following the Great Depression in the early 1930s, economists began to pay more attention to aggregate demand theories that emphasised the role of governments in reducing the severity of fluctuations in the level of economic activity. The main argument for manipulating levels of AD was offered by John Maynard Keynes, who suggested that fluctuations in AD were the main cause of changes in the level of economic activity (the phases of the business cycle). A lack of AD was usually associated with a higher unemployment rate, while a rapid increase in AD could cause an excessively high inflation rate. He believed that AD could remain low for extended periods of time and that this would cause enormous suffering in the economy. His approach to AD and aggregate supply (AS) is discussed in the Applied Economics Exercise at the end of this chapter.

To fully understand the importance of AD and how it affects the level of economic activity, it is worth investigating its key components. The ABS reports on not only changes in the total level of spending in the economy, but also each of the following components. This helps economists to isolate changes and to see where there is strong or weak growth with respect to the different sectors of the economy.

The AD equation is:

$$AD = C + I + G + X - M$$

Where:

C = Private Consumption Expenditure

Private Consumption Expenditure is defined as the total value of all expenditures on individual and collective consumption goods incurred by resident households and non-profit institutions serving households.

The outlays covered include:

- Expenditure on consumer durables such as cars, furniture and high-value, long-lasting household appliances (but excluding dwellings, which are regarded as the fixed assets of an 'industry')
- Consumer semi-durables such as clothing and footwear
- Single-use goods such as food, cigarettes and tobacco, and alcoholic drinks
- Services of all kinds such as hairdressing, dry cleaning and public transport

Consumption expenditure usually comprises approximately 60% of AD in Australia.

I = Private Investment Expenditure

Private Investment expenditure is defined as the purchase of new equipment and plant, buildings and vehicles. The purpose of investment expenditure is to expand the productive capacity and productivity of the business sector. The addition to inventories over the accounting period also represents a form of investment. The spending by households on new housing is included in this subsection. Investment spending is usually undertaken with the purpose of generating additional goods and services in the future. Private investment expenditure is therefore a volatile component of Aggregate Demand as businesses are continually changing their forecasts about future profitability. It comprises approximately 15% to 20% of AD.

Study tip

It is easy to confuse 'Investment' discussed here, which is really capital investment, with 'Investment' often referred to in the general community – which typically refers to financial investment in assets like shares and property. An investment in shares, for example, is not counted as part of AD because the money 'invested' is simply a transfer of ownership from one party to another. In itself, it does not directly lead to any change in AD.

Activity 4d: Classification of spending in the GDP figures

A purchase of a motor vehicle by a household (but not by an associated unincorporated enterprise) is treated as final Consumption expenditure, whereas the same purchase by a business would be classified as 'gross fixed capital formation' (Investment). Accordingly, there are many assets that are purchased by households, including motor cars, white goods or computer equipment, whose AD classification will depend on who purchases them and how they are used. If they are used by businesses in the production process, then they are considered a part of private investment demand (I). If they are used by households for non-business use, then they are considered a component of consumption expenditure (consumer durables) (C).

Questions

1. Explain the difference between the Consumption (C) and Investment (I) components of aggregate demand.
2. Explain how the purchase of a new taxi would be classified by the ABS in the Aggregate Demand equation.
3. Explain how the purchase of a new house would be classified in the AD equation.
4. Explain how the purchase of an imported Mini Cooper by a household would be classified in the AD equation. Under what circumstances would the purchase of the same car be considered differently?
5. Explain why the purchase of shares would not be included in the calculations for AD.



G = Government Expenditure

Government Expenditure includes expenditure by all areas of government (Federal, State and Local). It is commonly broken up into G1 and G2 as follows.

G1 is **Government current (consumption) expenditure** on goods and services that are not capital in nature. This includes collective goods and services for current use necessary to run the government. Much of the spending goes towards the provision of government services such as health, education and defence. It also includes spending for government departments on stationery, salaries and rent. It is a relatively stable component of AD.

G2 is **Government Investment Expenditure** on goods that are of a capital nature. This includes spending on new buildings and infrastructure. Spending in this area is deemed to be important, like private Investment, because it adds to the productive capacity of the economy. Infrastructure spending on hospitals, schools, roads, ports and railways may help to reduce costs of production for private firms and may help to boost Australia's international competitiveness.

$(X - M) = \text{Net Exports (exports - imports)}$

X is spending on exports. Exports are Australian-made goods and services that have been purchased by foreign households, businesses, governments and other organisations. **M** is spending on imports. Imports are foreign-made goods and services that have been purchased by Australian households, businesses, governments or other organisations.

'Net exports' is sometimes referred to as the **Balance on Goods and Services** (or the Balance of Trade - see Chapter 7) and exports and imports each comprise approximately 20% to 24% of AD. They are both highly volatile components of AD and the factors influencing them will be discussed in Chapter 7.

Box 4.1 Why are imports deducted from the AD equation?

Import spending is actually included in each of the other components of AD. For example, when a TV is purchased at a retail outlet, the total value of the TV will be included in the C component of AD (assuming that it is being purchased by a household rather than a business). The retailer will pay the importer an amount and then add a profit margin. The profit represents the value added in Australia. In a sense when you are buying a TV you are paying the retailer for their services: advice, the ability to compare the televisions, and for saving you the trouble of importing the TV yourself. The import component therefore needs to be deducted (because it is included in C) so we can calculate the true value added (contribution to production) in Australia. So, in fact, the AD equation could be restated as: $AD = C - C_m + I - I_m + G - G_m + X - X_m$ - where 'm' represents imports (e.g. C_m would be the component of Consumer spending diverted into spending on imports.) Rather than use such a convoluted approach, it is easier to add together all the import spending to create M and deduct it from the overall AD equation when calculating Net Exports.



Study tip

Note that welfare payments are not counted as G1 or G2. This is referred to as a **transfer payment**. It has been taken from one group (in the form of taxes) and redistributed (transferred) to someone else. The tax paid is a leakage which is then redistributed back to households (an injection). The government is therefore not purchasing any new goods or services (which is what AD measures) but the welfare recipient is likely to spend the money (which will increase AD if it is spent on Australian products). To count the welfare spending as G1 could lead to double counting. Therefore, welfare payments are only 'counted' in AD when they are actually spent on Consumption.

Review questions 4.5

1. How do economists define and measure aggregate demand?
2. Explain why the level of aggregate demand in the economy is an important determinant of the level of production in the economy.
3. Describe five goods or services that would be considered Consumption expenditure in the AD equation.
4. Consider the reasons that businesses undertake Investment and explain why it is usually the most volatile component of aggregate demand.
5. Describe five items that would be considered private Investment expenditure in the AD equation.
6. Identify one area of spending by households that would be counted as 'Investment'. Explain why this item is classified in this way.
7. Discuss how a product classification as C or I can depend on who purchases it and how it is used in the economy.
8. Explain whether the construction of a road tunnel would be classified as Private Investment (I) or G2.
9. Identify two items of G2 on which spending may have increased in the last 12 months.
10. Explain how the Balance on Goods and Services is related to AD.
11. Explain why imports are deducted from the AD equation.

4.6 Factors that can influence the level of Aggregate Demand

Unit 3 requires students to have a detailed knowledge of the factors that affect the level of AD in the economy. This chapter will review each of these factors from a theoretical perspective, and the effect of these factors will then be discussed with respect to each of the government's domestic economic goals, in Chapter 6.

However, before examining each of the various factors that will impact on AD, it is worth highlighting how a change in the general price level influences AD. The general level of prices is an aggregate measure used by economists to indicate how the prices of a representative basket of goods and services have changed over time. It is used to determine the **inflation rate** (the percentage increase in average prices over a designated period of time). The general level of prices is, for the purposes of this analysis, the weighted average of prices for a representative basket of goods and services in the economy.

Higher prices in the economy tend to have a negative effect on the total spending in the economy because:

- Increases in the general level of prices will reduce the **purchasing power** of economic agents. The real value of a given level of income and the real value of wealth is decreased when prices increase. Purchasing power is therefore reduced and the level of spending decreases. Alternatively, falls in the general level of prices for a range of goods and services can result in greater spending as purchasing power increases and people might feel 'richer' if the value of their wealth is higher in comparison to the general level of prices.
- Higher price levels in the nation will tend to have a negative effect on its **international competitiveness**. This is especially the case if the growth in average prices (the inflation rate) is higher than it is in other countries, against whom Australia might compete in international markets. This may lead to a reduction in the demand for Australia's exports and a substitution by Australian consumers towards relatively cheaper imports. Notice how this leads to an increase in leakages and a reduction in injections, thereby reducing the level of aggregate demand in the economy.



The reverse is true when prices fall, with AD rising because purchasing power increases and international competitiveness improves, which is similar to what occurs at a microeconomic level when the price of a product falls. However, the various other factors influencing AD that will be considered below are all examples of factors that will cause AD to change for reasons 'independent of any change in the general price level'. When we examine AD and AS diagrams in Section 4.8, you will learn that these factors will cause the AD curve to shift, whereas the change in the general price level influences AD via a movement along the AD curve (as it caused by a change in the general price level). The following factors have the potential to influence the level of aggregate demand in the economy.

Disposable income

Disposable income is defined as the rewards received by households from their direct contribution (from working) and indirect contribution (from provision of land or capital) to the production process, plus government transfers less direct (income) taxes. This represents the total amount that consumers have to spend on goods and services. Disposable income can increase when a person gets a pay increase, the government cuts individual income tax rates or when a household receives dividends or makes capital gains from buying or selling assets.

When the economy experiences a recession, such as 2020 in Australia, the government will typically attempt to stimulate AD through a direct boost to disposable incomes. In 2020, for example, the government provided one-off cash bonuses to some welfare recipients and doubled 'unemployment benefits' (i.e. JobSeeker) which boosted disposable incomes for these low income groups and helped to stimulate Consumption and AD.

Interest rates

Interest rates were discussed as a microeconomic factor that affects consumers' discretionary income. Changes in interest rates also have macroeconomic implications because they affect both household consumption decisions as well as business' investment decisions. This happens as follows:

- An increase in interest rates will negatively affect the **discretionary income** of those households who have taken out **variable interest rate** loans. They will need to pay back more to the bank each month, leaving less available

for the purchase of goods and services. It also raises the costs of borrowing for consumers, which may affect the decision to purchase expensive items such as houses and cars. The opportunity cost of spending also increases because those who do buy goods and services now forgo the opportunity to earn more interest.

- Businesses who have also taken out variable rate loans will also experience a reduction in their **cash flow**. This reduces the profits that they may have available to reinvest in new capital and equipment. The higher interest rates also reduce the profitability of any future investment project because the potential revenue from sales might decline (because households are likely to spend less) and their borrowing costs have increased.

Interest rates in Australia are indirectly influenced by the manipulation of the **cash rate** by the Reserve Bank of Australia as part of **monetary policy**. The decision to raise interest rates will usually be made when aggregate demand is growing excessively when compared to aggregate supply (thus causing excessive inflation). In contrast, the RBA may seek to stimulate spending by lowering the cash rate when the level of economic activity is below that needed to stimulate employment growth. The operation of monetary policy will be discussed at length in Chapter 9.

Consumer confidence

Consumer confidence measures the general level of optimism (or pessimism) about the future state of the economy (from a consumer's perspective). The main measure of consumer confidence (also called consumer sentiment) uses an index number, with an average rate of confidence equating to 100 index points. If consumer sentiment is above 100, this means that optimists tend to outweigh pessimists in the period measured. If consumer sentiment is below 100, this means that pessimists have outweighed optimists in that period. An increase in confidence may indicate that households expect that their future income and employment prospects are improving. As a result, they may be less inclined to save and/or be willing to increase debt levels. During periods of low consumer confidence marginal propensity to consume tends to decrease. Marginal propensity to consume measures the increase in consumption that would result from a one-dollar increase in disposable income. If confidence in the economy were higher, it would be expected that the level of consumer spending would increase, resulting in an increase in AD. The level of consumer confidence can be affected by a range of sub-factors including (but not limited to):



- Perceived employment prospects
- Media reports on global economic conditions
- Geopolitical events such as terrorist attacks or a decision by the two major economies in the world (the US and China) to engage in a trade war and the Russian invasion of Ukraine in early 2022
- Climatic conditions
- Changes in the government or its leader.

Business confidence

Business confidence measures the general level of optimism (or pessimism) about the future state of the economy (from a firm's perspective). If firms expect economic conditions to improve then they may be more willing to invest in new plant and equipment, so that they can meet the anticipated increases in demand and maximise potential profits. The level of business confidence can be influenced by:

- The future state of the economy
- Future demand for the firm's goods and services
- Future costs associated with the production of their products and the availability of inputs
- The likelihood of increased competition
- Expected rates of inflation
- Changes in, or uncertainty surrounding, government policy.

Investment is the most volatile component of aggregate demand because businesses are making a decision about their spending based on a number of 'unknowns'. The decision to invest, or not, is therefore a risky one and small changes in economic indicators can lead to significant changes in investment intentions.

The exchange rate

The **exchange rate** measures the value of one currency in terms of another currency. For example, on a particular day, one Australian dollar may be able to buy one US dollar. The exchange rate for Australia is therefore expressed in terms of how much it can be exchanged for in terms of a foreign currency. The RBA also provides information on the **Trade Weighted Index (TWI)**, which is a measure of the value of the Australian Dollar, expressed in terms of a weighted basket of the currencies of Australia's major trading partners. Changes in the exchange rate affect the structure of **relative prices** and this, in turn, has an effect on the demand for Australian-made goods and services. The change in the value of the dollar can theoretically affect each component of the aggregate demand equation, but for the most part, demand for exports and imports will be the components that are most affected. This occurs in the following way:

The impact on exports

Some exporters operate in highly competitive markets. They sell relatively **homogenous goods** into the world market and therefore must *accept the price that is determined in these markets*. This includes a large number of the **commodities** that Australia exports. For example, coal exporters receive the world price for coal that is set through demand and supply conditions in the world market. The price is usually expressed in USD. If a miner can sell each tonne of coal for USD 50, the value of this export to the mining company will be determined by the exchange rate (the value of the Australian dollar in terms of the USD). If AUD 1 = USD 1, then every tonne sold would generate AUD 50 of revenue. Following a depreciation of the Australian dollar to say, AUD 1 = USD 0.50, the exporter will now earn AUD 100 per tonne. This boosts the value of exports (even though the same volume of exports is sold) and results in an increase in revenue for the exporter. This extra revenue is an injection into the circular flow model that results in an increase in economic activity.



Firms who compete in world markets where they *set their prices in Australian dollars* may also find that the demand for their good or service increases. The depreciation of the AUD discussed above effectively reduces the amount of currency that the foreign purchaser must sacrifice in order to obtain the Australian product. For example, if a Chinese tourist is looking to stay in a Melbourne hotel, they may be charged AUD 500 per night. If the exchange rate was AUD 1 = CNY 5, then the Chinese resident would have to pay CNY 2,500 per night. A depreciation to AUD 1 = CNY 4, would reduce the price for the Chinese tourist to CNY 2,000. The lower relative price of accommodation in Australia therefore increases the purchasing power of the foreign resident and makes Australia a relatively more attractive destination when compared to other countries. With a greater *volume* of exports being sold, this leads to an increase in the *value* of exports and AD.

The impact on imports (and import-competing businesses)

The price that Australian importers charge for the goods they buy from overseas is usually determined in world markets and Australian consumers usually have little influence over those prices. When the value of the AUD changes, the structure of relative prices with respect to imports and Australian-made goods and services also changes. Following a **depreciation of the AUD**, Australians will now need to exchange more AUD for each unit of foreign currency. This effectively increases the AUD price of any imported item (assuming the world price does not change), and reduces the purchasing power of the Australian incomes. As a consequence, the demand for imports is likely to fall, which decreases leakages from the circular flow. Importantly, the higher relative prices for imports encourage consumers, businesses and even the government to substitute their demand towards goods and services made by 'import-competing' businesses. This contributes to an increase in AD and promotes higher levels of economic activity.

Rates of economic growth in overseas economies

Economic growth measures the percentage change in the volume of goods and services produced in a nation from one measurable time period to another. An increase in economic growth is usually associated with an increase in a nation's real disposable income and the need for inputs to facilitate the growth. Given that Australia has an abundance of natural resources, strong rates of economic growth in other countries, particularly China who is Australia's largest trading partner, will be of great benefit to the Australian economy. This is because stronger rates of economic growth in these economies will typically be associated with the construction of new buildings and infrastructure (e.g. roads,

cost of raw materials, or the actual cost of labour and capital. The following examples illustrate the effect of changing costs of production on AS.

- Falling **oil prices** could be regarded as a key factor that increases AS in a nation. Many firms are affected directly by falling oil prices while others are affected indirectly. For example, businesses in the transportation and plastics industries would experience a decrease in costs of production (because oil is a key raw material used in these industries), which directly improves supply conditions for the transportation and plastics industries, as well as indirectly improving supply conditions for those businesses relying on transportation and plastics as inputs.
- Slower growth in wages (especially if they are below the inflation rate) will tend to decrease **real unit labour costs**. Businesses will be able to hire more workers such that their ability to supply increases and AS thereby increases. In contrast, excessive wage claims can reduce the ability and willingness of firms to supply because their costs of production are excessive relative to the prices firms can charge in the market.
- Falling **technology** prices will also affect the costs of production. Over time, computers and Internet access have become cheaper to purchase, resulting in lower costs for firms who need them to remain competitive. The fall in this cost of production allows AS to increase.



Box 4.2 The value of infrastructure spending

The government can have a significant impact on the quality and quantity of productive resources that are available to firms to increase their supply. Spending on education and training can affect the quality of labour resources and the laws relating to immigration also affect the labour market. The government also allocates part of its budget to infrastructure spending. This is a form of government investment that provides the foundations for a wide range of economic activities. Infrastructure spending is discussed at length in Chapter 10, but it is worthwhile briefly considering its impact on the ability of private firms to increase their supply. For example, the government could build new road and rail infrastructure. This should, if planned effectively, enable less time to be spent on roads when travelling from one place to another. This has multiple benefits:

- Delivery firms will be able to make more deliveries per hour.
- Workers might arrive at work feeling more refreshed and therefore they may be more productive.
- Vehicles used in business will use less petrol and this helps to lower production costs.
- Rail infrastructure might reduce carbon emissions, helping to reduce the severity of future climate change impacts, and the damage to potential supply caused by those impacts.



Technological change

A change in technology is a significant factor that has affected the quality of resources available, productivity growth and the cost of production. Many workplaces around the world have introduced technology that has replaced humans in the production process. This started with repetitive, low-skilled tasks, but increasingly technology is being developed with some form of artificial intelligence. The use of technology increases the ability of firms to increase supply from a given workforce and helps to reduce the costs associated with hiring labour in the long term. For example:



- The **Internet** and the rise of the **digital economy** has enabled a wide range of firms to increase their ability to supply. For example, a customer seeking a new insurance quote can do so using a single comparison site, rather than wasting time ringing up each competitor in the market. This means that the insurance companies no longer have to hire people to answer the phone. The technology therefore helps to reduce the cost of production for the firm and helps to increase their ability to supply. The rise of creative solutions using AI (artificial intelligence) such as for writing reports has the potential to significantly increase the supply capacity of numerous industries, including media and communications.
- The **mechanisation** of industries that were once labour intensive also increases the ability of firms to supply. Farm machinery can complete the work of hundreds of people and therefore AS can be increased. Similarly, technological developments in the energy industry have allowed companies to extract far more oil and gas using fracking techniques.

- The **advances in technology** that have occurred over recent years have allowed mining companies to integrate the use of driverless trucks and trains as part of their operations. This cuts down on labour costs (which at the height of the mining boom were quite high) and the number of accidents is reduced due to less human error, which also raises productivity. This saves the company money and less time is wasted because fewer accidents disrupt the ability of the firm to supply.

Productivity growth

Productivity is measured as the output per unit of input. It describes how efficiently resources are being used in the production process to create the goods and services demanded. One measure commonly reported by the ABS is **labour productivity**. This measures total output (as measured by GDP) divided by the total hours worked. Alternative measures of productivity include **capital productivity** and **multifactor productivity** (the productivity of the combined use of capital and labour).

Productivity growth is usually associated with an increase in the ability and willingness of firms to supply because:

- A greater volume of goods and services can be produced from the existing (or in some cases fewer) inputs. This increases the firm's productive capacity.
- The costs of production will fall because the **cost per unit** decreases if the increase in output is greater than the compensation required for the increase in output.

Productivity growth across a range of firms in the economy leads to an increase in the nation's AS. The importance of productivity growth is further discussed in terms of its impact on AD and AS in Activity 4e.

Exchange rates

The exchange rate is considered a supply factor because it affects the cost of production. A **depreciation** of the AUD will make it more expensive for firms to purchase inputs, such as capital and intermediate goods that might be used in the production process. For example, firms that require foreign-made computers to operate will experience an increase in their cost of production. The increase in the price (when converted to AUD) may also make it more difficult for firms to afford the capital that could boost supply. Therefore the ability to increase AS over time could be hampered by a low exchange rate. In contrast, an **appreciation** of the AUD would make it much easier for a firm that imported clay from overseas to make their pots, and therefore to increase supply. The general level of AS is therefore likely to be positively influenced by an increase in the value of the AUD.

Study tip

Note how the appreciation of the AUD has a contrasting effect on AD and AS. While a depreciation of the AUD tends to boost AD, it reduces the ability and willingness of firms to supply. The demand side effect will outweigh the supply side effect because the change in the exchange rate has a relatively large impact on final goods and services demanded in the tradables sector (exporters and import competing businesses) compared to the effect on a relatively smaller number of firms relying on imported inputs.

Government regulations

Government regulations were introduced in Chapter 3 in the context of market failures, where the focus was on how government intervention helps to achieve a more efficient allocation of resources. However, government regulations ultimately impose costs on business (mostly by design) which influences the willingness and capacity of businesses to produce goods and services. There are a multitude of government regulations that influence business costs and/or business decision making, ranging from those that are designed to protect the environment (e.g. pollution taxes and charges) to those seeking to protect workers (e.g. Workplace safety laws) to those attempting to protect consumers (e.g. product safety laws). In the main, these laws or regulations will add to the cost of doing business and any attempt by governments to further tighten regulations will typically have a negative impact on AS.

Climatic conditions and other disruptions ('supply shocks') to AS

As was discussed in Chapter 2, favourable weather conditions help firms to increase the supply of a wide range of goods and services, because favourable weather increases the availability of key resources used to make goods and services and helps to reduce input costs for firms. Chapter 3 also discussed the impact of potential alterations to weather patterns that could be linked to climate change. The increased incidence of erratic weather patterns experienced in Australia in recent years (such as more severe droughts, floods, storms and bushfires) can be traced back to warming of the planet. Each of these events resulted in a significant disruption to supply. For example, the floods and storms affecting eastern Australia over the past few years had a significant impact on the ability of farmers to supply agricultural products to Australian and international markets.

The COVID-19 pandemic is a perfect illustration of a general ‘supply shock’ which negatively impacts on the economy’s productive capacity and/or ability to supply goods and services. COVID-19 was first discovered in a Chinese province (Wuhan) and resulted in Chinese authorities shutting down various industries in order to prevent the spread of the virus. This restricted the ability of Australian businesses to source key inputs from China, and therefore reduced Australia’s AS. This negative impact on AS was intensified once the virus spread globally, not only restricting the ability of Australian businesses to source supplies from other countries (commonly referred to as **supply chain disruptions**), but also restricting the ability of Australian businesses to source key labour inputs. The threat imposed by the existence of the pandemic itself, combined with the government responses to the pandemic (i.e. social distancing laws and lockdowns) resulted in both a reduced supply of labour to markets, as well as an inability of many businesses to continue operating and supplying goods and services. The combination of both negative aggregate supply-side effects and negative aggregate demand-side effects caused Australia to experience its first recession in approximately 30 years.

Humans can also disrupt supply through their destructive and sometimes negligent behaviours. Acts of war tend to destroy key infrastructure and businesses, significantly reducing AS in those regions. For example, the war in Ukraine has resulted in a global supply shock felt by all economies since 2022. This stems from the trade sanctions imposed on Russia, which has severely restricted the supply of key commodities such as gas and oil to the global economy, in addition to the increased difficulty associated with sourcing commodities from that war affected region. For example, Ukraine was unable to export much of its grain (e.g. wheat) to global markets due to blockades of its Black Sea ports.

Review Questions 4.7

1. Define AS and explain why growth in AS is important for maintaining healthy levels of economic activity.
2. Identify one reason why the quantity of productive resources may have increased over the last 2 years and outline the impact on AS.
3. Identify and explain one factor that could lead to an improvement in the quality of labour resources and how this might influence the level of AS.
4. Explain how an increase in the common costs of production might reduce the ability and willingness of firms to supply.
5. Explain how the depreciation of the AUD might affect the costs of production and therefore the level of AS.
6. What is meant by productivity and explain its growth helps to expand the productive capacity of the economy.
7. Identify two significant technological developments from the last 2 years and explain how they can influence AS.
8. Explain how the COVID-19 pandemic and the war in Ukraine can be used as an example of a supply shock causing a reduction in AS.

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Activity 4e Productivity - why is it so important?

Economists generally agree that boosting productivity will help an economy to achieve higher rates of economic growth and higher living standards. Productivity is a measure of how efficiently the scarce resources of land, labour and capital are used to produce goods and services. An increase in productivity (productivity growth) means that a greater volume of goods and services can be produced using the same or fewer inputs. This would represent an increase in technical efficiency, as described in Chapter 1. Students often confuse the concepts of productivity and production. While they are related, they are different concepts. Production can be described as the final output of goods and services (a noun) or the act of converting raw materials into intermediate or final products (verb). Productivity differs in that it measures how efficiently the final product has been achieved.



Productivity growth helps to promote increases in both AD and AS. If more output can be generated from existing resources then the economy is technically able to supply a greater volume of goods and services to the population. Not only that, the increase in productivity will help to reduce the costs of production for firms. For example, if we assume that workers are able to produce more items per hour (i.e. an increase in labour productivity) and their wages are not increased, then the average cost of producing each unit will fall. This also highlights the link between microeconomics and macroeconomics because the lower costs of production will increase the willingness and ability of individual firms to supply. Collectively, it adds to an increase in AS and the productive capacity of the economy is expanded. Productivity growth is also seen as important for Australia's international competitiveness. When firms in Australia can boost production with fewer inputs, then the average (or per unit) costs of production fall and firms are able to charge lower prices. This helps to reduce prices below those offered in other countries, which increases both export sales as well as sales of local import competing products. For those goods in the non-tradables sector (i.e. they are neither exported nor imported), the higher productivity growth and lower prices will also result in greater affordability for domestic customers, further helping to boost AD and economic growth.

The link between productivity and living standards is clear in material terms. Ultimately, when households have access to cheaper goods and services then their material living standards should increase because they are able to purchase more goods and services with any given level of income. This is borne out in economic statistics over time, with growth in productivity being closely associated with growth in real GDP per capita (which is a common measure of material living standards). In addition to these material benefits, productivity also has the potential to boost non-material living standards to the extent that it can provide workers with more time to pursue leisure activities in the event that they elect to work fewer hours than before. This enables more time to be spent on hobbies, building meaningful relationships, and allow the body and mind time to rest and reflect. Further, productivity growth can result in less monotonous or physically demanding workplaces if new technology is used to perform mundane and/or onerous tasks. This also has the potential to increase job satisfaction, improve mental health and contribute to greater enjoyment of life more generally.

Unfortunately, while many economists predicted in the 1960s that we would experience an idealistic lifestyle in the future, with advances in technology (and the associated improvements in productivity) facilitating greater automation and a reduction in the average working week of employees, this has not eventuated. The drive for productivity growth has, in many cases, had a negative impact upon non-material living standards. Workplaces in general have become increasingly accountable, with greater monitoring of worker performance, and increased stress levels, which exerts pressure on health and relationships. In addition, the growth in productivity over recent decades has not resulted in the expected reduction in average working hours because workers, on the whole, have accepted higher wages instead of reduced hours of work.

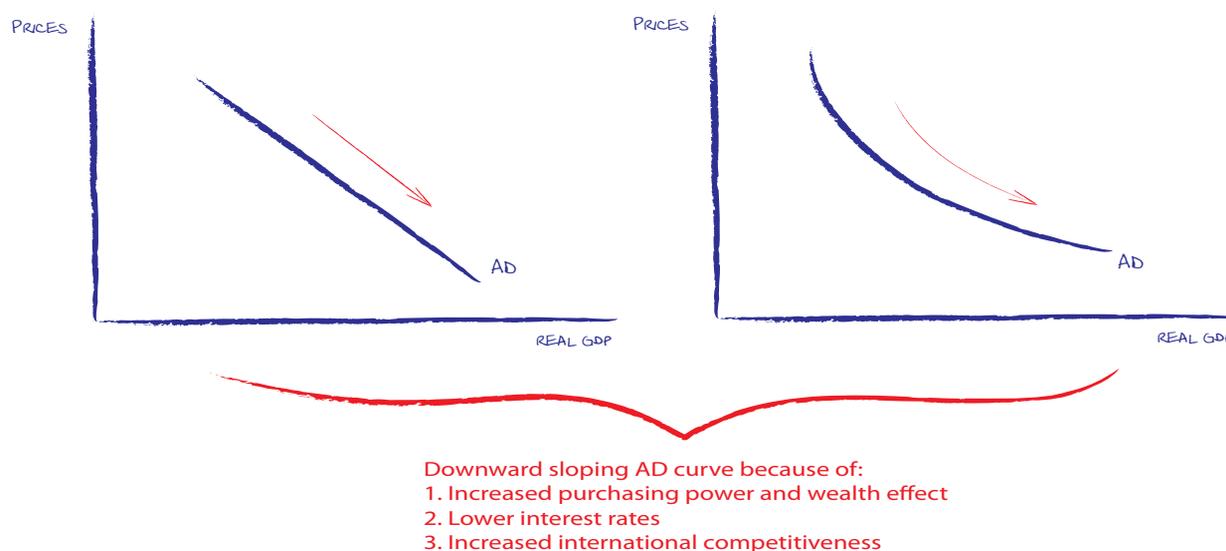
Finally, to the extent that productivity growth has been fuelled by advances in technology, both material and non-material living standards will be impaired if it causes an increase in structural and long-term unemployment (see Chapter 5). While it is certainly true that technological advances and the ensuing growth in productivity has a potential to create jobs, the net impact on employment and unemployment is less clear-cut. Some workers will be displaced by technology and a small proportion often find it very difficult re-skill and gain alternative employment. Those who become long-term unemployed (i.e. unemployed for more than one year) will be particularly affected, suffering both a drop in material living standards (as factor income has been replaced by a much lower transfer income) and non-material living standards as they become increasingly disconnected from mainstream society and become more prone to mental illness.

Questions

1. Define the term productivity and explain how it can be measured.
2. Distinguish between productivity and production.
3. Explain why an increase in productivity is likely to boost AS and examine the impact on prices, AD and living standards.
4. Explain how an increase in productivity can be associated with a decrease in living standards.

Either a straight or a 'curved' line can be drawn to represent the AD curve and both examples are illustrated in Figure 4.3. The diagram illustrates the inverse relationship between the total demand for goods and services and the general level of prices.

Figure 4.3: AD curves



Note that the AD curve (like the microeconomic demand curve) is drawn with a number of conditions that affect the position of the curve. Factors that affect AD are those, other than the general level of prices, that will influence any of the components of AD (C, I, G, X or M), which in turn results in the AD curve shifting either to the left or to the right. Each AD curve is drawn assuming that these factors remain constant (*ceteris paribus*). For example if there was a decrease in income tax rates, this would increase the disposable income of households, which encourages people to increase their consumption at each price level. This is represented by a shift of the AD curve to the right. The effect of changing AD and AS will be discussed later in this section.

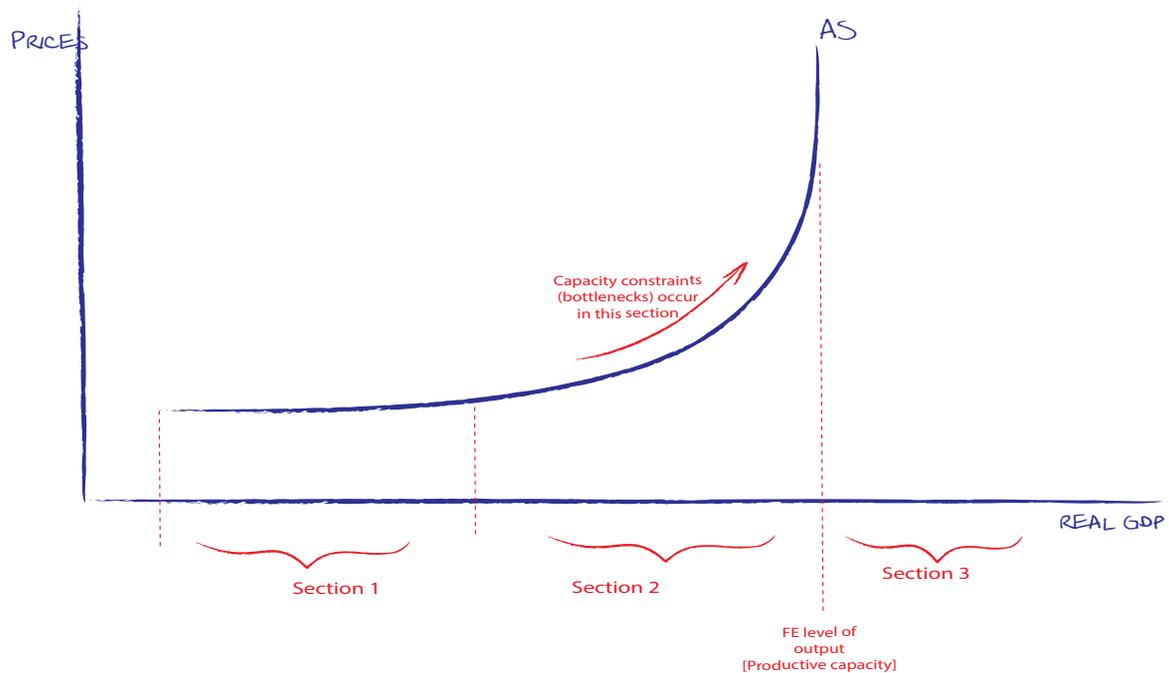
The Aggregate Supply (AS) Curve

The aggregate supply curve represents the total real value of production that producers are willing and able to supply at various general (or average) price levels. Generally, an increase in prices is likely to be associated with an increase in AS, similar to the microeconomic supply curve that we examined in Chapter 2. However, in a macroeconomic context, the precise shape of an economy's AS curve is open to debate. **New Classical economists** believed that there was a positive relationship between the general level of prices and the willingness and ability to supply, but only in the short run. Beyond the short run (i.e. in the long run), they argued that the AS curve was vertical.

The Keynesian AS curve

John Maynard Keynes (a famous British Economist) did not agree with the New Classical economists and contended that, as long as the economy had spare capacity, AS would essentially be perfectly elastic – which means that AS would increase without there being any change to aggregate prices. He argued that firms would be easily able to increase their output and would not need an increase in price to motivate an increase in supply. A key feature of the Keynesian model is that both wages and prices are 'sticky' in a downward direction, which explains why the AS line is flat when the economy is operating below its full capacity. If, however, production reached a point where the economy operated near full capacity, then 'bottlenecks' will start to appear. Labour shortages will start to develop, capital will be fully employed and production will be unable to keep pace with (aggregate) demand for goods and services. This operates much like the narrowing at the neck of a bottle - which slows the flow of liquid from the bottle. When bottlenecks appear due to lack of spare capacity, the firms would need to be offered higher prices to motivate them to increase supply (because it might be harder to attract the resources needed to increase supply). So, the Keynesian AS curve actually has three distinct sections, which are highlighted in Figure 4.4.

Figure 4.4: Keynesian AS curve



Section 1: This section of the AS curve is relatively flat. The level of GDP is low and the economy is assumed to be operating below its full capacity. The level of unemployment is assumed to be high and firms have other resources that they are not fully utilising. Firms have the capacity to increase their output easily and it is assumed that this would not require an increase in the general level of prices in order to do so.

Section 2: In section 2, some shortages develop in the market, as the economy gets closer to its productive capacity. Bottlenecks might start to appear and the workers may be able to bargain for higher wages (and may not increase their efforts unless wages are increased). This increases the costs of production, so at this stage the firms will only increase aggregate supply if they are able to sell their products at a higher price. This area looks a little like an 'elbow' because, as AS rises in this section, average prices are also beginning to rise.

Section 3: Once the economy reaches section 3, it has reached its current productive capacity. It will be impossible for firms across the economy to increase their output even if they can generate more revenue from doing so. This is sometimes referred to in economic commentary as a very high degree of capacity utilisation. When this figure gets closer to 100%, then the economy faces serious capacity constraints, which make it very difficult (and in the case of 100% capacity utilisation, impossible) to boost aggregate supply.

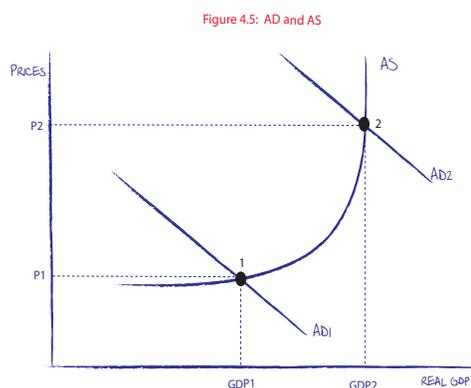
When the Keynesian AS curve is drawn it is also assumed that all of the factors that affect AS are held constant. For example, if there is an increase in labour productivity, then this effectively means that more output is being produced for each hour worked. This means that at each price level firms are able to supply the market with more output, resulting in a shift of the aggregate supply curve to the right. Higher productivity also reduces the cost per unit which may mean that firms are willing and able to supply goods and services to the market at a lower price (also represented by a shift of the AS curve to the right). The implications of movements of the AS curve will be discussed in the next section.

Note how the AS curve is horizontal when the economy is operating below full capacity and transitions to a vertical curve when the economy has reached full capacity. In between there is a phase where skills/labour shortages and bottlenecks develop that cause an upward sloping section of the AS curve. It is within in this section of the AS curve that economies mostly operate. As a consequence, it is natural for economists to draw AS curves that are continually upward sloping. This is common practice when demonstrating the impact that various AD/AS factors might have on economic growth and/or inflation and is an approach that students can readily use.

How changes in AD and AS affect economic growth, employment and the general level of prices

The equilibrium level of output that occurs in the economy is determined where the AD and AS curves intersect, which is illustrated in Figure 4.5. The equilibrium level of output and general price level is determined by the intersection of the AD and AS curves. Therefore the economy is operating at GDP1 and P1 in the scenario where AD1 represents AD at all possible prices.

Given that the AD1 curve intersects the AS curve at a position that is well below productive capacity (i.e. the level of real GDP at which the AS curve becomes vertical) this indicates that the economy is producing well below full capacity, which is consistent with a relatively low price level (P_e) and low inflation. The model can therefore be used to make predictions about changes to output and prices when there is a shift in AD and/or AS. While the model does not directly show the position of, or changes in, employment/unemployment, this is implied by the position of, or changes in, the level of output. Accordingly, any alteration or shift in AD or AS over time will cause the relevant AD/AS curve to shift, which results in a new equilibrium position and different outcomes for output (real GDP), prices (inflation) and employment/unemployment. For example, at point 1 on the diagram, the economy is not operating at full capacity, which implies that there will be idle resources (such as labour) and therefore the unemployment rate is likely to be relatively high. This is sometimes referred to as a **negative output gap**, where productive capacity (or potential AS) is greater than AD and any increase in AD will have a greater positive impact on output than on prices. In contrast, at point 2 on the diagram (e.g. brought about when AD shifts from AD1 to AD2), the economy is operating at full capacity, with all resources fully employed. This is sometimes referred to as a **positive output gap**, where AD is excessive relative to AS and any increase in AD will have a greater positive impact on prices than on output (where there will be zero increase in output in this example).

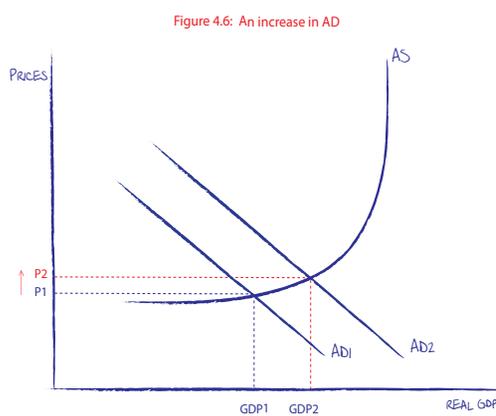


Changes in AD

The AD curve will shift when any of the following factors change, such that AD increases or decreases at each average price level. These factors, which were described fully in Section 4.6, are as follows:

- Interest rates
- Consumer confidence
- Business confidence
- The exchange rate
- Rates of economic growth overseas
- Personal disposable income

A change in any of these factors that causes the AD curve to shift to the right will therefore lead to a new equilibrium quantity and output in the economy. The AD curve shifts from AD1 to AD2 as illustrated in Figure 4.6. The equilibrium level of output increases and the general level of prices increases (but only by a small amount) because the economy is moving from a position where it was operating below full capacity). A specific example is discussed in Box 4.3 to enhance your understanding of this model.



Changes in AS

The AS curve will shift when any of the following factors change, such that AS increases or decreases at each price level. These factors, which were described fully in Section 4.7, are as follows:

- Quantity of factors of production
- Quality of factors of production
- Costs of production
- Technological change
- Productivity growth
- Exchange rates
- Government regulations
- Climatic conditions and other disruptions ('supply shocks')

Imagine that Australia experienced a favourable year in terms of weather conditions. This led to bumper crops for farmers and an increase in the nation's aggregate supply. This could potentially increase the quantity and quality of the resources available for supply and lead to lower costs of production for firms who use these goods as inputs in the production process. The aggregate supply curve would shift right (as depicted in Figure 4.7). The total supply being made available in the economy has been shown to increase at each price level. In order to encourage extra demand in the economy, however, the firms may need to offer their products for sale at a lower price. The increase in the nation's AS therefore leads to a reduction in the general level of prices, which causes AD to expand (a movement along the AD curve). For example, the lower prices offered for these goods could encourage greater demand from overseas buyers. The new equilibrium level of output has increased at a lower general level of prices (in this case the increase in AS has been somewhat deflationary). Given that the economy is now producing more goods and services, it can also be expected that the increased level of economic activity will be associated with an increase in the number of people who are gainfully employed.

Figure 4.7: An increase in AS

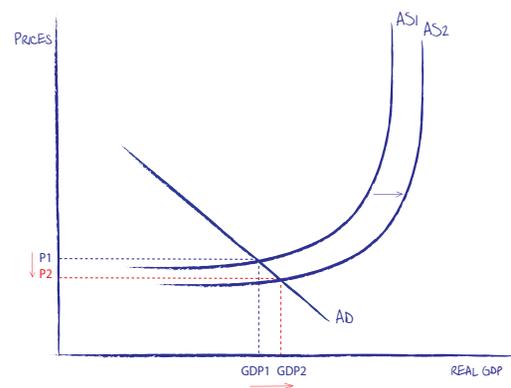
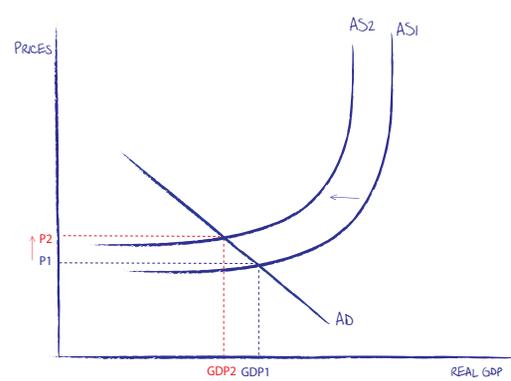


Figure 4.8: A decrease in AS



In contrast, a decrease in AS (which might be caused by a depreciation of the AUD as discussed in Box 4.3) is likely to cause the equilibrium level of output to fall. The AS curve will shift to the left (and upwards), from AS1 to AS2 (as depicted in Figure 4.8). The general shortage of goods and services in the economy causes an increase in the general level of prices and a contraction in demand (people will feel poorer and may not be as willing and able to spend). The fall in production will be associated with a decreased need for resources so the demand for labour is also likely to decrease (causing a fall in employment/increase in unemployed persons).

Review questions 4.8

1. Distinguish the reasons for the AD curve sloping downwards from those relating to the downward sloping demand curves for specific products.
2. Explain why the Keynesian AS curve is first flat and then upward sloping.
3. Explain the significance of the vertical part of a Keynesian AS curve. In your answer refer to capacity constraints.
4. Explain why Keynes believed that the AS curve was horizontal when the economy was operating with some degree of spare capacity.
5. Explain why the second section of the Keynesian AS curve is upward sloping.
6. Explain how output and prices respond in the event that there is an increase in AD, assuming that the economy is operating on the upward sloping section of the Keynesian AS curve.
7. Using the Keynesian model, explain how output and prices respond in the event that there is an increase in AD when the economy is operating at full capacity.
8. Explain how it is possible for a large increase in AD to have minimal impact on output.
9. Explain how it is possible for a large decrease in AD to have minimal impact on output.

Activity 4f Factors affecting AD and AS

This activity is designed to test your understanding of the AD/AS model and the factors that affect both Aggregate Demand and Aggregate Supply. For each factor, you are required to illustrate, using a fully-labelled diagram, how the movement (shift) in the AD and/or AS curve will affect the level of economic output (GDP) and the general level of prices. You should also predict how the changes may affect employment in the economy. While you are just beginning your study of this areas, your knowledge and skills in this area will improve as you progress through the next two chapters, and this is a good place to begin practising. You may use either the New Classical model or the Keynesian model.

Questions

1. A reduction in interest rates
2. An increase in the rate of economic growth in China
3. A severe drought across Australia
4. A warning by the IMF about the excessive debt that has built up in the economy
5. The government grants tax cuts across all income levels
6. The Victorian government increases spending on new road and rail infrastructure
7. A depreciation of the Australian dollar against a wide range of foreign currencies
8. The introduction of artificial intelligence into the production process



Box 4.3 Using the AD/ AS model to make predictions

In late August 2020, the AUD was a relatively high 0.73USD, after appreciating from a relatively low 0.56USD in mid-March, and much of the appreciation was attributed to the decline in the value of the US dollar. Policymakers in Australia were keen for the value of the AUD to depreciate in order to provide additional support to an economy going through the 2020 recession. A depreciating currency would boost Australia's international competitiveness and thereby increase the ability of Australian producers to sell exports to foreigners and encourage Australians to purchase domestic goods and services instead of imports. This would increase net export demand and result in a shift of the AD curve to the right. Producers should notice the increase in AD because they are likely to be busier, receiving more orders and experience falling stock levels. To meet the increase in demand, they will look to replenish stock levels and increase production volumes. In doing so, their demand in factor markets will also increase because they need resources to produce additional products. Therefore, the derived demand for labour should increase and the unemployment rate should fall to lower levels. However, the depreciation will also have negative supply-side effects given that more than 50% of imports are either intermediate goods (e.g. raw materials) or capital goods (e.g. machinery). Those firms using imported materials/capital would need to exchange more AUD to buy their supplies from overseas, which raises production costs and causes a shift of the AS curve to the left.

Notice how the depreciation causes the AD and AS curves to shift in opposite directions and, without some understanding of the likely magnitude of the shifts, it would be difficult to determine whether real GDP would increase or decrease. However, both the AD and AS effect will place upwards pressure on prices (the degree to which depends once more on how close the economy is to producing at productive capacity). Overall, the AD effect will be greater than the AS effect, in part because on the demand side the price of the whole good/service is affected, but on the supply side, only part of the cost of production is affected. This means that a depreciation of our exchange rate will increase both economic growth and the general price level. The size of the effect on economic growth and the price level will ultimately depend on where the economy is operating in terms of its productive capacity. Two possible scenarios will be considered, each predicting different outcomes for the magnitude of the changes in output and prices.

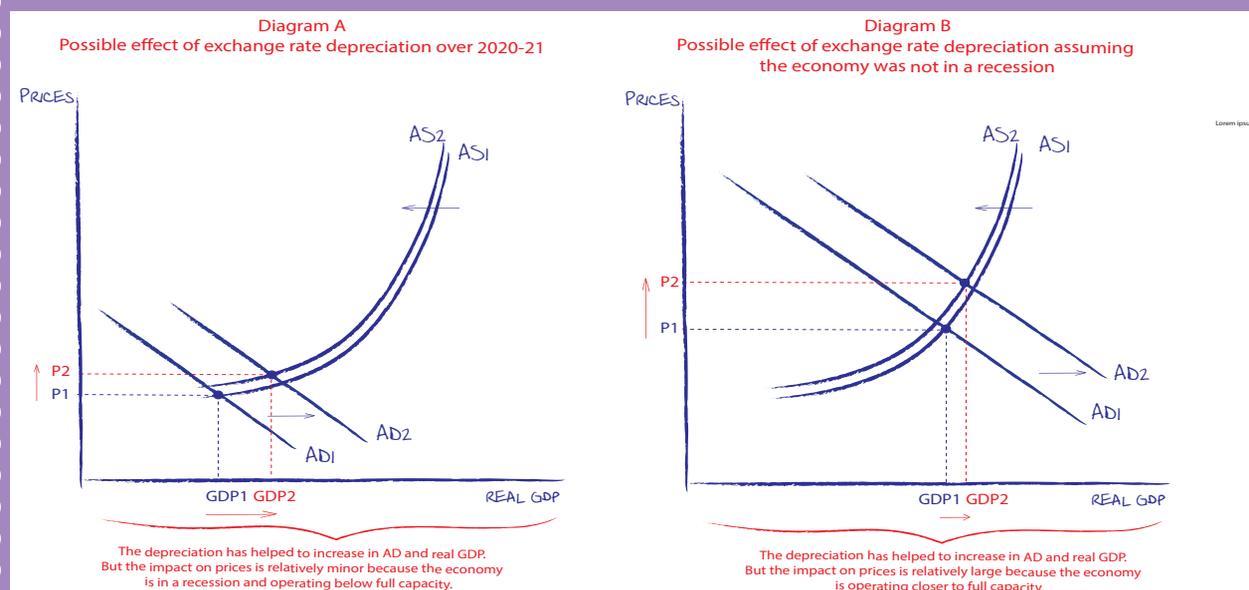


Diagram A depicts the impact on economic growth and prices for the Australian economy over the second half of 2020. The initial equilibrium position occurs where the AD curve intersects the AS curve at relatively low levels, such that the economy is operating well below productive capacity (as a consequence of the COVID-19 pandemic) at GDP1 and P1. The increase in AD that occurs as a consequence of the depreciation will not cause excessive price increases because firms can easily increase production to meet demand and do not need an increase in price to provide this incentive. Therefore, the AD effect of the depreciation on real GDP was relatively significant, even in spite of the relatively small negative AS side impact, and the overall impact on inflation is relatively minor.

Diagram B depicts the impact on economic growth and prices if we assume that the economy was not in a recession and instead was operating closer to full capacity. In this scenario, the direction of the movement in both real GDP and prices will be the same. However, because the economy's resources are almost fully employed (e.g. a very low rate of unemployment is likely to exist), the equivalent increase in AD results in a much smaller increase in economic growth (i.e. the gap between GDP1 and GDP2 is much smaller compared to that for Diagram A) and a much larger increase in prices (i.e. the gap between P2 and P1 is much larger compared to that for Diagram A).

Activity 4g Debt and economic activity

We have examined a number of AD and AS factors that can influence the level of economic activity. Up until the 2020 recession, Australia had not experienced a technical recession since the early 1990s, despite the existence of a number of world-wide shocks that caused other economies to experience severe economic downturns. There were a number of factors that may have contributed to this positive outcome, but this activity looks closely at how the changes in debt levels affect economic activity and how they might constrain future growth potential.



A number of economists suggest that growth in economies over the past couple of decades leading into 2020 were primarily driven by the increased ability of households, businesses and governments to take on debt. Central banks (such as the RBA and the US Federal Reserve) implemented policy changes that resulted in very low interest rates, and governments around the world (including Australia) deregulated financial markets such that access to cheap credit increased significantly. However, the onset of COVID-19 resulted in even further reductions in interest rates as central banks employed more expansionary settings in order to reduce both the severity and the length of the 2020 recession. Interest rates were reduced to the lowest level on record, and this stimulus to the economy was supported by huge budget deficits that resulted in large scale net injections into the economy.

With interest rates in Australia approaching zero, it encouraged households to borrow more, adding to the already high level of household debt. It is these high debt levels, which persist into 2024-25 despite the increase in interest rates since 2022, that potentially sets the stage for serious declines in material and non-material living standards in the future. This is further exacerbated by the development of new forms of technology that both encourage and facilitate the ability of consumers to bring forward future consumption, including apps such as Afterpay, ZipPay and ZipMoney. Surprisingly, these apps effectively perform the function of 'credit', without technically being defined as credit (because they do not charge interest and instead levy fees and charges). As a consequence, the apps 'effectively' add to household debt without being recorded as an increase in 'actual' household indebtedness.

One of the key consequences associated with increased access to 'easy cash' in the economy is that the prices of key assets rise by more than individuals' incomes. House prices in Australia have undergone rapid increases in the last 30 years, despite the falls experienced over the course of 2022, with many younger Australians facing the real prospect of never being able to own their own home. This has negative consequences for both material and non-material living standards. It obviously reduces the capacity to access housing for some individuals (because it also causes rent prices to increase) and can lead to anxiety and other mental health issues. Those who are lucky enough to borrow from 'the bank of mum and dad', or who benefit from an inheritance, will be in an advantageous position compared to others, creating real concerns about (intergenerational) inequality. Those who can access a loan from a commercial bank can easily become heavily indebted and feel burdened and stressed about their debt levels. [The 2018 Financial Services Royal Commission also highlighted how incentive structures within the banking system promoted the sales of excessive loans to people who may not have had the capacity to pay them back, especially if interest rates were to increase in the future. The Royal Commission also suggested that many people had been granted 'liar loans' because they effectively provided misinformation about their 'capacity' to repay loans. This resulted in the signing of loan contracts that increased the vulnerability and stress levels of households.]

The accumulation of debt can limit the ability of the economy to grow in the future because an increased proportion of future income will be allocated towards the servicing of debt – particularly if the debt has been used to fuel consumption rather than investment. With respect to households, a decision to borrow by consumers effectively increases current consumption at the expense of future consumption (which is negative for intertemporal efficiency as explained in Chapter 3). With respect to governments, each time the government runs a budget deficit, it will increase government debt and generally reduce its ability to allocate funds for future programs or to protect the economy in the event of future negative economic shocks – particularly if the deficit is largely driven by current expenditure as opposed to capital expenditure (See Chapter 8).

Higher debt levels also make the economy more vulnerable in the event of an unexpected shock, such as the COVID-19 pandemic. Australia's house prices remain very high by international standards and some economists believe that a market correction is inevitable, manifesting in a potentially protracted and painful reduction in house prices in the future. This would have the potential to significantly destabilise the economy as Australians experience falling wealth and the potential for negative equity (where they owe more to the bank than the value of their house).

As you progress through the course and look more closely at the factors influencing the ability of Australia to achieve domestic economic stability (i.e. strong and sustainable rates of economic growth, low inflation and full employment) look out for news articles on 'stricter borrowing requirements', 'falling house prices' and a need for households to 'repair their balance sheets'. These topics are related to how high accumulated debt levels affect Australia's economic performance and living standards.

Questions

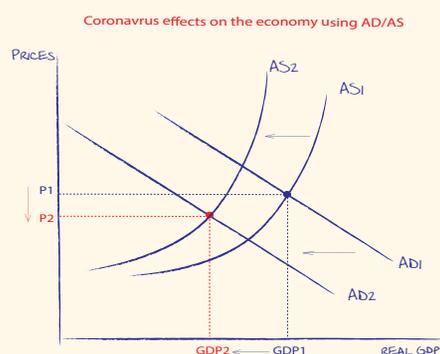
1. Describe two separate factors that might account for the growth in Australian debt levels over the past couple of decades.
2. Explain how increasing access to 'cheap money' may have influenced economic growth. Use the circular flow model of income to support your explanation.
3. Explain the relationship between access to cheap credit and Australian house prices.
4. Explain how continuing high household debt levels might influence living standards in Australia. Refer to the short run and the long run in your response.
5. Explain why very high budget deficits can reduce the capacity of governments to respond to any future economic crisis.
6. Explain a factor that might contribute to a fall in house prices and examine the implications this has for Australian living standards.

Activity 4h Using AD/AS model to illustrate the effects of the COVID-19 pandemic

As we already know, the COVID-19 pandemic caused major disruptions to the Australian economy over the course of 2020, ultimately resulting in the deepest recession Australia experienced since the 1930s. In the June quarter of 2020, real GDP declined by 7% (i.e. an annualised rate of 28%) and the general price level fell by 1.9%. These macroeconomic effects of the virus are diagrammatically illustrated by the AD/AS diagram below.

The virus resulted in negative supply-side effects on the Australian economy given that supply chains around the world were negatively impacted by workers being unable to contribute to production. In addition, Australian governments implemented measures designed to slow down the spread of the virus (i.e. physical/social distancing and lockdown measures), which had an immediate negative impact on the ability of numerous businesses to supply goods or services to markets. For example, restaurants and cafes were either forced to close down or restrictions were imposed that limited their capacity to service customers. This is represented by the AS curve shifting to the left from AS1 to AS2.

In addition, the physical/social distancing measures introduced by governments, as well as the fall in consumer and business confidence, caused the demand for most goods and services to decrease significantly, which is represented by the AD curve shifting to the left from AD1 to AD2. Overall, the large reductions in both AD and AS resulted in a large fall in the production of goods and services, which is depicted in the diagram by real GDP falling from real GDP1 to real GDP2 and the general price level falling from P1 to P2.



Questions

1. Explain why the COVID-19 pandemic shifted the AD curve to the left.
2. Explain why the COVID-19 pandemic shifted the AS curve to the left.
3. Explain why the general price level fell in the March quarter 2020 despite the fact that the AS curve shifted to the left.
4. Describe how the use of an AD/AS diagram can be used to demonstrate the macroeconomic outcomes after vaccines were developed and distributed throughout the world.

Multiple choice review questions

1. A study of macroeconomics is likely to focus on:
 - a) the causes of unemployment
 - b) the impact of a depreciation of the AUD on the rate of inflation
 - c) the effect of the government's budget on the rate of economic growth
 - d) all of the above
2. The level of economic activity is unlikely to be measured by:
 - a) Gross Domestic Product
 - b) Gross State Product
 - c) Gross National Income
 - d) Gross National Happiness
3. A transaction that is likely to cause the Investment component of AD to increase is:
 - a) the purchase of a new laptop to complete your homework
 - b) the building of a new set of townhouses
 - c) the renting of a hotel room to a Chinese tourist
 - d) the purchase of a significant piece of artwork by Pablo Picasso
4. The purchase of a new Mini Cooper by an Uber eats contractor would be classified as:
 - a) C
 - b) I
 - c) G
 - d) X
5. Which of the following is likely to lead to the smallest negative effect on AD if the economy was already in a recession?
 - a) A 10% fall in Consumption expenditure
 - b) A 10% fall Investment expenditure
 - c) A 10% fall in Government spending
 - d) A 10% fall in import spending

6. 'Leakages', in the circular flow model of the economy, are likely to increase if:

- a) there is an increase in employment in the economy
- b) the government reduces the tax burden
- c) the Reserve Bank of Australia reduces interest rates
- d) the AUD appreciates

7. Injections, in the circular flow model of the economy, are likely to increase if:

- a) the savings rate increases
- b) there is an increase in economic growth in China
- c) the government increases the size of the budget surplus
- d) banks make it more difficult to obtain a home loan

8. Average material living standards are likely to increase if:

- a) national income increases by more than the population growth rate
- b) national income increases
- c) the population growth rate increases
- d) the population shrinks, and the economy goes into a recession

9. Which of the following will have an effect on non-material living standards that is different to the other three?

- a) An increase in crime rates
- b) A decrease in the incidence of positive externalities
- c) An increase in the provision of public goods
- d) An increase in the unemployment rate

10. The willingness and ability of businesses to increase AS is likely to be the result of:

- a) rising real unit labour costs
- b) a reduction in company taxes
- c) a depreciation of the AUD
- d) an increase in extreme weather conditions caused by climate change

11. An increase in the regulatory burden faced by businesses is likely to:

- a) increase AS, boost economic growth and reduce prices
- b) decrease AS, reduce economic growth and increase prices
- c) decrease AS, reduce economic growth and decrease prices
- d) decrease AS, increase economic growth and decrease prices

12. AD is likely to fall if:

- a) productivity increases
- b) oil prices increase
- c) more artificial intelligence is used in the production process
- d) rainfall increases across Australia, reducing the severity of the drought

13. The AD and AS are likely to increase if:

- a) minimum wages are increased
- b) the Australian dollar depreciates
- c) the Australian government places tariffs on all imported goods
- d) interest rates decrease

14. Material living standards are likely to improve if:

- a) population increases, GDP increases, and the price received for commodity exports decreases
- b) productivity increases, population falls, and the price received for commodity exports falls
- c) productivity remains unchanged, Real GDP per capita remains unchanged and the prices received for commodity exports increases
- d) productivity increases, Gross National Happiness increases, and the price received for commodity exports falls

15. Real GDP per capita is an unreliable indicator of material living standards because:

- a) It tells us nothing about production values per person on average
- b) It does not take into account changes to the rate of inflation
- c) It does not take into account inequality in the distribution of income
- d) It does not take into account changes in population size

16. In relation to the boom phase of the business/economic cycle, which of the following variables is likely to be falling?

- a) Inflation
- b) Unemployment
- c) Interest rates
- d) Economic growth

17. A drought is likely to:

- a) shift the AD curve and the AS curve to the right
- b) shift the AD curve to the left and the AS curve to the right
- c) shift the AD curve and the AS curve to the left
- d) shift the AD curve to the right and the AS curve to the left

18. Which of the following statements is correct in relation to a depreciation of Australia's exchange rate?

- a) The AD curve will shift to the right, the AS curve will shift to the left, prices will fall and output will rise
- b) The AD curve will shift to the right, the AS curve will shift to the left, prices will rise and output will fall
- c) The AD curve will shift to the right, the AS curve will shift to the left, prices will rise and output will rise
- d) The AD curve will shift to the right, the AS curve will shift to the right, prices will rise and output will rise

19. Australia's potential output is likely to decrease if:

- a) workers are placed on performance-based contracts
- b) firms and governments invest in human capital
- c) businesses receive tax benefits when engaged in research and development
- d) there is an increase in tariffs on all imported goods

20. The general level of prices is likely to increase if:

- a) the US dollar appreciates
- b) the government decreases spending on public servants' wages
- c) there is a decrease in injections in the circular flow model
- d) the interest rates on business loans are increased

Chapter summary

1. Macroeconomic analysis involves an investigation and evaluation of those factors that influence aggregate economic variables such as unemployment, inflation and economic growth.
2. Macroeconomic theory is derived from the models developed in Microeconomics.
3. The level of economic activity refers to the volume of production, employment, incomes and expenditure in an economy.
4. Material living standards are related to the ability of households to purchase goods and services.
5. The most common way to measure material living standards is real GDP per capita as this is a measure of average purchasing power.
6. Real GDP per capita is an unreliable indicator of material living standards.
7. Non-material standards may be more difficult to measure as they are influenced by non-monetary factors and is linked to 'quality of life' which is multifaceted.
8. Both material and non-material living standards can be affected by access to goods and services, environmental quality, physical and mental health, life expectancy, literacy rates and crime rates.
9. COVID-19 caused a large decrease in Australian living standards during 2020.
10. The circular flow model can be used to illustrate how different sectors of the economy interact to generate economic activity.
11. The flows of income and money between the households and businesses forms the core of the circular flow model. Households provide businesses with the factors of production and in return they are compensated with income. The households then spend their income and in return get goods and services.
12. The leakages (outflows from the core of the economy) include taxes paid to governments, savings deposited in financial institutions and imports purchased from overseas nations.
13. The injections (inflows back into the core of the economy) are government spending, loans received from financial institutions and the revenue generated from sales of exports to foreign nations.
14. The level of economic activity can fluctuate and empirical research has suggested that there is a cyclical pattern, which has been described as the business cycle.
15. The business cycle is said to go through four identifiable stages: the trough when the rate of economic growth is at its lowest in the cycle, the expansion phase, moving into a peak when economic growth rates are at their highest

and this is followed by a contraction.

16. A range of psychological and external factors that influence the ability and willingness of economic agents to spend can cause the business cycle. Supply side shocks can also result in changes in the level of economic activity
17. The most common measure of economic activity is Gross Domestic Product (GDP), which measures the total value of goods and services produced in a given time frame (usually 3 months and 1 year).
18. Aggregate demand (AD) is the total spending on new final domestically-made goods and services.
19. AD is broken up into 5 components to facilitate more detailed analysis of changes in the level of economic activity.
20. Consumption expenditure (C) is the largest component of AD and includes spending by households on a range of durables and non-durables.
21. Investment expenditure (I) is the most volatile component of AD and includes spending by businesses on new plant and machinery.
22. Government spending (G) is the sum of all spending by Federal, State and Local Governments on consumption and investment.
23. Exports are those goods and services that are made in Australia and purchased by foreign residents.
24. Imports are those goods and services purchased by Australians that are made overseas.
25. An increase in the general level of prices may be associated with a decrease in AD because it reduces the value of accumulated wealth, may lead to higher interest rates and can be linked to lower international competitiveness.
26. An increase in disposable income across the economy is usually associated with an increase in AD, as recipients will spend some of their extra income (i.e. the $MPC > 0$).
27. Lower interest rates generate increased aggregate demand via a number of transmission mechanisms.
28. When consumer confidence increases, households are more willing to take on new debt and may reduce their savings rate, leading to an increase in consumption.
29. If businesses believe that their profitability is likely to increase in the future, this will be reflected in higher business confidence and this will boost investment.
30. A depreciation of the Australian dollar will usually boost spending on exports and decrease spending on imports, helping to raise the level of AD in the nation.
31. When Australia's major trading partners experience strong rates of growth, they may be more likely to purchase its exports because their incomes are higher and they may need the commodities to facilitate their expansion activities.
32. Aggregate supply represents the total value of goods and services available for sale in an economy.
33. Aggregate supply will tend to increase if businesses and governments within the economy have access to a greater volume of productive resources.
34. Improvements in the quality of resources, through better land management techniques, access to education and healthcare and improvements in technology can help increase a nation's aggregate supply.
35. Productivity growth occurs when a greater volume of goods and services can be produced using existing or fewer inputs. This helps to boost the productive capacity of a nation.
36. The total AS can be affected positively or negatively by unpredictable changes in weather patterns. This can affect the ability to grow a range of natural resources and may disrupt supply through the destruction of infrastructure and businesses.
37. Government regulations will influence AS to the extent that the regulations impose costs on businesses.
38. The COVID-19 pandemic is a perfect illustration of a general 'supply shock' which negatively impacts on the economy's productive capacity and/or ability to supply goods and services.
39. The level of economic activity can be represented using an AD/ AS model. Each of these curves is drawn with the general level of prices on the vertical axis and the level of output on the horizontal axis.
40. The AD is downward sloping indicating that when the general level of prices increases the total spending in the economy decreases.
41. There are two opposing views on the AS curve because the Keynesian economists and the New Classical economists based their theories on different assumptions about human behaviour.
42. The Keynesian economists believe that the relationship between the general level of prices and real GDP is dependent upon the stage of the business cycle. When the economy has plenty of spare capacity the AS curve is flat but as the economy approaches its productive capacity, the curve gets gradually steeper until it is vertical (at which point extra output is not possible, even if prices rise).
43. The AD/ AS model can be used to show how changes in AD and AS factors lead to changes in the general level of prices (the inflation rate) and changes in real GDP (economic growth).

Chapter 5

Domestic macroeconomic goals

5.1 Strong and sustainable economic growth

Economic growth for a country refers to any increase in the amount or level of national production that has occurred over time. The government's goal is to enjoy continued or sustained economic growth and avoid periods of slow or negative growth, such as that which occurred during the recent 2020 recession. The government does not set a specific 'target' rate of economic growth, but it does outline broader growth objectives. In particular, budget documents have revealed that the government aims to 'promote an economic climate conducive to high levels of **sustainable** economic and employment growth....' The key term is 'sustainable', where sustainability in this context is underpinned by three important considerations that place an upper limit on any growth rate. In particular, the economic growth rate cannot be so high that it:

- causes **inflation** to climb to unacceptable levels (which are levels above the Reserve Bank's target range of 2-3% over an economic cycle);
- results in significant **external pressures** on the economy (namely an excessive current account deficit and/or net foreign debt); and
- leads to an over use of the nation's **natural resources** (and therefore unfairly burdens future generations).



The government's goal for strong and sustainable economic growth is to achieve the highest growth rate possible, consistent with strong employment growth, but without running into unacceptable inflationary, external or environmental pressures.

A **sustainable rate of economic growth** is generally considered to be within the range of 3 – 3.5% per annum. This was confirmed by a former RBA Governor, Glenn Stevens, when he said the following:

'The economy's potential to supply probably rises at about three per cent a year, give or take a bit. If demand is rising at four, five or six, which in various years it has, sooner or later you are going to reach the point where you are stretching that supply capacity.... You want to grow above trend to use up the capacity, but once you have done that you have to slow down to something more in line with the economy's medium-term growth of potential supply, and that probably has a three at the front at the most—three, 3% or something like that. You cannot have demand growth at five and expect that that will not give you a problem on inflation.'

It is important to remember that what is considered to be a sustainable rate of growth can vary over time. During periods when **productivity growth** is strong (such as during the 1980s), it is possible for growth to be above 4% and remain sustainable. This is because the nation's **productive capacity** is being expanded by productivity growth, allowing stronger demand and production to take place without inflationary or external concerns. However, if productivity growth is slow, or if the nation's productive capacity is being stretched, even growth rates below 3% may be unsustainable. For example, over the five or so years leading into the 2020 downturn, economic growth was sometimes below 3%, but the government was reasonably happy with the outcome considering productivity growth was relatively low, unemployment rates consistently fell and there remained skills shortages in some sectors of the economy. The same scenario was playing out in 2024, with persistently slow rates of productivity growth and limited spare capacity in the economy exerting upward pressure on inflation and limiting the ability of the economy to achieve a rate of economic growth above 2-3%.

The government will also take into account **international growth rates** when determining the acceptability of given growth rates in Australia. For example, between the years 2009 and 2020, Australia's rate of economic growth averaged less than 3%, but it was generally considered a strong rate of growth in the context of many advanced economies experiencing low or negative rates of growth over the same period. In fact, Japan, the USA and many European economies experienced negative rates of economic growth during a period while rates of growth in Australia were mostly above 2%.

5.2 Measuring economic growth

In Australia, **Gross Domestic Product (GDP)** is used to measure the amount of production taking place in the economy and it is defined as the final market value of all goods and services produced in Australia over a given period. GDP is made up of the total '**value added**' during each stage of the production process and it is calculated every quarter by the Australian Bureau of Statistics (ABS) and is quoted in both dollar terms as well as the percentage change from one quarter (or year) to the next.

Each day there are millions of transactions taking place in the Australian economy. The value of these transactions is calculated by multiplying the relevant price of individual items sold by the prices paid. The total of all these transactions will be recorded as **nominal GDP** (or **GDP at current prices**). Given that the Australian Government and economists are concerned about economic activity in terms of its impact on employment, incomes and living standards, statisticians have devised ways to remove the price effect so that any increase in GDP is real in the sense that it represents an increase in the volume (or real value) of production.



The **chain volume measure of GDP** is used by the ABS to provide an estimate of **real GDP** in the economy. In simple terms, it involves using prices from the previous period and applying them to current period volumes. So any increase in the value must have occurred because of rising activity or volumes. It is this that provides the most accurate measure of economic activity in our economy, which in turn provides an indication of how well the economy is performing in terms of income/wealth generation and improvements in (material) **living standards**. Accordingly, when growth in real GDP is above zero, it means that the economy has experienced increased production/output in real terms (after removing the effects of inflation) and that economic growth has been positive. In contrast, when growth in real GDP is below zero, it means that the economy has experienced a decrease in production/output in real terms, such that economic growth has been negative. This is precisely the scenario that played out in 2020, with Australia recording the largest quarterly decline in real GDP since the Great Depression of the 1930s. The huge negative growth rate of 6.7% experienced in the June quarter of 2020 followed a March quarter growth rate of -0.2% to ensure that Australia experienced its first recession (i.e. two consecutive quarters of negative economic growth) since the early 1990s.

Interpreting GDP statistics

The ABS releases statistics for growth in real GDP on a quarterly basis (see ABS Catalogue 5206.0) and the figures can be reported by economists or the media in a number of ways. The ABS will provide figures for the chain volume measure of GDP (i.e. real GDP) in dollar terms for each quarter. Table 5.1 and Chart 5.1 present the figures between June 2020 and June 2024 in original and seasonally adjusted terms.

The seasonally adjusted figures are based on the original figures, but statistically manipulated to ensure they provide a more accurate reflection of the state of the economy (or more specifically, the level of economic activity) during each quarter. For simplicity, the media and economists typically focus on the **seasonally adjusted** figures, which take out the effects of seasonal factors, which tend to hide the underlying changes in GDP from one quarter to the next. For example, this can clearly be seen within Table 5.1 by comparing the original and seasonally adjusted GDP figures for the December and March quarters for each year. During the peak trading period every year, which of course is the December quarter, AD and real GDP will be inflated by the effects of Christmas shopping. In contrast, during the next three months (i.e. the March quarter), AD and real GDP will be relatively subdued. The ABS attempts to remove these 'seasonal' patterns to effectively 'smooth out' the figures and arrive at 'seasonally adjusted' figures – ones that do not record large increases in real GDP for the December quarter of every year and decreases in real GDP for the March quarter of every year. The difference between original and seasonal figures are also highlighted in Chart 5.1 below.

Quarter	Original	Seasonally adjusted
Jun-2022	598713	595132
Sep-2022	595071	595920
Dec-2022	620760	599904
Mar-2023	579942	603105
Jun-2023	609215	606272
Sep-2023	608376	608353
Dec-2023	629847	609708
Mar-2024	587414	610808
Jun-2024	615310	612180

Chart 5.1: Real GDP [Quarterly growth]



Whenever GDP figures are reported without a reference to whether it is the original or seasonally adjusted figure, it is best to assume that the figure being reported is the seasonally adjusted one.

Figures for economic growth are rarely reported in absolute dollar terms as they are shown in Table 5.1. Instead of referring to these dollar values, the media will typically report the (seasonally adjusted) movements in percentage terms. For example, the change in real GDP (i.e. economic growth) for the June quarter 2024 was 0.2%. This is derived in the following way:

Study tip

Students are not expected to know how the ABS arrives at the different measures of GDP nor when or why each of the figures are used. For the purposes of VCE Economics, all that is required is a knowledge of real GDP (or the chain volume measure of GDP), what it means and how changes in its level can be interpreted in terms of its implications for the economy.

$$\text{Quarterly growth (June Qtr 2024)} = \frac{\text{GDP}_{\text{Jun}} - \text{GDP}_{\text{Mar}}}{\text{GDP}_{\text{Mar}}} = \frac{612180 - 610808}{610808} \times 100 = 0.2\%$$

This means that there was a 0.2% increase in the volume (or real value) of goods and services produced over the three month period (in seasonally adjusted terms).

Note that the above growth rates are quarterly rates of growth in real GDP. These will include any short-term volatility of economic activity which may be hidden from annual figures. This fact is highlighted when calculating annual growth rates for the year ended 30 June 2024 from the figures in Table 5.1. The **annual rate of economic growth** is most commonly derived by using the real GDP dollar values for the latest quarter and comparing them to the values for the quarter one year earlier. This is also called the **'year-on-year growth rate'**. The calculation for the year to end 30 June 2024 is done as follows:

$$\text{Annual growth (year on year)} = \frac{\text{GDP}_{\text{June 24}} - \text{GDP}_{\text{June 23}}}{\text{GDP}_{\text{June 23}}} = \frac{612180 - 606272}{606272} \times 100 = 1.0\%$$

This means that economic growth for the year ending June 2024 was 1.0%, which provides a clear indication of an economy that is growing at a slow rate.

Some economists will multiply the quarterly rate of economic growth by four (quarters) to arrive at an **annualised growth rate**. The annualised growth rate for the June quarter 2024 is simply (4 x 0.2%) = 0.8%, which is close to the year-on-year rate of 1% which equally reflects a slow and sub-optimal rate of economic growth.

Study tip

A 'key skill' listed in the study design is the requirement to calculate relevant economic indicators using real or hypothetical data. To practise this skill, using some of the formulas introduced on this page, attempt Activity 5a.

$$\text{Annualised growth (June Qtr 2024)} = \text{Quarterly growth} \times 4 = 0.2 \times 4 = 0.8\%$$

More often than not, the annualised rate will differ from the year-on-year rate. For example, an annualised figure of 0.8% based on June quarter figures compares to a year-on-year rate of 1.0%. While the annualised rate of growth provides the best indication of the economy’s most recent performance (and the ‘current’ macroeconomic pressures in the economy), it is a less meaningful indicator of the performance of the economy beyond the most recent quarter.

Activity 5a: Calculating economic growth

Assume that GDP figures for the years 2024-2026 were as follows :

Chain Volume Measure of GDP (\$billion)	
Quarter	Hypothetical figures
Dec-2024	650
Mar-2025	655
Jun-2025	660
Sep-2025	670
Dec-2025	665
Mar-2026	670
Jun-2026	675
Sep-2026	680
Dec-2026	685

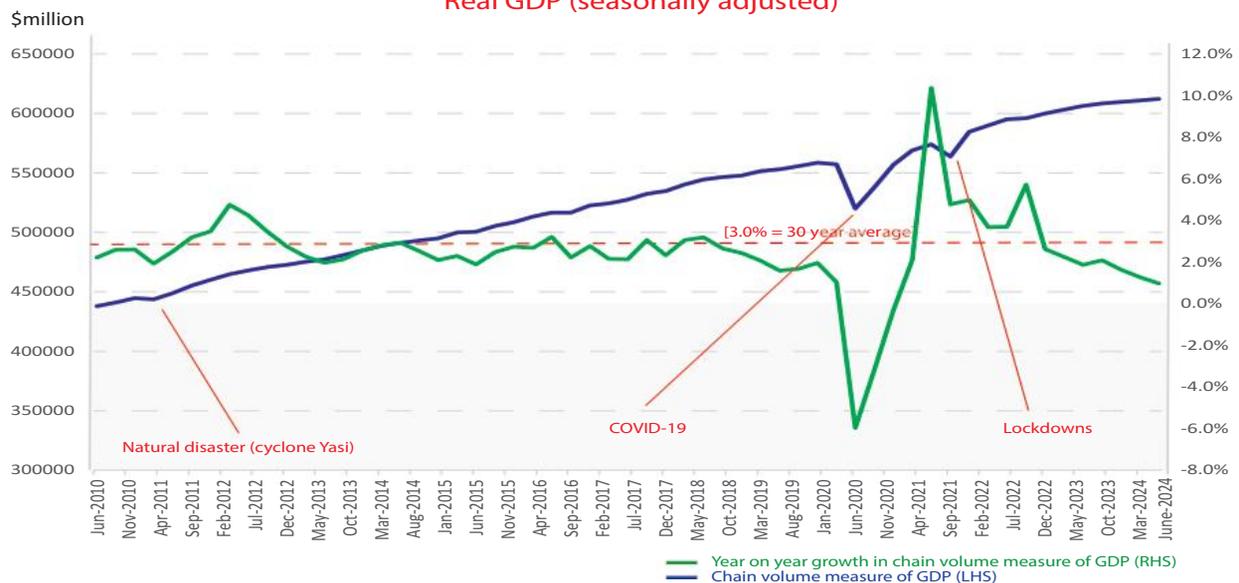


Questions

1. Calculate the ‘year on year’ growth rate for the year to end December 2026.
2. Calculate the rate of growth for the December quarter 2026 and the annualised rate of growth for the same quarter.
3. Explain why there is a difference between the rate of growth calculated in Question 1 and the rate of growth calculated in Question 2.
4. Calculate the percentage change in the real value of production over the March quarter of 2026 and comment on its significance in relation to the government’s goal for strong and sustainable growth.
5. Calculate the quarterly and annualised rate of economic growth for the December quarter 2025.
6. Explain why Australia’s annual rate of growth is not negative at any stage over the two years despite the negative growth rate experienced in the December quarter of 2025.
7. Describe the trend in the annual rate of growth in real GDP between 2024 and 2026.

Chart 5.2 highlights the quarterly growth in real GDP since 2010 in both dollar terms (the blue line plotted against the left hand axis) and in terms of the ‘year-on-year growth rate’ (green line plotted against the right hand axis) compared to Australia’s long term (30 year) average rate of growth of 3.0% which is shown by the red dashed line in the chart.

Chart 5.2
Real GDP (seasonally adjusted)



Between June 2010 and June 2024, quarterly real GDP has increased from \$437.9 billion to \$612.2 billion, an increase of \$174.3 billion or 40% over the 14 years, which equates to an average growth figure of 2.8% per year (slightly below the 30 year average of 3.0%).

Since 2010, real GDP declined three times, first in the March quarter of 2011 (due primarily to the effects of Cyclone Yasi that caused major destruction to agricultural crops in north eastern Australia) and again during 2020 (due to the effects of COVID-19) and once more in late 2021 (due to further lockdowns). However, the decline in real GDP in 2011 and 2021 did not extend for more than one quarter, which accounts for the green 'year on year growth' line never falling below zero percent even when the blue real GDP line fell slightly. Of course, this was not the case in the first half of 2020, when real GDP experienced its largest half-yearly fall since the 1930s, resulting in Australia recording its first 'technical recession' (two successive quarters of negative growth in real GDP) since the early 1990s.

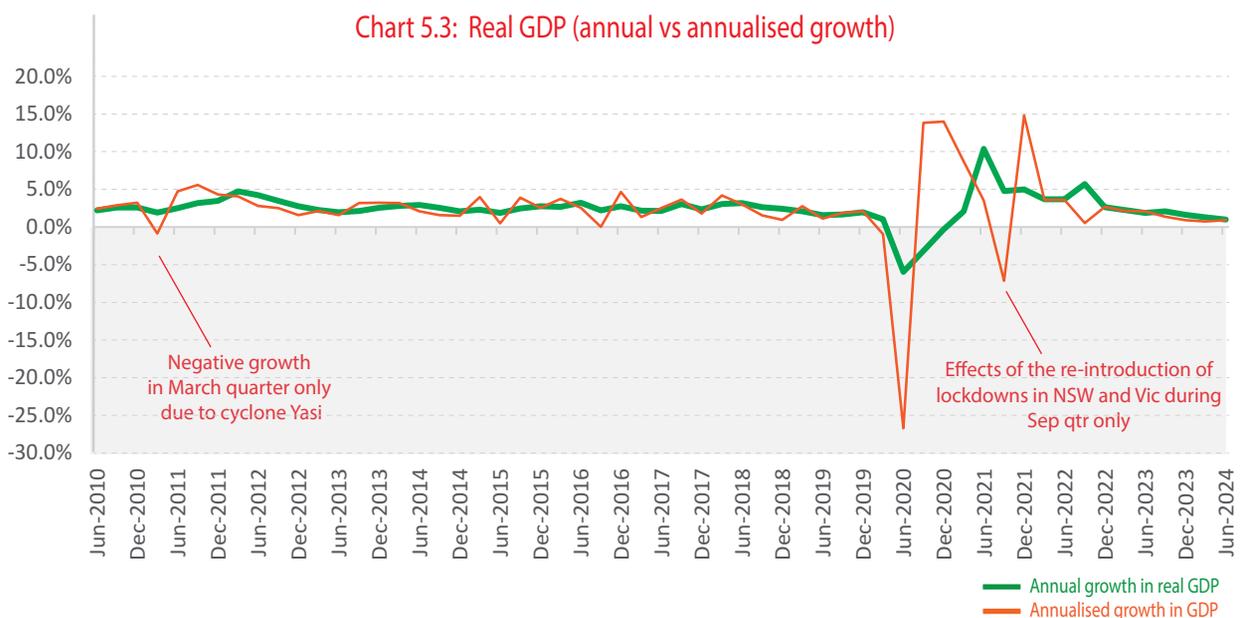
Study tip

The current VCE Economics Study Design (2023-2027) only requires students to have knowledge of key statistics 'over the past two years'. Accordingly, students are not expected to remember economic growth rates prior to 2021-22. However, a 'key skill' is the requirement to 'explain trends', which involves the ability to explain the trend movement in statistics over a longer time frame, such as identifying or explaining the trend movement in economic growth as presented in Chart 5.2.

The chart also highlights that Australia's rate of economic growth had been running below trend (e.g. the 30 year average of 3.0%) for most of the period, which is consistent with an economy that emerged from a global economic slowdown in 2008-9 before experiencing the recession of 2020. Despite this, the annual growth rates remained relatively high by international standards, due mainly to a terms of trade boom and the associated growth in mining export volumes. Export volumes from mining also accelerated after years of investment and expanded capacity as Australia enjoyed the benefits of the third phase (production phase) of the mining boom. The declining rate of growth over the past couple of years (since 2022), evidenced by growth falling to a low of 1% in the year to end June 2024, is due largely to the effects of ongoing COVID-19 supply constraints, continuing global conflicts, the eventual fall in commodity prices/terms of trade, low levels of consumer confidence and the tightening of monetary policy (e.g. higher interest rates) that was indeed designed to reduce aggregate demand (and economic growth) as a means of returning inflation back into the RBA's target range of 2-3%. In Chapter 6, we will examine a range of demand and supply factors that have influenced Australia's rate of economic growth over the past two years.

Chart 5.3 includes the annual (year-on-year) rate of growth as depicted in Chart 5.2, but also includes the **annualised rate of economic growth** (based on quarterly figures) over the past few years. Note that both rates of growth are derived from the same raw figures, yet they tell a slightly different story. The annualised quarterly figures are more instructive in terms of their ability to isolate turning points and capture the volatility occurring within any given year. For example, the annualised figures clearly highlight the period before 2020 in which Australia experienced negative economic growth (i.e. 2011), whereas this is not discernible when examining the annual growth rates. Equally interesting is a comparison of the annualised rate of growth for the June quarter 2020 and the annual rate of growth for the year to end June quarter 2020. Given that the decline in real GDP in the June quarter alone was a huge 6.7%, this equated to a historically high annualised fall of 26.7%. When viewed on the chart, it captures the essence of what many economists referred to as 'the economy falling off the cliff' during 2020. While the decline is also evident when looking at the annual figures (decline of 6.0%), it is nowhere near as stark and does not capture the importance of the June quarter figures in explaining the downturn in economic activity over 2020.

Equally instructive is the negative growth in annualised real GDP recorded for the September quarter of 2021 (i.e. -7.1%), followed by the huge growth in the December quarter (14.8%) which is not revealed in the annual (year on year) growth figures of 4.8% and 5.0% respectively. This highlights the effects of the prolonged lockdowns across NSW and Victoria that caused a large fall in Consumption and aggregate demand during the September quarter only.



5.3 Why pursue strong rates of economic growth?

All governments pursue economic growth as it is the primary means by which nations can maintain and/or improve living standards over time.

Growth in real income

As we learned in Chapter 4, when discussing the circular flow model of income, growth in production typically means that there has been growth in incomes that accrue to the factors of production, such as wages, interest and dividends. These higher income levels will enable some members of society to have a greater ability to purchase goods and services that satisfy their wants, thereby having a positive impact on **material living standards**. Economic growth can also provide individuals and groups with the opportunity to enjoy an increase in non-material living standards, encompassing more intangible factors that shape our **'quality of life'**. These factors can include things like general happiness, freedom of expression, freedom of movement, self esteem, a feeling of making a difference to others, and so on.

This is because higher incomes can provide individuals with a greater opportunity to become philanthropic or charitable, helping to improve the quality of life enjoyed by others, as well as their own.



Lowering the unemployment rate

Economic growth is also pursued because of its positive relationship with employment growth and the ability of employment growth to reduce rates of **unemployment**. If economic growth exceeds the rate of growth in productivity, it will tend to result in a larger **'derived demand for labour'** (because the demand is derived from, or stems from, a larger demand for goods and services) and will tend to increase employment levels. Provided that the rate of economic growth and employment growth are strong enough to absorb growth in the size of the labour force (or a growing participation rate), economic growth should therefore help to reduce the rate of unemployment. To the extent that unemployment worsens both material and non-material living standards, strong rates of economic growth will therefore help to further improve living standards. In addition, higher employment levels will involve a greater sharing of the income gains from economic growth, further contributing to material living standards or welfare.

Increased ability of government to provide essential services

Economic growth leads to an increase in revenue for the Federal Government in the form of taxes, such as the GST and incomes taxes, along with state government taxes, such as payroll taxes and stamp duties. Increased amounts of revenue allows governments to spend more on essential services, including more funding for hospitals, schools and/or infrastructure more generally, such as new or improved roads, rail, port or telecommunications infrastructure. The provision of these services helps to increase living standards in material terms, as the higher quality of **human and physical capital** (e.g. more highly trained graduates and faster telecommunications services) provides a further stimulus to economic growth.



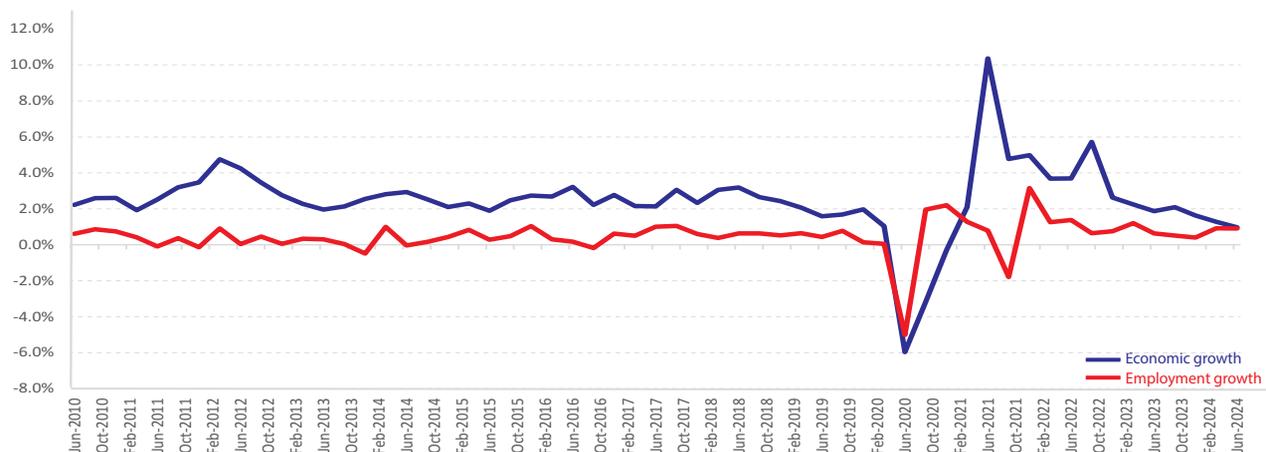
In addition, stronger rates of economic growth enable governments to improve the living standards of those less well off via welfare spending or other forms of transfer income, as well as the provision of other essential services to disadvantaged members of society. The increased tax revenue that will be received from higher incomes can be used to help reduce the incidence of social ills such as poverty, homelessness, drug addiction, problem gambling, alcoholism, smoking, Indigenous disadvantage, child abuse, violence against women and crime more generally.

Why is a growth rate of approximately 3.00 - 3.50% our 'target'?

Consequences if economic growth is too low

The government pursues a relatively strong rate of economic growth to ensure that a number of things happen. Firstly, the government is keen to ensure that the growth rate exceeds the rate of growth in productivity (output per unit of input) over time. Governments and business continue to invest huge amounts in research and development in order to achieve the technological progress that helps to boost productivity. While these advances have helped to expand the nation's productive capacity and permit higher sustainable growth rates, they can have a negative impact on employment growth. For example, rates of productivity growth in the order of 1% means that a 1% increase in economic growth is likely to be insufficient to generate an increase in employment. This is sometimes referred to as '**jobless growth**', where higher output is achieved via greater productivity of existing inputs, negating the need to hire additional labour. Accordingly, if economic growth is insufficient relative to productivity growth then it can lead to a reduction in the demand for labour, lower levels of employment and a higher unemployment rate. The relationship between economic growth and employment growth over the last 14 years is shown in Chart 5.4.

Chart 5.4
Economic growth and employment growth



The chart highlights the generally positive correlation between economic growth and employment growth, where growth in jobs is highest during those periods of strong economic growth (e.g. early 2022) and lowest when economic growth is weaker (e.g. 2020). A low rate of economic growth will therefore make it difficult for the economy to experience employment growth and will most likely result in the rate of unemployment increasing to unacceptable levels.

Secondly, the government is keen to ensure that the rate of growth is sufficient to cater for a continually growing population. For example, ignoring the period where Australia closed its borders due to COVID-19, Australia's annual population growth had been approximately 1.4% for three decades. This meant that economic growth needed to be at least greater than 1.4% in order to avoid a reduction in real **GDP per capita**. When real GDP growth falls below population growth it signifies that Australians, on average, are materially worse-off than in the previous period. In addition, higher population growth will also increase the size of the labour force and make it more difficult for employment growth to have a favourable impact on both the level of unemployment and the unemployment rate (at least in the short to medium term). This is because more of the new jobs will be taken by new entrants to the labour force, such as skilled migrants, leading to a relatively muted impact on the numbers of unemployed. [Over time, however, this will be reversed to the extent that the new migrants contribute to aggregate supply side benefits for the economy - this is explored in Chapter 10.]

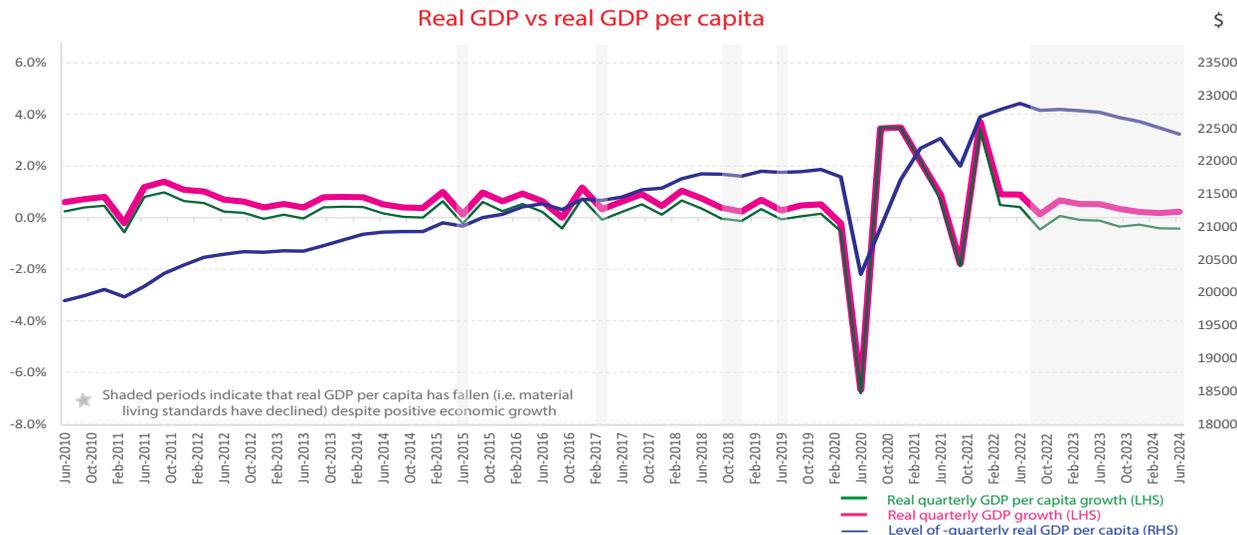
Study tip

Real GDP per capita is the most common measure of material living standards. However, it is actually not the best measure of our ability to purchase goods and services. This is because GDP does not provide the best estimate of 'income' over any particular period, unlike Gross Domestic Income. See Activity 5b: [An income recession vs a technical recession?]

Chart 5.5 compares the quarterly growth in real GDP (i.e. economic growth) with the level and growth in real GDP per capita since 2008. It highlights the rise in real GDP per capita (the blue line) from \$17,865 per quarter in June 2008 to \$19,771 per quarter in December 2019, which suggests that living standards increased over this period by 10.6%. However, an examination of the quarterly growth rates in real GDP and real GDP per capita reveals a less flattering story about the economy and material living standards in the period up to the recession of 2020.

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Chart 5.5
Real GDP vs real GDP per capita



The chart shows that there is a clear correlation between the growth in real GDP or economic growth (pink line) and real GDP per capita (green line), with growth in real GDP per capita rising and falling with economic growth. The huge disruption to the economy caused by both COVID-19 and government efforts to protect the health and well-being of Australians via lockdowns stand out as periods where real GDP per capita (or material living standards) experienced the largest falls. The large 6.7% reduction in real GDP for the June quarter of 2020 resulted in real GDP per capita falling in absolute terms by \$1,483 (i.e. an annualised \$5,932), highlighting that Australians, on average, experienced the largest quarterly fall in material living standards since the 1930s. [Note that the period 2020-21 highlighted a virtual one for one relationship between economic growth and real GDP per capita. This is due to the fact Australia's borders were closed for the bulk of this period, resulting in minimal population growth.]

However, there are periods when real GDP per capita fell (indicating lower material living standards) despite the fact that economic growth was positive over the same time. [These instances are indicated by the shaded areas in Chart 5.5.] This means that over these periods, economic growth was not high enough to counter the effects of a rising population, or that growth in the economy was lower than population growth, resulting in average production/income per person falling. The data therefore clearly indicates that material living standards declined a number of times since 2010, with the most recent 18 month period of negative growth in real GDP (to the end of the June quarter 2024) representing what many economists describe as a per capita recession.

Consequences if economic growth is too high

By definition, the goal of strong and 'sustainable' growth implies that economic growth that is too high can create problems for the economy or society. If growth is excessive it runs the risk of environmental degradation to the extent that it contributes to a **depletion of natural resources** or damage to the environment more generally. This is particularly the case if economic growth is not accompanied by advances in technology and/or improvements in productivity/efficiency. For example, growth in the production of goods and services by 5% each year is likely to lead to the extraction of natural resources (such as forests and fisheries) at a rate that cannot be replenished. Similarly, excessive growth in the production of goods and services is more likely to lead to pollution levels (e.g. carbon emissions) that create irreversible damage to the planet (e.g. climate change).

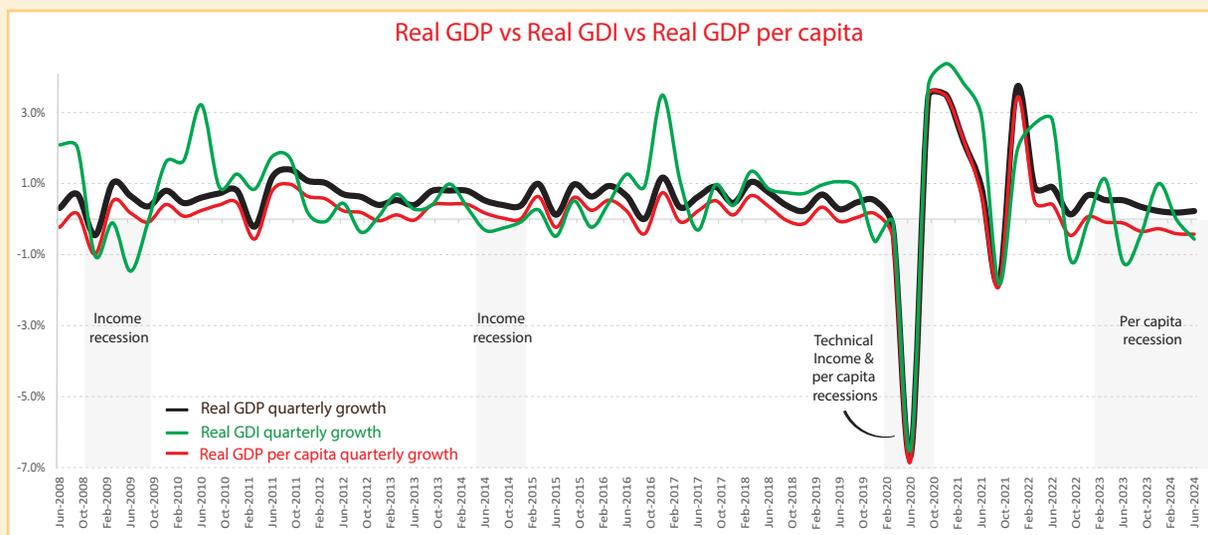
Excessive rates of economic growth can also have undesirable consequences for Australia's balance of payments. For example, continuing growth in the level of national spending and real GDP beyond approximately 4% has the potential to cause a large **current account deficit** and growth in **net foreign debt** (or net foreign liabilities) to such a level that it imposes an unacceptable burden upon future generations of Australians. [An examination of issues related to the current account balance and levels of net foreign debt are considered in detail in Chapter 7.]

Excessive rates of economic growth will also be associated with high and unacceptable levels of **inflation**. This was examined earlier when covering the business cycle, where peaks in the business cycle were consistent with strong/excessive rates of economic growth and high rates of inflation. If economic growth increases too strongly, such that the capacity of the economy to supply goods and services is constrained, it necessarily leads to growth in prices and inflation. Inflation rates consistently above 3% for Australia are considered excessive because it creates a number of problems for the economy which will be explored later in this chapter.

Activity 5b: [Extension] An income recession vs a technical recession vs a per capita recession?

Up until the start of 2020, Australia boasted the enviable record of not recording a 'technical recession' (defined as two consecutive quarters of negative growth in real GDP) since 1990-91. While economic growth rates during this time were generally below the government's unofficial target of approximately 3.25%, they were 'relatively' strong given the economic turmoil experienced around the globe over the same time period. For much of the time between 2008 and 2019, Australian governments boasted about the resilience of the economy, highlighting the fact that we were able to avoid a 'recession' when advanced economies, such as the USA, Japan, and the Eurozone all experienced recessions. Since the 2020 recession, once again Australia has once again been able to avoid a technical recession, despite the very low rates of growth over 2023-24. This is where a focus on GDP as a measure of the health in the economy, or living standards more generally, can become a little misleading. A focus on Real Gross Domestic Income (GDI) and real GDP per capita tells a different story.

Real GDI effectively measures the income we receive from the production and sale of goods and services and it reveals that between 2008 and 2019 Australia went backwards on two significant occasions. First, quarterly real GDI fell over four consecutive quarters during 2008-9, and again it fell for three consecutive quarters over 2014. These periods are highlighted in the chart by the green real GDI line falling below zero. This means that over these periods, production of goods and services in the economy continued to grow (i.e. the black real GDP line remained above zero), while incomes earned from that production fell. This means that although the economy grew in terms of the volume of goods and services produced, the income we received from those goods and services actually fell. Accordingly, Australia didn't have a recession if we focus on production, but it did have a recession if we focus on income. This was referred to by a number of economists as an 'income recession' because we experienced a decline in GDI for more than two quarters. It is in this respect that a focus on GDP as a measure of material living standards can be misleading. Given that material living standards ultimately derive from our ability to purchase goods and services, a fall in income (rather than production) is a better guide as to how our material fortunes have changed.



But why was there a relatively large difference between production (GDP) and income (GDI)? The answer lies primarily in the changes in the terms of trade (TOT). During any TOT boom, rising prices for commodities results in the incomes earned by mining and related industries climbing, which raises real GDI but has minimal (direct) impact on real GDP because the conversion of nominal to real GDP strips out the effect of higher commodity prices. However, as the saying goes, 'what goes around comes around'. This means that any fall in commodity prices (e.g. 2008-9 and 2014-15), results in lower incomes and means that real GDI falls below real GDP. The general rebound in commodity prices between 2016 and 2023 once again resulted in income (GDI) rising faster than production (GDP) in most quarters, which of course is a factor that helped to protect Australian living standards during the COVID-19 pandemic.

Now, if we focus on the movement in real GDP per capita (which is another way of measuring changes in material living standards), it is once again evident that a focus on real GDP in isolation is inadequate. This is particularly evident over 2023-24, where Australia has been able to avoid a technical recession because the rate of growth in real GDP has remained above zero. However, if we focus on real GDP per capita, it is apparent that Australia recorded six consecutive quarters of negative growth in real GDP per capita, leading many economists to agree that Australia has experienced a per capita recession. This was due to population growth exceeding economic growth and is highlighted in the chart with the red real GDP per capita (growth) line falling below zero at the start of 2023 and remaining there until the end of June 2024, despite the black real GDP growth line remaining above zero over the same period.

The large decrease in all three indicators during 2020 highlights that Australia experienced a technical recession, an income recession, and a per capita recession. The coronavirus induced reduction in economic activity during this time was unrelated to both changes in the terms of trade and changes in population growth (which was virtually zero given Australia's closed borders), causing real GDP, real GDI and real GDP per capita to fall by similar magnitudes.

Application questions

1. Explain why a rate of growth in real GDP less than 2% might not lead to an increase in material living standards.
2. Distinguish real GDP from real GDI and real GDP per capita.
3. Explain why real GDI fell over 2008-9 and/or 2014-5 when real GDP increased.
4. Distinguish the following terms: 'technical recession', 'income recession' and 'per capita recession'.
5. Discuss why changes in real GDI and real GDP per capita are better measures of material living standards compared to real GDP.
6. Using the chart provided above, describe and account for the movement in real GDP in comparison to real GDP per capita since 2022.

Review questions 5.1 - 5.3

1. Define what is meant by ‘strong and sustainable economic growth,’ referring to inflation, external pressures and natural resources.
2. Explain what could happen to long term economic growth if growth rates are above 5% or 6% in the short term.
3. Outline the relationship between productivity growth and sustainable economic growth.
4. Define gross domestic product (GDP).
5. Distinguish nominal GDP from real GDP.
6. Explain why the government is keen to arrive at an estimate for real GDP instead of relying on nominal GDP.
7. Explain why the ABS seasonally adjusts real GDP figures.
8. Describe the different ways of interpreting GDP statistics, focusing on the quarterly, annual and annualised rates of growth.
9. Explain how it is possible for Australia to record positive annual growth in real GDP yet record a negative rate of growth for two quarters of that year.
10. Discuss why the government pursues a ‘strong’ rate of economic growth making reference to real incomes, the unemployment rate and the provision of essential government services.
11. Discuss the consequences of achieving a rate of economic growth that is considered too low. In your answer refer to the terms ‘jobless growth’ and ‘real GDP per capita.’
12. Outline how material living standards or incomes on average can decline despite positive rates of economic growth.
13. Discuss the consequences of achieving a rate of economic growth that is considered too high. In your answer refer to the environment, net foreign debt and inflation.
14. Describe how the coronavirus pandemic of 2020 impacted on real GDP and material living standards. Use Chart 5.5 to support your description.
15. Explain why minimal population growth resulted in virtually zero divergence between growth in ‘real GDP’ and ‘real GDP per capita’ during 2020-21.
16. Explain why some economists argue that Australia experienced a per capita recession over 2023-24 despite economic growth remaining positive.

5.4 Full employment

A definition of employment and unemployment

In every economy, the ‘household’ sector will provide labour resources to the ‘business, government and not for profit sectors.’ It typically involves an exchange between two consenting parties, the outcome of which sees **labour input** being exchanged for some form of income or reward. In this respect, **employment** is a key component of economic activity and provides the impetus for growth in the economy and improvements in living standards. While there are many examples of people being ‘employed’ in all manner of pursuits, the statistical definition of employment is quite specific.

Study tip

While the overriding emphasis in this chapter will be a focus on employment as defined by the ABS, remember that there are many examples of individuals who are engaged in ‘non-employment’ pursuits (including volunteers) who are no less important to the welfare of our country than those who are statistically employed.

To be classified as ‘**employed**’ by the ABS, one needs to be over 15 years of age and working more than one hour per week in return for some form of measurable remuneration (such as wages). To be classified as ‘**unemployed**’, one needs to be over 15, without work or working for less than one hour per week, and actively looking for (more) work. Based on these ABS definitions, there are countless examples of people who would consider themselves to be gainfully ‘employed,’ but may be considered unemployed (such as people working voluntarily for charities and simultaneously seeking paid employment). Similarly, there are numerous examples of people who perform valuable roles in society who are neither considered employed nor unemployed, such as stay at home parents or people caring for others with illnesses.

The goal of full employment

The ideal of every government in the world is to have a situation where every person that wanted a job is actively employed in the economy. This ideal, however, is rarely achieved in a market-based economy because the most efficient allocation of resources may actually require that some unemployment exists at any particular time – this is sometimes called the ‘**natural rate of unemployment**’ (see below). Accordingly, **full employment** has traditionally been regarded as that level of unemployment that exists when the government’s economic growth objective is achieved and where cyclical unemployment is non-existent. This means that when the economy is growing at its maximum ‘sustainable’ rate, unemployment should be at its lowest point, and everybody who wants a job should be able to find one without a prolonged search.

The Government's 'White Paper on Jobs and Opportunities', published in late 2023, broadened Australia's full employment objective from one that was more narrowly focused on achieving the maximum sustainable level of employment consistent with low and stable inflation. This effectively meant that, prior to 2023, the government's goal centred around a desire to achieve the maximum sustainable rate of reduction in unemployment by lifting the pace at which economic growth could be maintained without running into inflationary and external pressures. Or more simply, trying to reduce the rate of unemployment to its NAIRU level (see below).

The White Paper makes it clear that the full employment goal now has two components:

Sustained full employment: ensuring that employment is as close as possible to the current maximum sustainable level of employment that is consistent with low and stable inflation.

Inclusive full employment: broadening labour market opportunities, by lowering barriers to work, and reducing structural underutilisation to increase the level of employment that can be sustained in our economy over time.

The first component is very similar to the goal as previously declared, with a focus on ensuring that cyclical unemployment is kept to a minimum (ideally reduced to zero). It is also consistent with the RBA's notion of full employment, as enunciated by the now RBA Governor, Michele Bullock, in the middle of 2023:

'We think of full employment as the point at which there is a balance between demand and supply in the labour market (and in the markets for goods and services) with inflation at the inflation target ... full employment [also] means that people are able to find a job without having to search for too long. This does not mean an unemployment rate of zero. There will always be frictions in the labour market that mean it takes time to find a suitable job, including because the skills required do not match the candidates available or there are structural impediments to employment.'

The second component of the Government's new focus represents an attempt to address the structural factors, referred to by the RBA Governor, that are preventing people from gaining employment. In other words, the Government intends to focus on those labour market factors that are structural in nature (as opposed to cyclical) and result in labour market underutilisation (i.e. unemployment plus underemployment). For example, the Government is not only focused on the rate of unemployment (or even employment growth) when determining whether full employment is achieved, but also on the level of labour force underutilisation (e.g. underemployment), the existence of structural unemployment, the types of unemployment (e.g. youth and long term unemployment) and frictional factors that may be preventing or delaying people from finding a job.

Typically, when cyclical unemployment is reduced to zero, it implies that any (natural) unemployment that still exists in the economy will ordinarily be structural in nature, and made up of a combination of the following types of unemployment, which will all be investigated more thoroughly in Section 5.6.

- **Structural unemployment** – where the skills of the unemployed do not match the skills required by industry (i.e. the skills required for the jobs that are available).
- **Seasonal unemployment** – where a person is unemployed because their skills are only demanded during certain times of the year. The most common examples are fruit pickers and ski resort workers.
- **Frictional unemployment** - where a person is unemployed for a period of time while they are moving from one job to another.
- **Hard core unemployment** - where a person is unemployed due to mental, physical or other characteristics that prevent them from receiving a job offer.

Government policies that attempt to reduce these types of unemployment relate to the second component of its full employment goal – that is, to achieve inclusive full employment. This will necessarily require the use of budgetary policy (see Chapter 8). Government policies that focus on the first component of its full employment goal (i.e. sustained full employment) will necessarily require the use of both monetary policy (see Chapter 9) and budgetary policy.

NAIRU and the natural rate of unemployment

Sustained full employment typically involves the attainment of the lowest unemployment rate possible before inflation begins to accelerate or the rate of unemployment that is consistent with low and stable inflation. This is sometimes referred to as the **Non Accelerating Inflation Rate of Unemployment (NAIRU)**. The NAIRU is also commonly referred to as an economy's '**natural rate of unemployment**', where a healthy rate of economic growth (in the order of 3-4% per annum) will still be accompanied by some unemployment. Indeed, this 'natural rate of unemployment' may

be symptomatic of an efficient economy, where some levels of unemployment actually help to drive more efficient outcomes over time, particularly if they are more transitory (temporary) in nature. For example, it is healthy and natural for individuals to move from one job to another in order to enhance their careers or seek new challenges, which is good for efficiency. In addition, and somewhat controversially it is equally possible for some individuals to make a negative contribution to efficiency when they are employed, and it might be in the national best interest that they remain unemployed until education and training can boost their skills and/or employability.

Importantly, the natural rate of unemployment will be determined largely by the level of **long-term unemployment** (i.e. those unemployed for more than one year), who are mostly made up of those suffering from either structural unemployment or hard-core unemployment.

Commonwealth Treasury and the RBA previously estimated that Australia's NAIRU was approximately 5%. However, changes to the labour market and the economy more generally have caused the government to revise NAIRU estimates downwards. First, Treasury published new NAIRU estimates in 2019, highlighting that NAIRU was closer to 4.5%, but more recently the government has revised these estimates even lower to 4.25% as the unemployment rate continued to decline to very low levels without any discernible increase in wages growth and inflation. Factors in the economy that may be contributing to a lower estimate for NAIRU include the following:

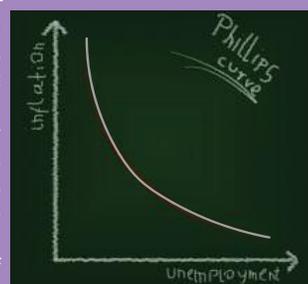
- increasing labour market flexibility
- growth in casual/part-time work (due in part to growth in the gig economy)
- rising underemployment
- the reduced bargaining power of workers
- greater competitive pressures in product and labour markets

In the presence of these influences, the unemployment rate in the economy has been able to fall before labour market tightness sets in and upward pressure is exerted on wages. In other words, spare capacity in labour markets (or excess supply of labour) now exists at lower rates of unemployment. For example, over recent years, the growth in the gig economy has enabled people to more easily offer their labour on digital platforms such as Airtasker, Uber, Deliveroo, etc. Some of these people may have been structurally (or long term) unemployed in the economy, but are now included in the definition of employed despite working relatively few hours. This ultimately allows the rate of unemployment to fall further (i.e. structural unemployment falls) without any additional pressure on wages.

The relationship between the rate of unemployment and inflation over recent years suggests that the NAIRU is at least 4.25% (see Activity 5c). However, given the absence of any significant wages growth for a number of years (in fact real wages growth was negative for a number of years prior to 2023), when the unemployment rate fell to as low as 3.4%, it is indeed possible that NAIRU resides at 4% or even lower. The important point to note is that no one knows precisely where NAIRU exists, and government estimates are typically backward looking given that they rely on the relationship between past rates of unemployment and wage/inflation outcomes.

Box 5.1 The Phillips curve

The Phillips curve depicts the relatively short run relationship or trade-off that sometimes exists between inflation and unemployment. When inflation increases in response to pressures from a growing economy, it is usually associated with lower unemployment. Accordingly, government efforts to reduce cyclical unemployment via demand management tools (e.g. by increasing interest rates to reduce AD) typically results in inflationary pressure. In contrast, lower inflation that accompanies lower economic growth will usually be associated with higher unemployment, as the low rates of economic growth rates lead to job losses. Any efforts by governments to reduce inflation (e.g. by increasing interest rates to reduce AD) will then have the potential to increase unemployment and jeopardise the achievement of full employment. This relationship that is captured by the Phillips curve has important implications for the use of macroeconomic demand management policies, which will be explored in chapters 8 and 9. **Note** that the Phillips curve cannot account for the existence of stagflation, where low economic growth and high unemployment exist alongside high rates of inflation. Similarly, it cannot account for more ideal economic conditions where high economic growth and low unemployment occur alongside low rates of inflation. Continual efforts by governments to exploit the 'trade off' between inflation and unemployment result in a vertical long run Phillips curve, but this is beyond the scope of the VCE course.



Activity 5c: Economic implications of a changing NAIRU?

The following is an edited extract from the March 2022-23 Budget.

The Non-Accelerating Inflation Rate of Unemployment (NAIRU) represents the level of the unemployment rate associated with stable [i.e. non-accelerating] growth in wages and prices. The difference between the NAIRU and the unemployment rate is one measure of how much spare capacity there is in the labour market and economy. The NAIRU assumption underpinning the economic forecasts in this Budget is 4½ per cent. Treasury has previously assumed the NAIRU to be 4 per cent, based on historical economic data and econometric analysis. However, the unemployment rate has fallen faster and lower than previously expected, without generating substantial wage increases.

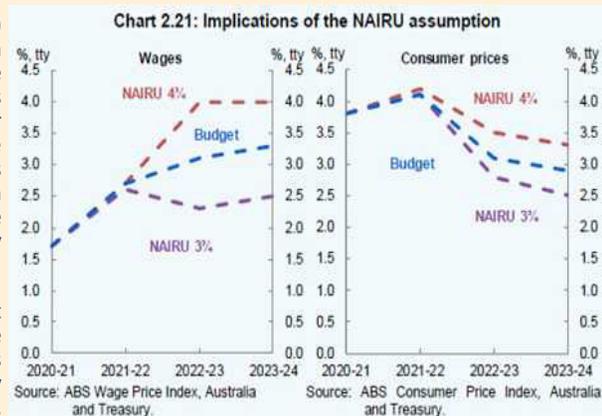
The underlying level of spare capacity and underemployment present in the economy may not have been captured in the previous NAIRU assumption. Additionally, structural changes may have altered the wage and price setting dynamics in a way which was not fully reflected in earlier estimates. [For example, less secure forms of employment and the declining influence of trade unions may have reduced the ability or capacity of workers to achieve pay increases during times of strong labour demand.]

One way to understand the influence of the NAIRU on the forecasts is through a concept known as the Phillips curve. It explains the trade-off between the unemployment rate and stable wages or inflation. An unemployment rate below the NAIRU is associated with higher wage and price growth, while an unemployment rate above the NAIRU is associated with lower wage and price growth.

[We present three] ...scenarios to illustrate the impact the NAIRU assumption has on the [budget] forecasts [for wages growth and inflation]. One scenario has a higher NAIRU of 4½ per cent and the other a lower NAIRU of 3 per cent (Chart 2.21). The scenarios hold the unemployment rate at the Budget forecast to illustrate the impact on wages and prices. As illustrative scenarios, these results assume there is no change in monetary policy that would offset some of these price changes.

With the lower NAIRU assumption of 3 per cent, there is more spare capacity in the labour market compared to the Budget forecast. This reduces annual wages growth to be ½ of a percentage point lower in 2022-23 and ¾ of a percentage point lower in 2023-24. Over time lower wages growth leads to lower consumer price inflation, as firm costs are passed on to consumer prices. CPI growth in the scenario is ¼ of a percentage point lower in 2022-23 and ½ of a percentage point lower in 2023-24. In the June quarter of 2024, through the year growth in both wages and CPI is [forecast to be] 2½ per cent. A higher NAIRU of 4½ per cent results in an opposite impact, with through the year wages growth of 4 per cent in the June quarters of 2023 and 2024, and through the year CPI growth of 3½ per cent in the June quarter 2024.

There is limited recent experience in Australia with an unemployment rate below 5 per cent, adding to uncertainty around how wages respond in such an environment. Regardless of the NAIRU assumption, it will take time for tightening labour market conditions to become a key driver of inflation. The large degree of uncertainty around technical estimates of the NAIRU suggests a degree of caution is required in framing fiscal and monetary policy. Overestimating the NAIRU could see policy tighten prematurely and prevent Australia from attaining the goal of full employment. *Source: www.budget.gov.au BP No. 1, Statement 2, page 60*



Questions

1. Define NAIRU.
2. Identify the rate of unemployment that was considered to be consistent with NAIRU.
3. Describe how NAIRU could be used by policymakers to determine how much spare capacity exists in labour markets.
4. Explain why Treasury is likely to have reduced its estimate of the NAIRU over time.
5. Explain the relationship between unemployment and wages/inflation as described by the Phillips curve.
6. Draw a [Phillips curve] diagram to illustrate the relationship described in Question 5, with inflation on the Y (vertical) axis and the unemployment rate on the X (horizontal) axis.
7. Analyse whether the Phillips curve, as drawn in the diagram from question 6, can theoretically extend below the X axis.
8. Explain the impact that a lower NAIRU assumption [i.e. a NAIRU of 3.75% instead of 4.25%] has on the forecasts for wages and prices. Use Chart 2.21 to illustrate your response.
9. Explain what might happen in the economy if the government attempts to expand the economy and achieve an unemployment rate that is below the NAIRU. Distinguish the short run impact from the long run impact.
10. Explain what might happen to the NAIRU if casualisation of the labour force increased significantly and union influence on wage settings deteriorated.
11. Discuss the implications for policy makers in the event that NAIRU is overestimated.
12. Discuss the implications for policy makers in the event that NAIRU is underestimated.

Review questions 5.4

1. Define the term 'employment'
2. Explain what is required for a person to be classified as 'unemployed' according to the ABS definition.
3. Define full employment and describe how the government's goal for full employment has changed. In your answer, refer to sustained full employment and inclusive full employment.
4. Define the 'non-accelerating inflation rate of unemployment (NAIRU).'
5. Describe how NAIRU relates to the government's goal for full employment.
6. Describe one reason that might explain the fall in the NAIRU estimate from 5% to 4.25%.
7. Describe the relationship that is likely to exist between inflation and unemployment.
8. Explain what is meant by the 'natural rate of unemployment.'

5.5 Labour force measurement

The ABS collects labour force statistics via its monthly Labour Force Survey. It surveys approximately 0.32% of the civilian population (which includes 26,000 houses, flats, etc.) and ascertains the ‘employment status’ of those surveyed. From these results, it ‘extrapolates’ the figures to arrive at labour force statistics that are typically representative for the entire country. To be classified as employed, a person must be over 15 years of age and working for more than one hour per week. To be classified as unemployed, a person must be over 15, without employment (or working less than one hour per week) and actively looking for work.

Study tip

The ABS definitions for employment and unemployment are slightly more involved as they attempt to account for a number of particular circumstances affecting those people interviewed by ABS surveyors, such as those workers on strike. Knowledge of these intricacies is not required for you to develop an understanding of ‘full employment’ and the policy implications that will be covered in later chapters.

From the July 2024 figures, the ABS calculated that the total civilian population of working age (i.e. over the age of 15) amounted to 22,499,607. We can separate this working age population into the following three categories:

A. Employed persons	14,469,571
B. Unemployed persons	637,073
C. Persons not in the labour force but of working age (over 15)	7,392,963

The ABS defines the **labour force** as all those people aged 15 and over who are willing and able to work. The labour force therefore comprises both those who are **employed** and those who are **unemployed** (i.e. willing and able to work but unable to find a job). Accordingly, (A) + (B) represent the labour force. As at July 2024, the size of the labour force was 15,106,644 people, made up of 14,469,571 employed and 637,073 unemployed.

The unemployment rate

The unemployment rate represents the percentage of the labour force that is unemployed. It is calculated by dividing the number of unemployed by the total labour force. It is therefore calculated as follows:

$$\begin{aligned}
 \text{U/E rate for month of July 2024} &= \frac{\text{Unemployed}}{\text{Employed} + \text{unemployed}} \times 100/1 \\
 &= \frac{\text{Unemployed}}{\text{Labour force}} \times 100/1 \\
 &= \frac{B}{A + B} \times 100/1 \\
 &= \frac{637,073}{14,469,571 + 637,073} \times 100/1 \\
 &= \frac{637,073}{15,106,644} \times 100/1 \\
 &= 4.2\%
 \end{aligned}$$

This means that during July 2024, 4.2% of all Australian civilians who were able and willing to work, were unsuccessful in gaining employment

The participation rate

The participation rate is defined as the percentage of the total ‘working age’ population (over 15) who are members of the labour force - who are participating in the sense of either working or willing and able to start work, and actively seeking work. The working age population is A+B+C (22,499,607 people) and it really represents Australia’s ‘potential’ labour force. Accordingly, the labour force participation rate tells us what proportion of our **potential labour force** is actually in the **labour force**.

Underemployment and the underutilisation rate

Unemployment figures commonly featured in the press and quoted in Parliament do not capture the incidence of **underemployment** (or **disguised unemployment**). The underemployed are those individuals that are classified as employed, but who are at least partly ‘unemployed’ in the sense that they would prefer to be working more hours.

It is important to understand the difference between these workers and those people considered the **‘hidden unemployed’** - the discouraged job seekers referred to in the previous section. They were the potential job seekers who were no longer actively seeking employment, usually because of poor labour market conditions. However, underemployed workers are very different. This measure will typically include those individuals who are working part-time (or casually) when they prefer to work full-time (more than 35 hours per week). Alternatively, they may be underemployed because their employer is operating below full capacity due to a downturn in economic activity, such as the 2020 recession.

In July 2024, there were an estimated 956,692 people who were **underemployed**, compared to 637,073 people who were unemployed for the same period. These figures taken together (1,593,765) represent the number of people who are **‘underutilised’**. As a percentage of the potential labour force, this represents by an underutilisation rate of 10.5%. This has been calculated as follows:

$$\begin{aligned}
 \text{Underutilisation rate (July 2024)} &= \frac{\text{Unemployed} + \text{Underemployed}}{\text{Labour force}} \times 100/1 \\
 &= \frac{637,073 + 956,692}{15,106,644} \times 100/1 \\
 &= 10.5\% \\
 &\text{OR} \\
 &= \text{Unemployment rate} + \text{underemployment rate} \\
 &= 4.2\% + 6.3\% \\
 &= 10.5\%
 \end{aligned}$$

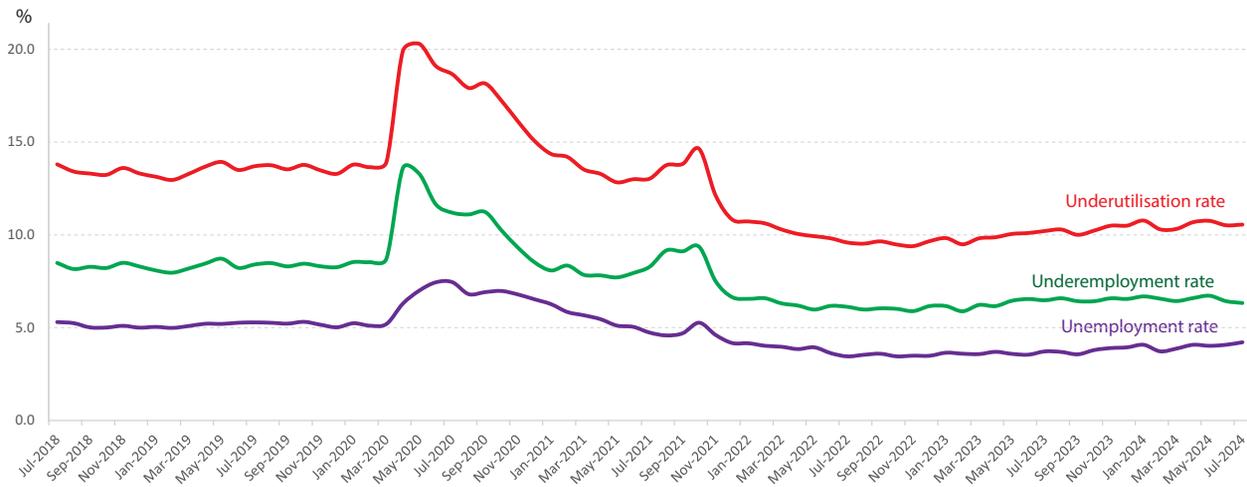
This means that during July 2024, there were 1.6 million Australians (or 10.5% of the labour force) who were underutilised in the sense that they were either without work or wanting to work more hours

The existence of underemployment of over 1.5 million people in Australia has highlighted a shortcoming of the government’s focus on unemployment statistics as a measure of its success in managing the economy or achieving ‘full employment’. The increase in the use of casual and part-time labour (e.g. the casualisation of the labour force) reflects the increased flexibility within labour markets, as well as the ongoing digitalisation of the economy (as discussed earlier in the context of NAIRU) with people increasingly being able to offer their labour services in the digital economy. While the provision of some of this more casual labour is voluntary, there are many instances where workers have been forced into a position of accepting casual or part-time employment when full-time employment was the preferred option. In this respect, the very low rate of unemployment underestimates the extent of labour market spare capacity that is likely and overstates the success of government efforts to achieve full employment. This relates to a falling NAIRU as discussed earlier.



The recession experienced in Australia during 2020 and its impact on labour market statistics, as well as the ongoing low rate of unemployment over 2023-24 in spite of very low rates of economic growth highlights how a sole focus on unemployment statistics can be misleading. Chart 5.6 below shows the correlation between unemployment, underemployment and the underutilisation rate since 2018. Over the first half of 2020, the unemployment rate only rose from approximately 5.1% to 7.5%, when the economy experienced the largest economic contraction since the 1930s. However, a far more useful indicator of the labour market impact at the time was the movement in the underemployment rate, which increased from 8.2% to 13.8%, or the underutilisation rate, which increased from 13.3% to 20.3%. Since the middle of 2023, the unemployment rate has risen relative to the underemployment rate, resulting in an overall increase in the underutilisation rate.

Chart 5.6
Unemployment, underemployment and underutilisation rates over last 4 years



Accordingly, when determining the degree of spare capacity in labour markets it is necessary to look beyond the unemployment rate in isolation, with the underemployment/underutilisation rates providing a more useful guide, in addition to other data, such as hours worked, job vacancies and the length and duration of unemployment.

The movement in the three rates over the course of the 2020 recession is indicative of what typically occurs during an economic downturn, with businesses retaining labour (or hoarding labour) and reducing hours worked rather than dismissing employees outright. While businesses were provided with JobKeeper incentive to retain workers on their books during the 2020 recession (see Box 5.2), the steep rise in the underemployment rate relative to the unemployment rate, as seen in the chart, is a typical occurrence during an economic downturn. This is largely because businesses are generally loathe to dismiss employees, as the costs of training new employees, combined with the loss of years of experience, is a major disincentive. As the economy recovered over 2021-22, the underemployment rate fell more quickly than the unemployment rate because the increased demand for labour by many businesses was satisfied first by the existing 'underutilised' workforce. For example, the growth in output resulted in businesses asking workers to work more hours, which reduces underemployment (and the underutilisation rate) rather than the unemployment rate. Of course, as the economic recovery gained increasing momentum over 2022-23, more and more of the increased demand for labour was being satisfied by the employment of additional workers, which helped to reduce the unemployment rate to 3.4% by July 2022. Since then, the economy has slowed somewhat, resulting in an increase in the unemployment rate to 4.2% (and an increase in the underutilisation rate to 10.5%) by the middle of 2024.

Overall, the underutilisation rate provides a better indicator of the state of the labour market. In particular, it provides a more accurate account of how changes in economic growth will, or have, impacted on both the demand for labour and spare capacity in labour markets, which then has implications for employment, wages and inflation.

Relationship between participation and unemployment rates

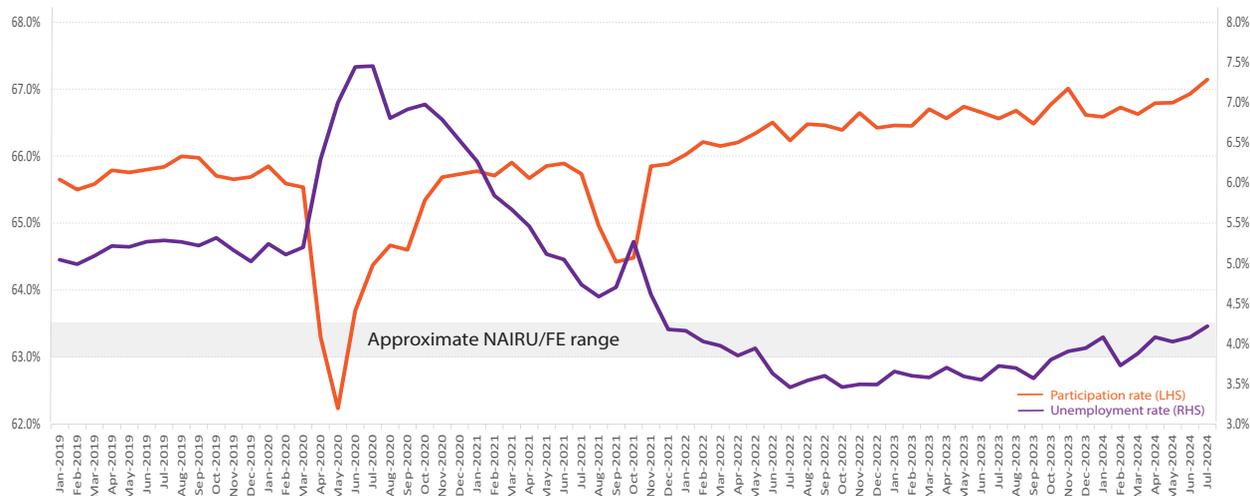
When examining the relationship between the **participation rate** and the **unemployment rate**, it is necessary to focus on how a change in the participation rate can impact on the unemployment rate and then how a change in the unemployment rate can impact on the participation rate.

On the one hand, an increase in the participation rate is likely to cause a short-term increase in unemployment as the new job seekers (i.e. the new entrants to the labour market) are immediately classified as 'unemployed' until they find work. Over the longer term, however, a higher participation rate can lead to a reduction in the unemployment rate. This is because a higher participation rate usually reflects a growing labour force, which means that the **labour supply** increases, exerting downward pressure on wages (as there is greater competition for jobs) and/or upward pressure on **labour productivity** (as a larger labour supply can force workers to increase effort). As a result, these factors can increase the demand for labour, creating additional employment and reducing the unemployment rate.

On the other hand, a decrease in the unemployment rate is likely to induce a rise in the participation rate. This is because some job seekers become encouraged about the prospects of finding work and enter the labour force. In other words, workers who were previously classified as '**discouraged job seekers**' (or **hidden unemployed**) are now more likely to seek employment as the likelihood of success is greater.

These relationships are highlighted in Chart 5.7 below.

Chart 5.7 Participation and unemployment rates (seas adj)



The recession during 2020 resulted in large changes in both the unemployment rate and the participation rate as labour market conditions deteriorated significantly. As highlighted earlier, the official unemployment rate climbed above 7% [while the effective rate of unemployment climbed towards 15% - see Box 5.2] as the demand for labour decreased in response to lower aggregate demand and production volumes across the economy. In this environment, many Australians who lost their jobs (as well as those previously unemployed) lost faith in their ability to gain employment and simply stopped looking for work. This partly explains the huge fall in the participation rate to 62.2% by May 2020. However, it was compounded by the fact that many people who lost their jobs during this time did not search for a new job because social distancing/quarantining/lockdowns made it either difficult or impossible for people to remain engaged in the labour force. In addition, the Federal Government introduced a temporary relaxation of the job search requirements that are ordinarily tied to the receipt of unemployment benefits. This caused a large-scale exodus from the labour market, reducing the participation rate significantly and preventing the 'official' unemployment rate from climbing towards 10%.

The fall in the participation rate and rise in the unemployment rate during the latter part of 2021 largely reflects the effects of COVID-19 lockdowns in some states (e.g. Victoria and NSW). As many people stopped looking for work, it caused the participation rate to decrease and the unemployment rate to fall over 2020-21. This highlights the short term relationship between the participation rate and the unemployment rate that was referred to earlier, with decreases in the participation rate triggering a short term statistical fall in the unemployment rate as the exit of people from the labour force (or more specifically from the pool of unemployed) causes the number of unemployed to fall as a proportion of the labour force. However, once the lockdowns ended in October 2021, people re-entered the labour force, causing the participation rate to rise and the unemployment rate to temporarily increase (as there are more people looking for work which inflates the number of unemployed people as a percentage of the labour force).



The rebound in the participation rate since then, to 67.1% by July 2024 partly reflects the reinstatement of the mutual obligations requirement for job seekers (to actively look for work) after COVID-19. In addition, it reflects a return of some degree of optimism following the continuing federal and state government fiscal stimulus programs, combined with monetary policy support up until 2022 (see chapters 8 and 9). The fall in the unemployment rate to very low levels since then is once again likely to be a key contributing factor behind the large growth in the participation rate. Importantly, however, the higher participation rate is also attributable to the effects of deliberate attempts by governments to increase the size of the labour force. This includes policy initiatives such as an increase in the retirement age, increased funding for childcare, more generous paid parental leave, a return to higher levels of skilled immigration and subsidies to employers taking on older (50+) Australians (See recent Budgetary Policy initiatives in Chapter 8 and Aggregate Supply initiatives in Chapter 10).

Activity 5e: True or False exercise [Labour force]

Answer true (T) or (F) to the following statements:

Statement	T	F
An increase in employment will always result in a decrease in the unemployment rate		
An increase in immigration will cause the participation rate to rise		
An increase in the pension age to 67 will cause the participation rate to fall		
Anne Teak, an experienced school teacher, injured her back at work after slipping on a wet path. She has been home recuperating for 5 weeks and is therefore unemployed		
The 'discouraged worker' effect refers to those workers in the workforce who are working below potential due to dissatisfaction with their job		
Unemployment will usually peak during a boom in economic activity		
Voluntary unpaid workers are considered employed for the purposes of the ABS		
An increase in the unemployment rate will most likely result in a lower participation rate		
Hidden unemployment and disguised unemployment are the same thing		
The underutilisation rate will usually be below the unemployment rate		

Activity 5f: Classification exercise [Labour force]

Categorise each of the following persons as either employed (E), unemployed (U) or not part of the labour force (N).

Description	E	U	N
Syd Downen, a proud father of 7, has been desperately trying to find work and refuses to accept social security payments (e.g. unemployment benefits)			
Bill Loni is a full-time student who is looking for a part-time job			
Ima Hogg has been disciplined by his employer, Hungry Jack, for eating a few too many hamburgers during his shift. His hours have been reduced from 40 per month to two hours per month			
Anita Little is a 16 year old student who would like to leave school and get a job			
Amanda Lynn was the music teacher at Ding Dong College before taking stress leave due to repeated issues with her partner Al Coholic			
Horace Cope has decided to quit work and travel overseas with her best friend Chrystal Ball			
Dinah Mite is currently on strike from the Victorian police bomb squad in search of better wages and conditions			
Dick Tate is an English teacher at a private school who was promoted to the Commerce Faculty in search of greater prestige and the coolest faculty members			
Gladys Canby won Tattsлото with her friend Jack Pott and has simply not turned up to work for 3 months. Her American boss, Doris Shutt, has laid her off			
Joe King is a Melbourne comedian who has not had a gig for several months. He continues to seek gigs at local pubs in order to earn some money			
Jim Naysium works at the Fitness Centre for 2 hours per week without pay in order to gain some experience. He would dearly love to work more hours and be paid			
Myra Manes is a qualified funeral director who sent her final job application in the mail more than 3 months ago. She is fed up with trying to get a job as she considers that the job market is pretty much dead			

5.6 Causes and types of unemployment

When defining unemployment in Section 5.4 earlier, we introduced a number of different types of unemployment, such as **cyclical unemployment** and **structural unemployment**. In this section, we will examine in closer detail the causes of these, and other, types of unemployment. In general terms, there are two major causes of unemployment. First, unemployment that is caused by insufficient levels or growth in aggregate demand (cyclical unemployment). Second, unemployment caused by structural, seasonal, frictional and hard-core factors, which is often referred to as 'natural unemployment'.

Cyclical unemployment

Aggregate demand (AD) revisited

As was discussed in detail in Chapter 4, AD measures the total spending on Australian made goods and services. It is worth recalling, here that the Australian Bureau of Statistics likes to break up aggregate demand into a number of components. This helps economists and researchers to isolate changes in spending patterns and the information can be used to develop policy initiatives. As was explained previously, the AD equation is:

$$AD = C + I + G + X - M$$

C	=	Consumption demand
I	=	Investment demand
G	=	Government demand
X	=	Exports
M	=	Imports

What is the relationship between a lack of aggregate demand and unemployment?

As discussed earlier, the demand for labour is considered a derived demand because it is derived from the demand for goods and services. Therefore a fall in AD, or slow growth in AD, will typically mean that production targets for future periods will be reduced. Lower sales and provision of services will mean that producers will need less labour in the production process. As a result, the lack of AD will cause **cyclical unemployment**. In other words, the demand for labour will fall and, given that wages are unlikely to fall, there will be a surplus of labour in the market, which causes unemployment.

John Maynard Keynes, author of *The Means to Prosperity* and *The General Theory of Employment, Interest and Money*, suggested that the effects of a decrease in demand in one section of the economy could have ripple effects through the rest of the economy. He described this as the **multiplier effect**, which can be both positive and negative. If there is a decrease in **consumer confidence** for example, households may choose to save a greater portion of their income because they are concerned about their future employment prospects. In doing so, their spending on goods and services will decrease. Shopkeepers and the providers of services will notice a decline in business activity and look to reduce production levels. This will lead to a decrease in the derived demand for labour and should result in an increase in the unemployment rate and/or a decrease in the number of hours worked. As a result, disposable incomes are likely to fall which will initiate another round of decreased spending, and the initial effect is multiplied throughout different sectors of the economy.



Cyclical unemployment is generally associated with economic downturns, such as the 2020 recession, which are typically part of the **business cycle** (see Chapter 4). During these periods, confidence and AD decrease significantly and the unemployment rate rises sharply. Unemployment during the Great Depression, for example, was estimated to be 30%, during the recession of the early 1990s it was 11% and during the 2020 recession it would have climbed above 14% without the government wage subsidy (JobKeeper program) that prevented hundreds of thousands of people from joining the unemployed pool. As noted in Box 5.2, Treasury calculated that the 'effective rate of unemployment' almost reached 15% in April 2020.

What might cause aggregate demand to decrease?

There are a range of demand-side factors that can cause aggregate demand to fall. Some of them are influenced by the government and others are outside the government's control. Government policy responses to unemployment will be discussed from Chapter 8. Some common AD and AS factors affecting AD were covered in a theoretical setting in Chapter 4 and the impact that these factors have had on the unemployment rate over the past two years will be examined in Chapter 6. However, it is worth focusing on a few key factors that impact on cyclical unemployment.

Consumer confidence (sentiment)

Consumer confidence aims to measure the general feeling of positivity or negativity about the future state of the economy. Households will tune into the information contained in the media and make an assessment about their future employment prospects and whether they are likely to gain a pay rise. If sentiment decreases this means that consumers may become more cautious with their income. It is reasonable to expect that during periods of low consumer confidence, such as during the recession of 2020, that households will save a greater portion of their income and be less willing to take on new debt. As a result the demand for goods and services decreases, and, as explained above, as AD decreases, cyclical unemployment can increase.



Economic growth in our major trading partners

Between 20% and 25% of Australia's AD is determined by the incomes and purchasing habits of foreign nations. If a **major trading partner** such as China had a reduction in its rate of economic growth, this means that the growth in demand for Australian exports would also decrease. China's continuing growth up until recently was one of the major reasons why Australia's rate of economic growth remained positive during periods when other advanced economies (such as the USA, Japan and the Eurozone) were in decline (e.g. following the global financial crisis of 2008-9). Chinese growth allowed the mining sector in Australia to expand at a rapid rate, fuelled by high commodity prices and the flow on effects for investment and production. It meant that incomes from mining increased, which eventually flowed into other sectors in the economy via the multiplier effect. As explained earlier, as AD increases, this can cause cyclical unemployment to decrease. The much lower growth rates in China over 2023-24 are having the reverse effect, impacting negatively on commodity prices and exerting negative pressure on Australia's rate of economic growth during 2024.

Interest rates

Interest rates represent the rewards from lending (saving) and the costs of borrowing. Indebted households are very sensitive to changes in interest rates. Most households have home loans with variable interest rates, which essentially means that the interest rate charged by their lending institution can change at any time. When interest rates increase, the indebted households must pay more back to the bank in interest and as a result the amount of money they have left over after paying their bills has decreased. This amount left over is sometimes called **discretionary income**. A decrease in discretionary income is likely to lead to a decrease in spending on goods and services. Interest rates in Australia are heavily influenced by the Reserve Bank of Australia's monthly board meeting (where the cash rate is determined), but also by the banks themselves (who take into account the cost of the money they acquire to lend to households and businesses). An increase in interest rates can therefore increase cyclical unemployment because it can reduce spending, leading to a decrease in the demand for labour.

The exchange rate

The exchange rate will have an influence on the demand for Australian-made goods and services because it affects relative prices. Whenever an Australian business sells a good or service they generally want to be paid in Australian dollars. An appreciation of the Australian dollar will mean that foreigners will need more of their currency to obtain each Australian dollar. Therefore, the demand for Australian products will therefore decrease as they become relatively more expensive when compared to foreign made goods and services. This results in a decrease in the demand for exports and/or an increase in demand of imports to replace the Australian-made products which are now relatively more expensive. For example, a high **Australian dollar** reduces the incentive for foreigners to visit Australia for a holiday and at the same time it encourages more consumers to use the Internet to buy their products from cheaper overseas suppliers online. This will reduce the AD and lead to greater cyclical unemployment.

Natural unemployment

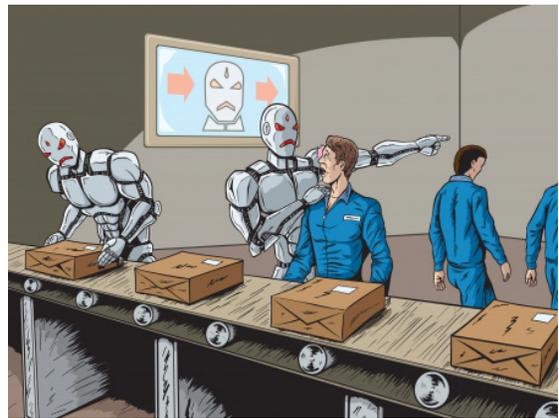
As discussed earlier, there will continue to be unemployment even during times of strong AD, when there is an absence of cyclical unemployment. This 'natural' unemployment arises in the economy due to structural, seasonal, frictional and hard-core factors.

Unemployment caused by structural changes - structural unemployment

There can still be a relatively high unemployment rate even when there is strong demand in the economy. Prior to the global financial crisis, the Australian economy experienced 17 years of positive, uninterrupted economic growth and the unemployment rate fell to as low as 4% in early 2008. This is a very low rate of unemployment, but at the time there were still approximately half a million Australians who could not find work. The existence of **structural unemployment** helps to explain why it was very hard for the unemployment rate to be reduced any further.

During the long economic boom, there were many jobs available but those who were unemployed did not have the skills to fill the vacant positions. Generally speaking, structural unemployment is caused by a mismatch between the skills set of the unemployed and the skills that are needed in the economy. It can be caused by a range of factors including those factors listed below.

- The implementation of new **capital and technology** which render the skills of some workers obsolete. Over time, many occupations have disappeared because inventors have created capital which can complete the work more efficiently (and cheaper) than labour resources. For example, robotics caused structural unemployment in the motor vehicle manufacturing sector and ATMs/internet banking has caused structural unemployment in the banking industry. Artificial intelligence (AI) is also creating structural unemployment as machines become increasingly adept at replicating some cognitive functions of humans. This includes self-driving vehicle technologies replacing professional drivers (e.g. at Australian mines), advanced drone technologies replacing couriers, and improved telecommunications technologies replacing receptionists and telemarketers.



- Changing patterns of demand occur as **tastes and fashion** change. This means that demand for some goods and services may fall while others increase. The problem is that the change in demand doesn't necessarily mean that those whose jobs are no longer required can move straight into working somewhere else. Retraining may be necessary and this will take time, and in some cases the person may be too old or unable to undertake the training, or the training may not be provided or available. For example, the decline in physical CD sales due to legal and illegal downloading of music may have caused structural unemployment in the music industry, and the preference for online over traditional store retailing has caused structural unemployment in the retail sector.
- The increased use of **outsourcing** can cause structural unemployment, especially if businesses relocate their core practices to another country. This has been particularly evident in the Australian manufacturing sector, with many jobs in the textile, clothing and footwear sector disappearing as firms have outsourced activities to lower cost offshore suppliers. Similarly, many Australian businesses have outsourced their information technology requirements and/or call centre work to contractors in less developed economies, including India and the Philippines, who are able to provide a 'similar' level of service at a fraction of the cost. Those Australian workers previously with skills in these areas have therefore become structurally unemployed.
- Structural unemployment can also be caused by **business restructuring** that ordinarily occurs in a dynamic capitalist economy like Australia's. Businesses will continually search for better or more efficient ways of producing goods and services in order to reduce costs, and this can sometimes be at the expense of workers. For example, during the 1990s, a number of companies downsized their workforces and many middle managers became redundant. Instead, many companies chose to hire consultants rather than have permanent employees.
- Some government **microeconomic reform policies** may also cause short-term structural unemployment. While large-scale reforms have largely been absent over recent years, reforms such as privatisation and corporatisation of Government Business Enterprises (GBEs) that occurred in the past (e.g. in the telecommunications and energy sectors) had lasting impacts on structural unemployment. To the extent that there are calls for further microeconomic reforms in the future, including the continuation of trade liberalisation and the possibility of

large-scale tax reform, we can expect structural unemployment to increase as a result.

As noted earlier when discussing the lower NAIRU, the rise of the gig economy over recent years has made it easier for unemployed people (with redundant skills) to re-enter the labour market to offer some hours of work on digital platforms, such as Uber. To the extent that this is occurring in the economy, it serves to underestimate the true extent of structural unemployment.

Frictional unemployment

Economists don't worry too much about **frictional unemployment**. It is caused when a person has left or finished a job and has yet to find a new job. In some ways it can be seen as the product of an efficient economy, as workers are seeking better opportunities in growing industries. Frictional unemployment can also be common for those in the construction industry whose employment may be disjointed because it is project based. Contractors may also experience short periods of frictional unemployment when they are between jobs.



Seasonal unemployment

Seasonal unemployment occurs for those workers whose skills are not in demand at certain times of the year. There are certain professions where economic activity is limited to a period of the year, and therefore for the rest of the year they may be unemployed. Therefore, seasonal unemployment may affect fruit pickers, ski-instructors and tourist operators. Seasonal unemployment can also increase at the end of the school/university year as there is an influx of graduates who are all looking for work simultaneously.

Hard-core unemployment

Hard-core unemployment is generally caused by individual characteristics of the unemployed person. Some extreme commentators have labelled people in this category as unemployable. For some this could be true. Hard core unemployment could therefore be caused by a criminal record, a drug addiction, a mental illness, a physical disability or lack of desire to genuinely seek work. This final characteristic may result in people registered for Centrelink benefits looking for jobs they know they won't get in order to meet Centrelink requirements that they actively seek work in order to retain their benefit.

Study tip

A knowledge of both hard-core and seasonal unemployment is no longer required knowledge in the current (2023-27) Study Design. They have been included here to provide students with further examples of types of unemployment that will ordinarily exist when the economy is at 'full employment'.

Review questions 5.6

1. Define aggregate demand (AD) and in your answer summarise the key components of AD.
2. Explain how a reduction in AD is related to cyclical unemployment. In your answer, refer to the multiplier effect.
3. Describe the relationship between the business cycle and cyclical unemployment.
4. Explain how each of the following can contribute to an increase in cyclical unemployment. In your answer refer to the key component(s) of AD that are affected:
 - lower consumer confidence
 - weak growth in our major trading partners
 - higher interest rates
 - higher exchange rate
5. Explain why unemployment can still exist in an economy despite periods of strong rates of economic growth. In your answer refer to natural unemployment.
6. Describe five factors that can account for the existence of structural unemployment in Australia.
7. Distinguish structural unemployment from frictional unemployment.

Activity 5g: Types of unemployment

Identify the type of unemployment applicable to each situation below. You must select from Cyclical (C), Structural (S), Seasonal (SL), Frictional (F), Hard Core (HC) as well as Hidden(HD) and Disguised unemployment (D).

Description	C	S	SL	F	HC	HD	D
Gary is a sheep farmer and shearer but is finding it very difficult to get shearing work since synthetic materials are now in such high demand compared with wool.							
Rommy works as a ski instructor at Mt Hotham each year. However, at present it is summer and there is no snow.							
Peter loves travelling around Australia with his mates in his van. He is not keen to work and doesn't see the point of people getting stressed over working long hours and receiving average pay. He would rather live on unemployment benefits.							
Due to the global financial crisis (GFC), the firm Cam works for lost profits due to falling demand and falling consumer confidence. It has had to downsize and Cam lost his job.							
Louisa works for a government business enterprise (GBE) that has just been privatised. The company will retrench many workers and Louisa will lose her job.							
Barbara is an accountant and after 10 years with one major accounting firm, she has left to look for work with another accounting firm. She has been looking for work for four weeks.							
With the Australian dollar appreciating so much, the domestic tourism industry has been hard hit and Marnie has lost her job in the hospitality industry.							
Juanita is a shearer but now that the shearing season is over, he has no work.							
John worked for a car parts company but due to lower tariffs on imported cars and less government subsidies to domestic car companies, the company he works for will close and he will not have a job.							
Monique is an alcoholic and despite having some work on and off, she finds it difficult to keep jobs.							
Yasmina works for a firm that has invested a lot of money in automating its assembly line, and, as a consequence, he has lost his factory job and is no longer needed on the factory floor.							
Dusty has been working part-time as a cabaret singer but would like a full-time job as a wedding singer							
Phuong has been at home for seven years raising a young family. Now that all of her children are at school, she is keen to re-enter the workforce and earn extra income for her family. She has applied for a few jobs, unsuccessfully, but is actively looking for work, including having her name listed with a recruitment company.							
High interest rates in Australia have had a negative impact on business costs. As a result, Frida's firm sacked her.							
George has a criminal conviction and has spent time in jail. With a limited education and a criminal record, he finds it hard to get work.							
Isa works for a well-known shoe-manufacturing business, but due to the company's inability to compete with cheap imports from China, the business must close and she will be unemployed.							



5.7 The consequences of not achieving full employment

Loss of gross domestic product (GDP)

The pursuit of full employment helps to avoid the real economic losses associated with unemployment in terms of **lost production or output**. With greater employment and lower unemployment, there are **multiplier benefits** to the economy in terms of higher incomes earned being spent on goods and services which then creates additional employment opportunities and income generation over time. In this respect, high unemployment makes it more difficult to achieve strong rates of economic growth that are necessary to achieve growth in (material) living standards over time, as measured by real GDP (or real GDI) per capita.

Unemployment also means that valuable labour resources are not being utilised in the production process and therefore the country is not operating at its productive capacity. Accordingly, as the unemployment rate grows, particularly **long term** or structural unemployment, the loss of skills over time will have negative supply side effects on the economy. Those unemployed will simply be unable to contribute to the economy.

While high unemployment rates will result in costs to the economy, it is also true that some unemployment can result in offsetting supply side benefits that help to minimise the net losses associated with high unemployment rates. Higher unemployment rates will be associated with low **job vacancy** rates because the demand for labour will be relatively low and excess supply of labour will exist across many industries and occupations. This can both increase labour productivity levels, because workers know there is a greater risk of dismissal, and reduce wage costs, as some workers will accept a lower wage to gain employment. The combined effect is to reduce **real unit labour costs** for businesses, which helps to reduce prices (or inflation), boost competitiveness and stimulate both AD and real GDP. Similarly, firms will tend to face reduced wage demands from workers (and their unions) who have less economic bargaining strength when unemployment rates are high. These influences are likely to result in less **industrial disputation** (e.g. fewer strikes) and higher productivity, once more triggering inflationary pressure and causing longer term damage to the Australian economy.

Loss of tax revenue

Higher unemployment rates will also have a negative impact on the **government's budget** (see Chapter 8) as fewer people will be paying income tax. Given that individual income tax receipts are the major source of total government revenue (approximately 50% of all government cash receipts) it means that the government will have less money to fund the provision of a host of government provided goods and services that support Australian living standards. For example, the government will have less to spend on services such as education, health, defence and national security which all help to improve the living standards of other Australians. In addition, the government will be required to spend more on welfare or income support as unemployment numbers rise. If the government chooses to maintain expenditure at previous levels, the loss of tax revenue necessarily results in a bigger budget deficit (or smaller surplus) unless the government decides to raise tax rates. These measures will have negative effects on economic growth and further compromise living standards because higher deficits result in more government debt which negatively impacts on the government's interest burden as well as interest rates in the economy more generally. These were precisely the issues faced by the Australian government over the course of 2020-21, as the coronavirus induced recession resulted in a significant reduction in income tax revenue, which contributed to historically high budget deficits and a large increase in government debt (see Chapter 8).



Greater income inequality

High rates of unemployment will tend to increase **income inequality** and increase the incidence of **poverty**. More people will be relying on welfare, receiving government transfer payments instead of factor incomes, which means that the lowest income earners in society will be receiving a smaller share of the total income earned in Australia. In other words, the gap between high and low income earners will widen. In addition, more people are likely to be placed in a position where they will be unable to afford the goods and services to give them a reasonably decent or dignified standard of living.

Reductions in living standards

Ultimately, high rates of unemployment reduce **living standards** of Australians on a number of levels. As people move from being employed to becoming unemployed, their income more than halves and they therefore have a reduced capacity to purchase goods and services. In this respect, unemployment reduces **material living standards** and diminishes the economic prosperity and welfare of Australians. To illustrate, an individual working 38 hours per week should receive a **minimum wage** of \$915.90 (the federal minimum wage), which equates to \$47,627 per year before tax. While this is not a large sum of money, it should enable the worker to enjoy a reasonably dignified standard of living. However, if a worker became unemployed, their weekly income will have fallen to approximately \$408.45 per week (or \$21,239 per annum), which was the rate for a single person receiving JobSeeker Allowance (i.e. unemployment benefit). This will have significantly reduced the material living standards of those becoming unemployed as they could purchase far fewer goods and services.



Higher unemployment (or reductions in employment) will also tend to reduce the quality of life or **non-material living standards** of those becoming unemployed. These people could be faced with the stigma that is often associated with being unemployed and will also miss out on the many non-pecuniary benefits that employment brings. This includes an improved sense of connection to the community and a higher self-esteem or self-worth. In addition, the longer the person becomes unemployed the more likely it is they will lose their skills, and this perpetuates the problems associated with being unemployed because people find it harder to become readily employable. This means that the effects of long term unemployment are even more negative for a person's overall standard of living than periods of short term unemployment.

There are a host of other **social costs** that can be related to high rates of unemployment. This includes the possibility of more crime, social exclusion and homelessness, as well as an increased incidence of psychological harm and general ill health that is more common in those who are unemployed, particularly for long periods. The enormous impact of unemployment on the individual is considered in detail in Activity 5h. Living standards will also be negatively affected by those factors referred to earlier. In particular, the loss of tax revenue and the impact on the government's ability to provide services as well as the greater income inequality and the negative impact this could have on social cohesion.

The effects on inflation if unemployment is too low

The relationship between lower rates of unemployment and the rate of inflation was covered earlier during the discussion of **NAIRU** and the natural rate of unemployment. The relationship can also be summarised by the **Phillips curve**, which was covered in Box 5.1.

Essentially, as the unemployment rate falls, it generally reflects a tightening labour market, where the demand for labour is high relative to the supply of labour. Like any market, shortages in some occupations will then develop and employers will bid up wages in order to attract labour. Accordingly, there will be an inverse relationship between the rate of unemployment and the rate of growth in wages such that continuing falls in the rate of unemployment are likely to be associated with faster growth in wages. Therefore, while the government is keen to achieve full employment via the appropriate use of budgetary and monetary policies, it is also cognizant of the problems associated with attempting to reduce the unemployment rate to levels that are too low (i.e. to levels that are below NAIRU).

This can be illustrated with reference to what has occurred over the past couple of years, with the fall in the rate of unemployment to less than 4% (even as low as 3.5% in 2023) at a time when NAIRU was thought to be approximately 4.25%. Despite the precise level of NAIRU being uncertain, the RBA in particular was worried that the very low rate of unemployment reflected a tight labour market, with limited spare capacity, that would ultimately result in an unacceptable rise in wages. Given that higher wages exert upward pressure on both demand for goods and services and the costs of production, it results in an increase in both cost and demand inflationary pressures. The RBA was therefore concerned that a very low rate of unemployment, one that was likely to be below NAIRU would increase both inflation and inflationary expectations, creating a wages/price spiral that had the potential to lock in high rates of inflation for the medium term. This is one of the reasons behind the RBA's decision to aggressively tighten monetary policy (i.e. increase interest rates) from 2022, despite the absence of any concrete evidence that wages growth was accelerating to excessive levels. The RBA continued to tighten monetary policy over 2023 as inflation continued to be excessive and annual wages growth accelerated from 2.4% in early 2022 to more than 4% by the end of 2023. [The policy implications will be explored more fully in chapters 8 and 9.]

Activity 5h: The mental health impact of unemployment

This is an edited extract from Chapter 2 of a report produced by a House of Representatives committee titled 'An inquiry into issues specific to mature-age workers'.

The psychological and social costs of prolonged unemployment during the productive years of life impact harshly on the quality of life of affected individuals and families. Experiences of low self-esteem and loss of self identity impact on physical and mental health and can extend to broader consequences of social isolation and the loss of social networks and support. The impact of redundancy causes family disruption and breakdown. At the very least it reduces people's sense of membership and contribution to the life of the community.

'For 11 years I have been working directly with unemployed people at the grassroots level in training and case management. I have seen, heard and felt the human misery and suffering that unemployment has inflicted upon people...I have seen how this savage impact can foster suicidal tendencies, marriage breakdowns, drug and alcohol abuse and much more that will never be disclosed.' (K. Boyne, South East New South Wales Area Consultative Committee)

Loss of self-esteem and confidence resulting from job loss can operate as barriers to re-employment. For many people, work provides a social network and often a reason for social interaction. Loss of income also limits the ability of people to attend social outings.

Mission Australia argued that one of the serious consequences of isolation from the workforce is that it reduces prospects for re-employment. Contact through social networks is a very important means of finding out about available jobs. A further consequence is a loss of social standing that increases the sense of isolation and alienation experienced through no longer being part of the workforce. Terms such as 'dole bludger' abound so that not only is a person's self image negative, it is reflected back at them via the media and society in general...they are seen as being a burden on taxpayers.

There is a strong feeling among mature-age people that once they no longer have paid employment, they begin to become invisible. Work was reported as being important for mental stimulation, in providing social contact for those with limited family networks and as a means of structuring time. Loss of employment also results in people losing a sense of being in control of their destiny.

Overall, unemployment is often psychologically and financially devastating for those who experience it and for those who are dependent upon them. There is substantial evidence of the negative health effects, not only for the unemployed person but also for his or her family.

Source: http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_representatives_Committees?url=ewr/owk/report/chapter2.pdf.

Questions

1. Define the term redundancy and explain how it may contribute to family disruption and breakdown.
2. Describe the possible link between unemployment and alcohol/drug abuse.
3. Outline the possible link between unemployment and self-esteem.
4. Explain how the loss of self-esteem can act as a barrier to re-employment.
5. Explain how isolation from the workforce reduces the prospects for re-employment.
6. 'Unemployed people are dole bludgers and a burden on taxpayers.' Discuss the validity of this statement.
7. Explain how loss of employment can result in 'people losing a sense of being in control of their destiny'.



Review questions 5.7

1. Explain how high rates of unemployment can have a negative impact on real GDP. In your answer refer to aggregate supply and/or productive capacity.
2. Explain how high rates of unemployment can also provide some positive supply side benefits to the economy. In your answer refer to productivity and labour costs.
3. Outline why high rates of unemployment are likely to result in significant reductions in the government's tax revenue and explain how this can negatively impact on living standards. In your answer refer to the government's budget deficit and the level of government debt.
4. Describe one way that high rates of unemployment can reduce material living standards. In your answer refer to the effects on inequality and/or poverty
5. Describe one way that high rates of unemployment can reduce non-material living standards or the 'quality of life' enjoyed by Australians.
6. Outline the consequences associated with a rate of unemployment that is considered to be too low (e.g. below NAIRU).

5.8 Low and stable inflation (price stability)

Prices of goods and services will be changing on a regular basis in a modern market capitalist economy like Australia's. Some prices fall over certain time periods for a number of reasons, such as the improvement in technology that has seen the price of motor vehicles, computers, telecommunications equipment and electronics all fall over the past 10 - 20 years. Conversely, other prices increase over time for a variety of reasons that will be explored soon. **Inflation** occurs when the price rises outweigh the price falls to deliver an increase in 'average prices', or a sustained increase in the general or average price level over time.

'Inflation refers to a sustained increase in the general or average price level over time'

The Reserve Bank of Australia (RBA) is the government body with the primary responsibility for achieving 'stability of the Australian currency'. This means that the RBA tries to ensure that Australia has a stable value of the dollar in terms of its purchasing power over goods and services. This is commonly referred to as the RBA's goal to achieve a **low and stable rate of inflation**, also referred to as **price stability**. The RBA's specific inflation target is to contain the increase in '**consumer price inflation**' to 2-3% on average over time, where consumer price inflation represents the rate of inflation as it applies to Australian consumers. It therefore excludes 'producer price inflation' (inflation as it relates to business costs) and it is commonly measured by the **Consumer Price Index (CPI)**.

Why does the RBA target 2-3% growth in consumer price inflation?

The Australian Government is keen to avoid the economic costs associated with a high inflation rate, as these costs are ultimately borne by all Australians as consumers of goods and services (see consequences of high inflation in Section 5.11). It targets a range for inflation (2-3% on average over time) instead of a specific rate of inflation (e.g. 2% as is the case in the USA and the European Union) because it provides the RBA with the flexibility to shift its focus away from inflation (and allow it to climb towards 3%) in an effort to achieve higher economic and employment growth. This flexibility is required for **monetary policy** to properly operate within its charter and act as a key stabilisation policy of government. A range for inflation of 2-3% also provides a more realistic target that allows for national variations in the rate of inflation over time.

Why not target an inflation rate of zero?

There are three main factors preventing the RBA targeting an inflation rate of zero.

1. Small amounts of inflation actually allow for reductions in the '**real**' prices of some goods and services (particularly labour services) without a reduction the '**nominal**' price (e.g. the nominal wage). For example, during a recession it may be necessary for some wages to decrease as demand for labour falls. However, wages are generally 'downwardly rigid' in nominal terms, thereby causing some unemployment. This means that if the economy is experiencing some inflation, the real wage can reduce without a reduction in the nominal wage.
2. Some inflation is really accounted for by rising quality of goods and services, which may not be fully captured in CPI figures. (Hence, CPI is said to overstate the extent of inflation.) For example, inflation of 4% for a year is less of a problem if the average quality of goods and services increased by 4% over the period and the ABS was not able to accurately account for these quality improvements in its calculations.
3. It may create other economic problems like growth rates that are too low, increases in unemployment and/or even **deflation**.

Study tip

While stability of the Australian exchange rate is a goal of policy more generally, reference to 'currency' in the current context means 'prices'. It does not mean that the RBA's primary aim is to ensure that the exchange rate is stable.

Deflation versus disinflation

Deflation is the opposite of inflation. It refers to a sustained decrease in the general or average price level, which means that prices on average are falling. It occurs relatively infrequently in Australia, with 2020 being the most recent exception, with prices falling by 1.9% in the June quarter and by 0.3% for the year ended 30 June 2020. Deflation is distinct from **disinflation**, which refers to a fall in the rate of inflation. For example, between March 2023 and March 2024, the annual rate of inflation fell from 7.0% to 3.6%. This means that prices on average still rose over the year ended March 2024 (i.e. inflation still occurred), but they did not rise as rapidly as they did during the year ended March 2023.

While both disinflation and deflation can be beneficial for economies, helping to improve purchasing power of consumers and increased competitiveness, a prolonged period of deflation can be damaging to an economy and employment because some consumers will delay their purchasing decisions in the expectation that goods and services will cost less

in future. For example, a consumer might be thinking about taking a holiday within Australia but might delay the trip because they anticipate that it will cost less to travel in a year or two's time. This reduces consumption and production and has negative implications for employment, incomes and living standards. In addition, deflation is likely to encourage firms to delay investment decisions until signs of higher prices (or a stronger economy) begin to re-emerge.

Review questions 5.8

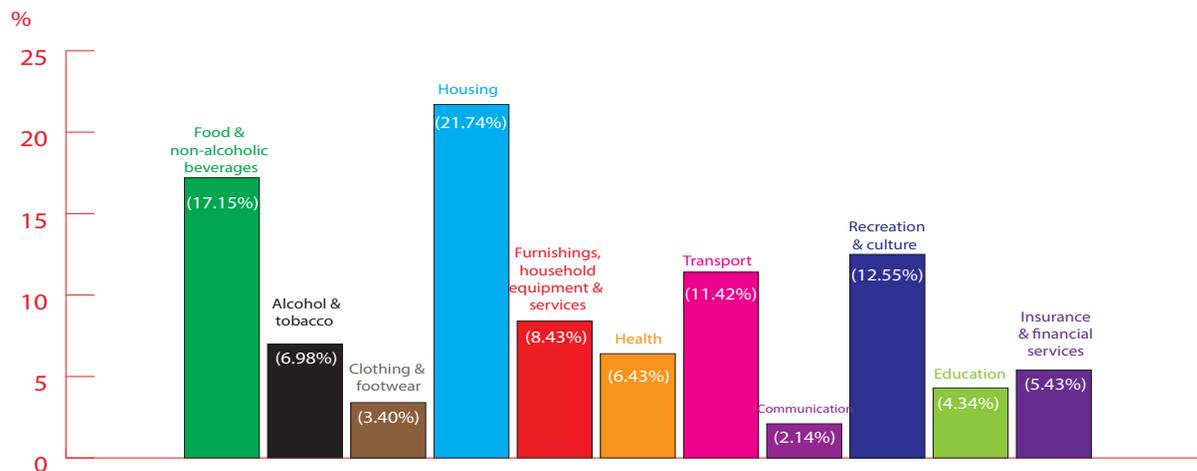
1. Define the term inflation.
2. Define the RBA's inflation goal.
3. Explain why the RBA does not have a rigid inflation target (such as 2% per year).
4. Outline the problems associated with having an inflation target of zero percent.
5. Discuss why deflation is an undesirable outcome for an economy.
6. Explain the difference between deflation and disinflation.
7. Explain how deflation can be both good and bad for an economy.

5.9 Measurement of inflation - the Consumer Price Index (CPI)

The Federal Government requires a reliable indicator for inflation, given that many economic policy decisions are influenced by inflation outcomes. The **Consumer Price Index (CPI)** is the best and most reliable indicator of consumer price inflation. It is calculated by the Australian Bureau of Statistics on a quarterly basis to determine the change in the prices of goods and services purchased by the average Australian household. It does this by collecting approximately 100,000 prices of more than 1,000 goods and services that are purchased by private households in the eight Australian capital cities, where these make up approximately two-thirds of the Australian population. This is called the **'basket'** (and is sometimes called the **'regimen'**). Each of these goods and services is then categorised into eleven larger groups before being further categorised into sub-groups. **Weightings** are then attached to each group (and sub-group) to reflect their relative importance to the typical Australian household. This is done to ensure that any price change more accurately reflects the impact of price changes on the average household.

Chart 5.8 reveals that of the total amount of money spent on goods and services by the typical Australian household, the largest proportion (21.7%) was spent on housing while a much smaller proportion was spent on education (4.3%). This relatively high weight for housing means that a 10% increase in housing costs (such as rent and other occupancy costs) will have a much larger impact on the overall CPI (and therefore the average price level) than a 10% increase in the price of education (such as school fees and the cost textbooks).

Chart 5.8
CPI Weightings (Feb 2024)



In the past, the ABS would update the weighting patterns every six years. However, since 2018 it has re-weighted the expenditure categories on an annual basis to ensure that it can more accurately capture the impact of price changes on the average Australian household. For example, the most recent analysis of consumer spending patterns in early 2024 revealed that the weighting for the alcohol and tobacco category fell from 7.87% in 2023 to 6.98% in 2024, reflecting that expenditure on tobacco, in particular, has fallen over the period due to declining rates of cigarette smoking. In contrast, the weighting for Recreation and Culture increased from 10.84% to 12.55%, reflecting that an increasing number of Australians are holidaying overseas (post the lockdown restrictions over 2020-21) and the fact that international airfare prices remain relatively high.

Why use index numbers to calculate inflation?

Index numbers are used by statisticians to provide a meaningful way to record movements in the price or value of items that are quite diverse in nature. Without the use of an index, it would be too difficult for the ABS to calculate an average price of goods and services when we have such a wide range of goods and services, such as fridges, cars, cigarettes, petrol, light globes, milk, etc.

Once all prices are gathered and categorised they are ultimately converted into one index number for each quarter which represents the 'average price' of goods and services compared to a particular 'base period' (this is set at 100.0). An index number on its own is

meaningless. It needs to be compared to the base year index number or the index number from a previous period to provide the rate of growth in the CPI (or inflation). For example, Table 5.2 includes the CPI figures for the most recent five quarters and it reveals that the CPI for the June quarter 2024 was 138.8 compared to a base year figure of 100. The number 138.8 means nothing in isolation. However, when compared to the base year (which is 2011-12) it highlights that average prices have increased by 38.8% since then.

Jun-2023	133.7
Sep-2023	135.3
Dec-2023	136.1
Mar-2024	137.4
Jun-2024	138.8

It is standard practice to calculate and report inflation rates for the most recent quarter or year, which requires a comparison of the index number in the latest period to the index number in the previous period (a quarter or a year). This is achieved by using the following formula, which calculates the rate of inflation between June 2023 (when the CPI was 133.7) and June 2024 (when the CPI was 138.8) as 3.8% for the year to end June 2024.

$$\begin{aligned}
 \text{Annual inflation rate (June 2024)} &= \frac{138.8 - 133.7}{133.7} \times 100 \\
 &= \frac{5.1}{133.7} \times 100 \\
 &= 3.8\%
 \end{aligned}$$

The **quarterly rate of inflation** is calculated by using the index numbers for two particular quarters and determining the rate of growth between these quarters. For example, using the CPI numbers in Table 5.2 reveals that the rate of inflation in the June quarter 2024 is 1.0%. This is derived in the following way:

$$\begin{aligned}
 \text{Quarterly inflation rate (June 2024)} &= \frac{138.8 - 137.4}{137.4} \times 100 \\
 &= \frac{1.4}{137.4} \times 100 \\
 &= 1.0\%
 \end{aligned}$$

The **annualised rate of inflation** for the June quarter 2024 is easily determined by multiplying the quarterly figure by four. For the June quarter of 2024, the annualised rate of inflation was therefore 4.0% and was derived in the following way:

$$\begin{aligned}
 \text{Annualised inflation rate} &= \text{Quarterly inflation rate} \times 4 \\
 &= 1.0\% \times 4 \\
 &= 4.0\%
 \end{aligned}$$

This clearly indicates that inflationary pressures remained relatively high in the June quarter of 2024 given that an annualised rate of inflation of 4.0% (as well as the annual rate of inflation of 3.8%) was above the top end of the RBA's target range of 2-3%. In this environment, the RBA was keen to maintain its restrictive monetary policy stance by keeping the cash rate at 4.35% (see Chapter 9). This is despite the fact that the bulk of inflationary pressures stemmed from 'supply shocks', such as the war in Ukraine and its effects on energy prices, as well as negative rates of productivity growth, labour market constraints (e.g. skills shortages) and the COVID-19 induced supply constraints that, in part, contributed to the **positive output gap** (referred to in Chapter 5 and again in Chapter 9) that has been the driving force behind inflationary pressures over 2023-24. In short, this has meant that growth in aggregate supply has failed to keep pace with growth in AD, resulting in higher prices and inflation. To the extent that these price rises are more temporary in nature (e.g. due to one off 'supply shocks'), it leads into a discussion of headline versus underlying rates of inflation.

Variations of the CPI – headline and underlying rates

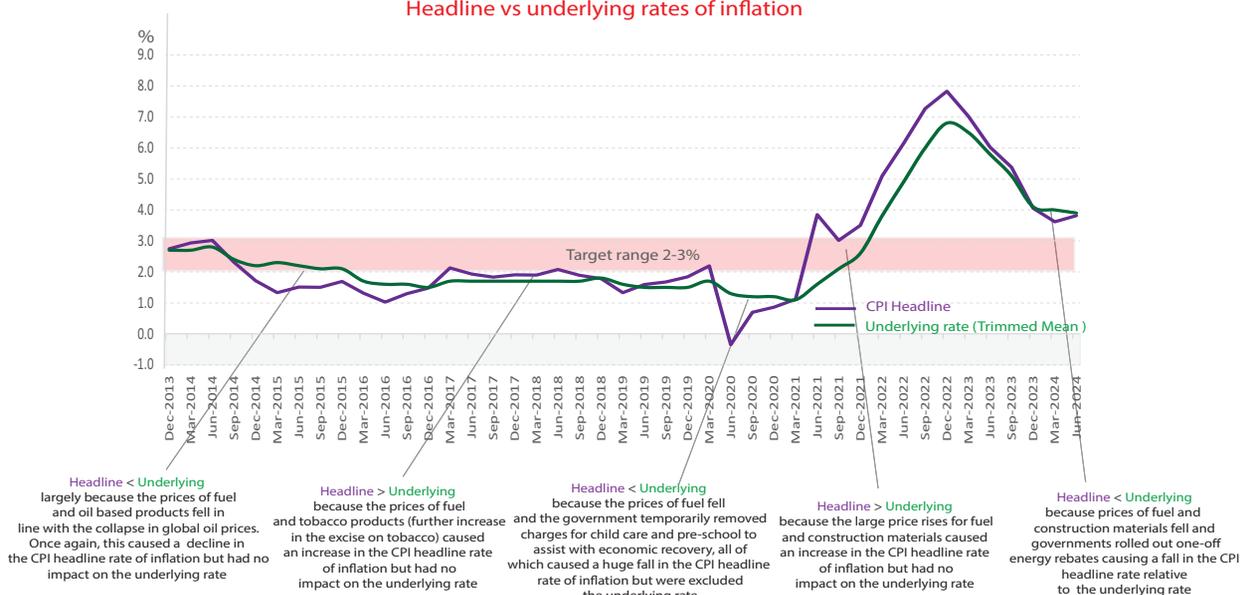
The inflation rates calculated above are referred to as the headline rate of inflation. This means that they capture the price movements of all goods and services contained in the CPI. Accordingly, the 3.8% inflation rate for the year to end June 2024 refers to the **‘headline rate of inflation’**, or simply **‘headline inflation’**. Governments will also seek to gain a picture of the underlying inflationary pressures that exist in the economy in order to assist in policy formulation (see Chapter 9). The ABS and RBA produce a set of inflation statistics that are derived from the original CPI, but exclude various prices in order to arrive at an **‘underlying rate of inflation’**. This is sometimes referred to as the **‘core rate of inflation’** and represents an attempt to remove the impact of irregular or temporary price changes that otherwise would provide a misleading indication of both inflationary pressures and the medium-term trajectory of inflation.

The two main underlying or core measures of inflation are the **trimmed mean** and **weighted median** series. The trimmed mean is the most commonly used underlying measure and starts with the headline CPI before removing (or trimming away) the 15% of items whose prices increased the most and the 15% of items whose prices increased the least (or even decreased). The trimmed mean therefore includes the average price changes of the middle 70% of the goods and services whose prices changed over the relevant period and therefore ignores unrepresentative price changes (such as a very large reduction in fuel prices during one quarter as a consequence of a price war amongst oil producing nations). The weighted median involves using the price change that sits in the middle of the range (referred to as the 50th percentile), such that large price increases or decreases do not influence this measure of inflation. The RBA and ABS also calculate an inflation figure based on the normal CPI but excluding the **‘volatile items’** of fruit and vegetables and fuel. This underlying measure is referred to as the **‘CPI all groups excluding volatile items’** and will be below the CPI headline rate when the prices of these volatile items are rising and will be higher than the headline rate when these volatile prices are falling. For the year ending 30 June 2024, the inflation rates for each measure were as follows:

CPI Headline	3.8
RBA underlying (trimmed mean)	3.9
RBA underlying (weighted median)	4.1
CPI all groups excluding volatile items	3.7

The difference between the annual headline rate and the RBA underlying rates over the year to end June 2022 was due largely to the supply shocks referred to earlier stemming from the war in Ukraine and COVID-19 supply chain disruptions. These shocks resulted in one off increases in the price of fuel, which caused prices within the transport category to rise by 13.1% (despite the temporary fall in fuel prices during April as a result of the halving of fuel excise). In addition, one off increases in the price of construction materials inflated the cost to build houses and caused the prices within the housing category to rise by 9%. These large price rises were excluded from the underlying measures and therefore only impacted on the headline rate. However, they were reversed over 2023-24 as both fuel prices and construction prices return to more normal levels. This has resulted in a convergence of both the headline and underlying rates since late 2022, while the headline rate fell more quickly over 2023-24. The most recent fall in the headline rate below the underlying rate is also partly a result of the introduction of one-off Energy Bill Relief Fund rebates that were rolled out from the middle of 2023. The major divergences between the headline and underlying (trimmed mean) rates of inflation since 2014 are summarised in Chart 5.9.

Chart 5.9
Headline vs underlying rates of inflation



Other measures of inflation

While the CPI is the most common measure of inflation, other price indexes are also calculated by the ABS. The most notable of these are the **Producer Price Index**, the **Wage Price Index**, the **terms of trade index** (made up of the export price index divided by the import price index), the **House Price Index** and the **Pensioner and Beneficiary Living Cost Index (PBLCI)**. These provide additional information about price pressures in the economy and can assist governments in their deliberations on economic policy. For example, the PBLCI measures price increases specifically affecting pensioners and enables the government to more appropriately index pensions over time to ensure that their purchasing power is not eroded.

Review questions 5.9

1. Provide a general outline of how the CPI is used to provide a measure of inflation.
2. Distinguish an **annualised** inflation rate from an **annual** inflation rate.
3. Distinguish an **annualised** inflation rate from a quarterly inflation rate.
4. Distinguish between the headline and the underlying inflation rates.
5. Distinguish the RBA's trimmed mean from the weighted median as measures of underlying inflation.
6. Discuss how a large increase in the price of fruit and vegetables is likely to impact on both the headline and underlying rates of inflation.
7. Using Chart 5.9, provide an example of when the headline rate of inflation exceeded the underlying rate of inflation and provide a reason for the difference.
8. Using Chart 5.9, provide an example of when the underlying rate of inflation exceeded the headline rate of inflation and provide a reason for the difference.

Activity 5i: Inflation, deflation or disinflation?

For each of the following scenarios, determine which of the following has occurred: inflation (A), disinflation (B), deflation (C) or neither A, B or C (D). Place a tick in the most relevant box. Note that in some cases, more than one box can be ticked.



Scenario	(A) Inflation	(B) Disinflation	(C) Deflation	(D) Neither A, B or C
Most prices increase for two days before returning to their previous level				
Prices on average increased by 3% in the past year compared to only 1% the year before				
The prices of houses, cars, electrical goods, airfares, food, clothing, education increase by 3% on average				
Average prices fall by 2% over the course of the year				
Average prices rise and then fall by the same amount over the course of the year				
Apple Inc. announce that the price of the new iPhone 14 will be higher than the old version				
The price of labour (e.g. wages) increases by 1% over the course of the current year				
School fees have fallen by 1% at a prestigious Melbourne private school				
Prices of a few goods fell, but most prices rose				
The price of a box of Kellogg's Cornflakes increases by 2%				

Activity 5j: CPI result for June quarter 2024

The table below summarises the CPI results for the June quarter 2024. It highlights the variability in price changes across the 11 expenditure categories, with the largest annual increase in prices being recorded by the alcohol and tobacco category and price falls for categories such as communication and furnishings/household equipment/services. Using this information, and the table/pictures below, answer the questions that follow.



June quarter 2024 inflation results (www.abs.gov.au Cat 6401.0)		
	Mar Qtr 2024 to Jun Qtr 2024	Jun Qtr 2023 to June Qtr 2024
Weighted average of eight capital cities	% change	% change
Food and non-alcoholic beverages	1.2	3.3
Alcohol and tobacco	1.5	6.8
Clothing and footwear	3.1	2.9
Housing	1.1	5.2
Furnishings, household equipment +services	0.8	-1.1
Health	1.5	5.7
Transport	0.9	4.6
Communication	-0.8	1.4
Recreation and culture	0.5	0.9
Education	0.2	5.6
Insurance and financial services	1.2	6.4
All groups CPI (Headline inflation)	1.0	3.8
Underlying rate – trimmed mean	0.8	3.9
Underlying rate – weighted median	0.8	4.1

Questions/tasks

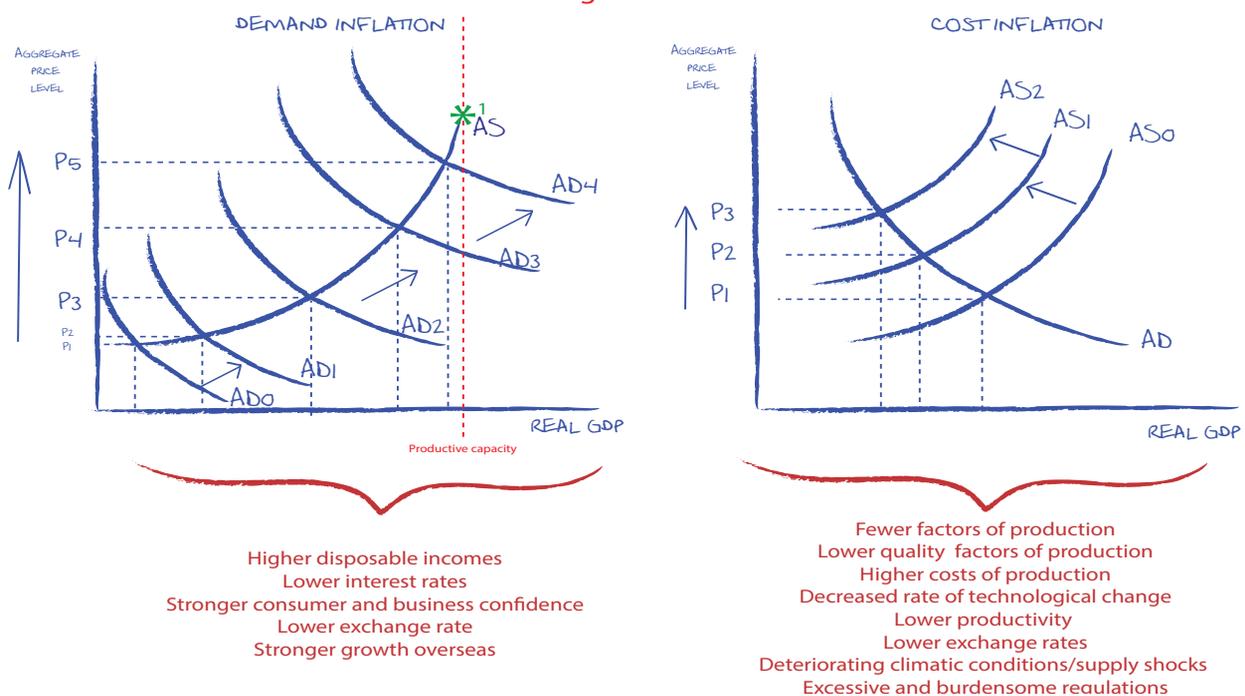
- Identify and describe the major contributors to inflation over the year ending June quarter 2024.
- Explain why the inflation rate over the year was 3.8% when the prices for furnishings, household equipment and services fell by 1.1%.
- Explain whether the 5.2% annual increase in the housing category will have a larger impact on the overall CPI than the 6.4% increase in the insurance and financial services category.
- Governments provided energy bill relief (via producer subsidies) over 2023-24. Examine how this is likely to have influenced the figures presented in the table above.
- Explain whether you believe an inflation rate of 3.8% is consistent with the government's price stability goal.
- Explain how an increase in rental prices (by more than 7% over the year) influenced headline inflation. Refer to the CPI category that is influenced by this price increase.
- Explain how the prices within the education category barely changed over the June quarter 2024, yet they experienced a 5.6% rise for the year to end June quarter 2024.
- Calculate the annualised rate of inflation based on June quarter 2024 numbers and compare it to the annual rate of inflation for the year to end June 2024. Account for the difference between the two numbers.
- Outline whether the June 2024 quarterly rate of inflation provides an accurate account of the change in the cost of living for every Australian household over the June quarter 2024.
- Based on the CPI figures, explain why some households will be better off than others over the year to end June 2024.

5.10 Causes of inflation

Economists like to separate the forces impacting on inflation into aggregate demand and supply side factors. Those factors causing inflation to rise because of an increase in AD (such as an increase in consumer confidence) are referred to as *aggregate demand side factors affecting inflation*. This type of inflation is also commonly referred to as **demand inflation**. In contrast, those factors causing inflation to increase via pressure on Aggregate Supply (such as factors causing the costs of production to increase) are referred to as *supply side factors affecting inflation*. This type of inflation is often referred to as **cost inflation**.

Demand factors affecting inflation include any factor that can exert pressure on aggregate demand in the economy. Many of these factors were explored in Chapter 4. Any factor that causes AD to increase will tend to contribute to an increase in the average price level (inflation), particularly when the economy is close to (or at) its productive capacity. This occurs because businesses begin to struggle to keep pace with the growth in demand for goods and services and start to raise prices as a means of rationing demand and maximising profits. This can be seen in the diagram on the left in Figure 5.1, where growth in AD moves from a point (AD0) where there is ample spare capacity in the economy. As AD increases from AD0 to AD1, the excess capacity helps to prevent prices from rising much. Price will rise from P1 to P2, but it is relatively benign and inflation is likely to be sitting comfortably within the RBA's target range of 2-3%. As AD increases from AD1 to AD2, it exerts more pressure on inflation (P2 to P3), but the rise in inflation is not excessive because the economy has ample spare capacity (i.e. the economy is not producing close to its productive capacity - represented by the dashed red vertical line). However, once AD increases from AD2 to AD3, it starts to have a more significant effect on inflation (P3 to P4) because the economy is closer to its productive capacity and bottlenecks begin to present themselves in the economy because producers find it increasingly difficult to keep pace with demand for goods and services. As AD continues to rise to the point where it reaches the productive capacity of the economy at *1 then inflation will continue to accelerate unless the economy can expand productive capacity (by shifting the AS curve to the right).

Figure 5.1

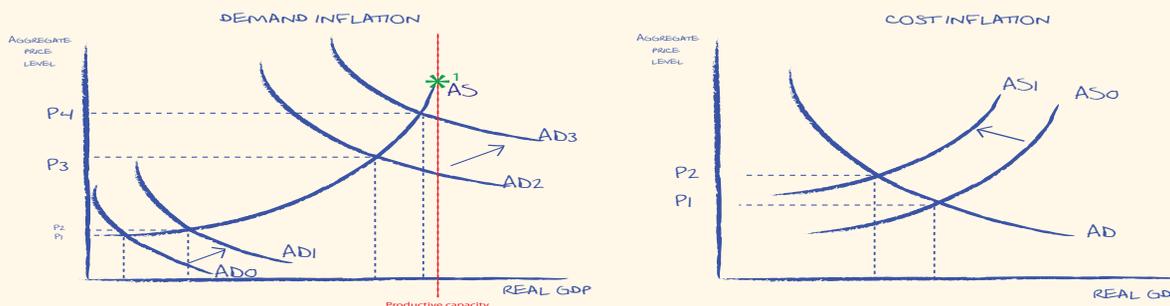


With respect to supply factors affecting inflation, they include any factor that can exert pressure on aggregate prices in the economy via changes in the costs of production or restrictions to aggregate supply levels. Alternatively, it represents inflation that has been caused by 'supply side' pressures in the economy. This is also demonstrated in Figure 5.1 in the diagram on the right, where less favourable AS conditions (such as the effects global supply constraints and the rising cost of fuel experienced over recent years) will move the AS curve from AS0 to AS1. As production costs across the economy rise, this increases the price level from P1 to P2. Further negative supply side pressures on the economy will shift the AS curve from AS1 to AS2 causing further increases in inflation.

Figure 5.1 also highlights some of the AD and AS factors that can contribute to demand and cost inflationary pressures in the economy. In Chapter 6 we will focus on how the various AD and AS factors have influenced the rate of inflation (and the other two domestic macroeconomic goals) over the past couple of years.

Activity 5k: Cost vs demand inflation

Refer to the diagram below and answer the questions that follow:



Questions

1. Referring to the diagram, distinguish demand inflation from cost inflation.
2. Explain why inflation is likely to be more problematic when AD increases from AD2 to AD3 when compared to AD increasing from AD0 to AD1. In your answer, refer to productive capacity.
3. In the event that AD in the economy increases beyond AD3, outline the impact on both inflation and real GDP and describe a solution to returning inflation to lower levels.
4. Describe two factors that may have recently caused demand inflationary pressures to decrease in Australia.
5. With respect to your answer to the previous question, explain whether the final impact on inflation was significant or insignificant.
6. Describe two factors that have recently caused cost inflationary pressures to decrease in Australia.
7. Explain how a lower exchange rate is likely to impact on inflation. Draw an AD/AS diagram to illustrate.

Activity 5l: A monthly Consumer Price Index (CPI)

The Australian Bureau of Statistics (ABS) now publishes a monthly Consumer Price Index (CPI) indicator to supplement the quarterly CPI. It is designed to provide inflation data at a higher frequency, which is achieved by collecting fewer prices in its surveys. While it results in a less accurate or meaningful indicator of changes in the rate of inflation, it does help policy makers, such as the RBA, to make more timely decisions. It can, for example, provide an earlier guide to inflation developments, particularly in times of significant change. This will, for example, enable the government and/or RBA to more quickly restrain the economy when inflation appears to be rampant or do the reverse when inflation falls to levels that are too low. Despite this, the quarterly CPI remains the principal measure of inflation in Australia and is the inflation measure that is focused on more closely by policy makers.



The monthly CPI indicator rose 2.7 per cent in the 12 months to August 2024, according to the latest data from the ABS. Michelle Marquardt, ABS head of prices statistics, said: "Annual inflation was 2.7 per cent in August, down from 3.5 per cent in July, and is the lowest reading since August 2021." ...The top contributors to the annual movement were Housing (+2.6 per cent), Food and non-alcoholic beverages (+3.4 per cent), and Alcohol and tobacco (+6.6 per cent). Partly offsetting the annual increase was Transport (-1.1 per cent). Falls in Automotive fuel and Electricity were significant moderators of annual inflation in August. Automotive fuel was 7.6 per cent lower than August 2023 after price falls in recent months. For Electricity, the combined impact of Commonwealth Energy Bill Relief Fund rebates and State Government rebates in Queensland, Western Australia and Tasmania, drove the largest annual fall in electricity prices on record of 17.9 per cent.

"The falls in electricity and fuel had a significant impact on the annual CPI measure this month. When prices for some items move by large amounts, measures of underlying inflation like the CPI excluding Automotive fuel, Fruit and vegetables and Holiday travel, and the Trimmed mean can provide additional insights into how inflation is trending," Ms Marquardt said.

CPI inflation excluding volatile items and holiday travel was 3.0 per cent in August, down from 3.7 per cent in July. Annual Trimmed mean inflation, which excluded both the falls in Automotive fuel and Electricity, alongside other large price rises and falls, was 3.4 per cent in August, down from 3.8 per cent in July. "Both measures of annual underlying inflation in August are the lowest they have been for 2.5 years," Ms Marquardt said.

<https://www.abs.gov.au/media-centre/media-releases/monthly-cpi-indicator-rose-27-year-august-2024> (edited)

Questions

1. Distinguish the monthly CPI measure of inflation from the quarterly measure.
2. Describe one cost and one benefit associated with the use of the inflation figures published in monthly CPI release compared to the quarterly CPI release.
3. Identify the major contributors to the 2.7% annual inflation rate in the 12 months to August 2024.
4. Identify the major reason for the fall in prices related to fuel and energy for the year to August 2024.
5. Explain the price changes for fuel and energy influenced the headline and underlying measures of inflation for the year to August 2024.

5.11 Consequences of high inflation

All countries seek to control inflation rates because it is recognised that high inflation has real negative consequences for their economies, including a reduction in the rates of economic growth, less than full employment, declining incomes and a deterioration in material living standards. In late 2022, the former RBA Governor, Philip Lowe, described the problems associated with high inflation in the following way:

A powerful lesson from history is that low and stable inflation is a prerequisite for a strong economy and a sustained period of full employment. High inflation damages our economy, worsens inequality and devalues people's savings. High inflation also makes it very difficult to sustain, or increase, real wages. It is a scourge. It is for these reasons that the RBA is committed to returning inflation to the 2 to 3 per cent target range over time.

Source: Opening Statement to the House of Representatives Standing Committee on Economics 16 September 2022

This was followed up in late 2024 by the current RBA Governor, Michele Bullock, who sought to clarify why it is so important that the RBA persevere with its restrictive monetary policy stance in order to reduce inflationary pressure, despite the risks of further reducing economic growth. She noted that:

'High and variable inflation is harmful because it raises uncertainty and makes it harder to plan for the future. It can distort economic activity, affecting decisions about investment and employment and ultimately hurting productivity and household incomes. ...high inflation hurts everyone, and especially the most vulnerable. It reduces what people can buy with their wages, erodes the value of savings, and it disproportionately hurts those on low or fixed incomes. Moreover, high inflation eventually requires disinflation, which can have long-lasting costs for households through higher unemployment.'

Source: Keynote Address to the Anika Foundation Fundraising Lunch 5 September 2024

The erosion of purchasing power

The erosion of purchasing power, or the decline in the **real value of money**, is the underlying reason why inflation has negative consequences for the economy and living standards more generally.

Inflation means that consumers of goods and services will be paying more for these products over time, which erodes the **purchasing power** of any given level of income or cash. In simple terms, this means that if inflation was 10% over the past year, then any given amount of cash or money today will only be able to purchase 10% fewer goods and services (in value terms) compared to one year earlier. This particularly harms those whose income fails to increase by the same rate, or at the same pace, as inflation. Those 'lower skilled' employees with little economic strength and no union protection are more likely to experience a reduction in their **'real wage'**. This means the purchasing power of their wage falls over time and their material standard of living declines. Similarly, those low income earners on relatively **fixed incomes**, such as those on some welfare payments, will find it relatively more difficult to pay for their weekly bundle of goods and services, again resulting in a reduction in their standard of living.



Even if income earners do manage to achieve an increase in their wage to compensate for the effects of inflation, many will still lose out due to the effects of **bracket creep** (also called **fiscal drag**). This means that, as individual income earners receive pay rises, they will eventually move into higher income tax brackets, where a higher marginal rate of taxation applies to their income. This can have the effect of reducing their **real disposable income** (real income after tax), and making them worse off. For example, assume that Jennifer earns \$135,000 per year in 2024-25. She will be paying a marginal rate of tax of 30.0%. However, if inflation is 10% and Jennifer is compensated by her employer with a \$13,500 pay rise (which keeps her real wage intact), this \$148,500 income (\$135,000 + \$13,500) pushes her into the next tax bracket. Any additional income above \$130,000 is taxed at a rate of 37%, because in Australia the marginal rate of tax rises as income rises. This means that Jennifer pays 37% tax on every additional dollar earned as a result of her pay rise. So, instead of her real income being preserved, Jennifer's real disposable income, after she has paid tax will actually fall. Her loss is, however, the federal government's gain, as Income Tax revenue increases. [This is one of the factors that helps to reduce the size of the budget deficit over time and is referred to as bracket creep - covered in Chapter 8.] Of course, Jennifer might gain indirectly via changes to the government's spending/taxing decisions, if the tax receipts are used to fund programmes that benefit her in some way.

Distorting the allocation of resources

Loss of efficiency

High inflation will tend to result in a **less efficient allocation of resources**. This is because economic agents will continually search for ways to protect against any loss of current or future purchasing power. Investors will be seeking to ensure that there is minimal loss associated with any funds invested in markets. Accordingly, investment can be diverted away from productive areas that create wealth and jobs (such as investment in business capital) and towards those investment opportunities that offer the best protection against inflation, such as gold, artwork and collectibles, whose returns typically increase in line with (or more than) the rate of inflation. In particular, inflation will tend to advantage those who have sufficient wealth or resources to find ways of 'beating inflation.'

High inflation will also undermine the effectiveness of the price or market mechanism as a means of allocating resources. This occurs because economic agents will be less certain about the real causes of price increases. Consumers will be uncertain whether price rises have occurred due to a rise in the quality of particular products, and producers will be less confident about the ability of price rises to provide an accurate signal about the profitability of particular products. For example, a wheat farmer who witnesses a price rise for alternative crops will be uncertain whether this could be indicative of greater profits to be made by re-allocating resources to these crops, or more an indication of an increase in prices 'across the board' (i.e. inflation). Inflation will also result in a waste of resources in terms of the resources used to continually communicate the new prices to consumers. While this may not seem like a significant issue, for some companies this requires the dedication of a lot of staff time and energy.

Savings and Investment

High inflation will also tend to result in consumers devoting more of their spending to current as opposed to future consumption. In other words, the erosion of purchasing power will cause some consumers to spend more now to minimise any losses associated with holding money, the value of which is falling. Consequently, this means that they are likely to save less of any given level of income. This has negative implications for future living standards because there is likely to be a smaller pool of savings available for investment. With lower investment, the rate of economic growth will be slower and material living standards are likely to fall in the future.

The above distortion is amplified by the effect that high inflation has on lending and borrowing decisions (or savings and investment). When inflation is high, economic agents will find it more attractive to borrow money or less attractive to save money. This is because any borrowing that does take place, particularly at fixed rates of interest, will see the borrowers paying back less in real terms. To illustrate, assume that someone borrows \$10,000 at an interest rate of 10%. In simplified terms, this should see the lender (who is effectively the 'saver') receive \$1000 in interest earnings. However, if inflation is 5%, the value of these interest earnings to the lender/saver is halved and the cost to the borrower is also halved, therefore discouraging lending (or saving) and encouraging borrowing. [In the real world, this distortion is less dramatic given that interest rates are set to counter the effects of inflation such that higher inflation will be met with higher interest rates, leaving the **'real interest rate'** intact.]

Even when **nominal interest rates** do increase in line with inflation, the structure of the tax system ensures that there is still encouragement for businesses to borrow. This occurs because higher nominal interest rates will inflate business costs by more than the real cost of borrowing, causing tax deductions to be higher and tax expense to be lower. Investors will also see an opportunity to borrow money at relatively more attractive rates and then invest this money in financial assets (such as shares or property), pushing up the price of these assets more generally and therefore protecting the real value of their wealth. In this respect, inflation encourages the wrong type of investment. Instead of businesses (or economic agents more generally) undertaking investment in the type of (physical) assets/capital that drives economic growth, such as investment in new plant or technology, inflation encourages more **speculative investment** in financial assets.

Study tip

'Investment' in economics will typically refer to business or government expenditure on things like buildings, equipment, machinery or infrastructure more generally, which is a component of AD. However, investment can also refer to the purchase of financial assets, such as shares, bonds, superannuation or bank deposits. This means that a decision to lend money to another party is also considered an 'investment' by the lender. The 'investment' that is more important for economic activity, and the one in which economists are most interested, is that which is a component of AD.

Study tip

The difference between real and nominal interest rates is simply the rate of inflation. If the average interest rate in financial markets was 6%, this is referred to as the nominal interest rate. If inflation was 2%, then the real interest rate is 4%!

Inflation and interest rates more generally

When inflation increases, it will also tend to increase interest rates for two main reasons. First, financial institutions will increase rates in order to ensure that the real rate of interest is maintained. For example, if interest rates are 10% on average and inflation is 2%, the real rate of interest is 8%. If, however, inflation were to increase from 2% to 5%, then interest rates are likely to rise to an average 13%, as lenders will seek to protect the real rate of return on the loans they make (i.e. the real interest rate). Second, a rise in inflation will make it more likely that the Reserve Bank of Australia (RBA) will tighten monetary policy by raising the cash rate, which tends to raise interest rates more generally.

These higher interest rates will negatively impact on both consumers and businesses. The higher cost of borrowing will combine with a greater cost to repay existing debt to reduce both Consumption and Investment in the economy, which therefore reduces demand for most goods and services and decreases profit growth. Consequently, RBA action and normal market pressures will combine to raise interest rates, restrain growth in AD, reduce economic activity and decrease living standards in the short term.

Loss in international competitiveness

Inflation that is greater than the level being experienced by Australia's trading partners will tend to worsen our international competitiveness. This means that Australia's **tradables sector**, made up of exporting firms and import competing firms, will find it increasingly difficult to maintain their market share in the global economy. Inflation is likely to translate into higher export prices, encouraging foreign buyers to switch to alternative suppliers. Similarly, the higher prices being charged by import competing businesses will tend to increase the demand for the relatively cheaper imports. The combined effect results in lower net export income, lower growth in AD or real GDP, and negative effects on employment growth. Overall, the growth in national income levels will be smaller (or may even fall) and the ability of Australians to improve their material living standards will be impaired. This particularly applies to those individuals or groups exposed to the traded goods sector of the Australian economy (i.e. exporters and businesses competing against imports).



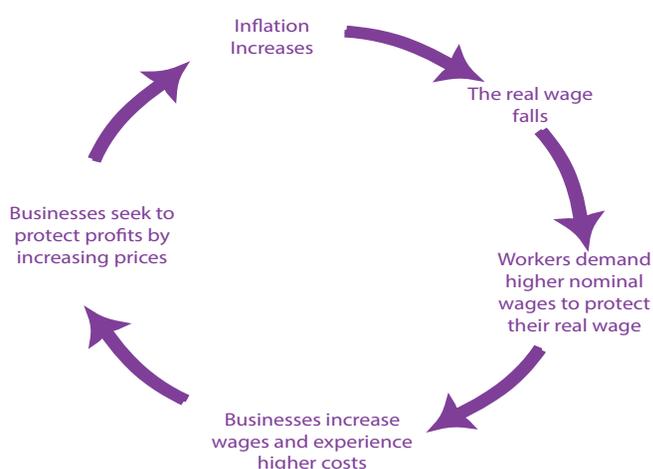
Damaging business confidence

The tendency for investors to divert funds away from productive investment is further heightened by an increase in the level of uncertainty related to future investment decisions. High levels of inflation will tend to damage businesses confidence. This may result in the delay or abandonment of investment in projects that otherwise might have proceeded, leading to a less efficient allocation of resources and impairment of longer term economic growth and living standards.

A wage-price spiral

High inflation tends to increase the likelihood of an economy experiencing the negative effects of a **wage-price spiral**. This occurs when workers are concerned about the erosion of the purchasing power of their wages (or income) and demand higher wage outcomes during inflationary periods. If employers accede to these demands, the costs of labour increase for businesses and these costs are often passed onto the consumer in the form of higher prices. The cycle of higher prices and higher wages is then established and, once set in train, it can be difficult to break a wage-price spiral. This spiral is depicted in Figure 5.2.

Figure 5.2: The wage/price spiral



Study tip

The difference between nominal and real wages is similar to the difference between nominal and real GDP or nominal and real interest rates. To illustrate, if a person receives an annual salary (or wage) of \$100,000 during 2022, then this is referred to as his/her nominal wage/salary. However, if inflation is over 10% then the purchasing power of this \$100,000 is less than the year before. The 'real wage' will be closer to \$90,000, which means that a worker will need a 10% nominal wage increase in 2023 (to \$110,000) in order to purchase the exact same bundle of goods and services as they did in 2022. If this wage increase is granted, then their 'real wage' remains at \$100,000 despite the fact that their 'nominal wage' has increased to \$110,000.

However, this was more of a problem when Australia had a more centralised industrial relations system characterized by greater union power. Under the current system, which centres on an enterprise bargaining approach to wages determination, it is much more difficult to have a coordinated wages break out that attempts to compensate for the effects of inflation.

Inflation and the government's goals more generally

As we have seen, high inflation will have a negative impact on the government's goal to achieve **strong and sustainable economic growth** and, as a consequence, will make it more difficult for the government to reduce unemployment and achieve goal of **full employment** over time.

With high rates of inflation we would expect to see a less **equitable distribution of income**. This follows from having relatively higher rates of unemployment and the negative impact this has on the number of government welfare recipients. In addition, many low income groups (such as low skilled workers without economic power and some on fixed incomes) will experience a relatively bigger erosion of their purchasing power compared to other groups as their incomes are less likely to rise at the same rate or pace as inflation. Further, low income earners are likely to spend a greater proportion of their income on goods and services compared to higher income earners. This means that they have a higher **marginal propensity to consume** or a lower 'marginal propensity to save'. As a consequence, lower income earners will suffer a larger relative decline in the purchasing power of their income, while higher income earners will have a greater opportunity to protect the income not spent (savings) by investing in assets whose prices rise in line with (or faster than) inflation.

High inflation will also make it more difficult for Australia to achieve a more sustainable **current account deficit** and **net foreign debt** (see Chapter 7). The erosion of international competitiveness will decrease the demand for Australia's net exports, reduce the size of any Balance on Goods and Services surplus, increase the current account deficit (CAD) and place additional pressure on **net foreign debt (NFD)**. This will eventually lead to a longer term reduction in the value of the Australian dollar. With respect to the impact on the value of the exchange rate, high inflation can initially cause an appreciation of the exchange rate as high interest rates attract capital inflow. However, over time, the exchange rate is likely to fall because of the erosion of Australia's international competitiveness and net export demand, which results in a decline in the demand for the Australian currency.

Activity 5m: Where's my purchasing power?

Ingrid has worked part-time for a number of years and managed to save \$2,000 by the end of 2024. At the start of 2025 she invested the money in a bank account earning 5% interest. Over the course of 2025, her \$2,000 investment grew in size by \$100 and by the end of 2025 the total amount in her bank account was \$2,100. She was very happy with the outcome. Her close friend, Harry, is an IT specialist who has been in the workforce for three years. He has just been told that his normal annual wage increase of 5% will be reduced to 3% over the course of 2025. This means that his annual wage of \$100,000 will now only increase to \$103,000 when he expected it to increase to \$105,000. Harry is unhappy and is thinking about quitting his job to work elsewhere.



Questions

1. Explain whether Ingrid should be happy with the additional \$100?
2. Explain why your answer in Question 1 might be different if you were advised that the rate of inflation over 2025 was 5%. (Hint: Would Ingrid be able to buy more goods and services with the money in her bank account at the end of 2025 when compared to the start of 2025?)
3. Explain why Ingrid should be unhappy if the inflation rate over 2025 was 10%.
4. Discuss why Harry is unhappy with a reduction in the size of his annual wage increase.
5. Explain why your answer in question 4 might be different if Harry anticipated that the inflation rate over the course of 2025 would have fallen to 3%.
6. Explain why Harry should be happy if the inflation rate over 2025 was less than 3%.

Review questions 5.10 - 5.11

1. Distinguish demand inflation from cost inflation.
2. Describe the relevance of aggregate supply or productive capacity when describing demand inflation.
3. List five separate factors or events that may trigger demand inflation.
4. List five separate factors or events that may trigger cost inflation.
5. Explain how inflation erodes the purchasing power of money or cash.
6. Referring to the role of inflation, explain how bracket creep can make income earners worse off.
7. Provide one example of how inflation may harm lower skilled workers comparatively more than higher skilled workers.
8. Describe how productive investment may be discouraged in a high inflation environment.
9. Explain how high inflation can 'undermine the effectiveness of the price mechanism as a means of allocating resources.'
10. Outline how inflation can affect consumption and savings decisions and highlight the implications that this might have for future living standards.
11. Illustrate how inflation can impact on borrowing and lending decisions in the economy.
12. Describe how high inflation can impact on Australia's international competitiveness, economic growth and unemployment.
13. Explain the nature of a wage-price spiral and outline why these spirals are less likely to occur today compared to in the past.
14. Explain how high inflation is likely to affect economic growth and living standards via its impact on interest rates.
15. Explain why high inflation is likely to increase the rate of unemployment.
16. Explain why high inflation is likely to increase the CAD and NFD.
17. Explain how high inflation is likely to impact on the value of the AUD.
18. Explain why high inflation can lead to a less equitable distribution of income.
19. Using any three of your responses to questions above, outline why inflation tends to have a negative impact on Australian living standards.

Activity 5n: The good, the bad or the....?

For each of the following scenarios, determine whether the impact is likely to be 'good' or 'bad' in terms of the economic impact of the event. In the final column, provide an explanation for your conclusion. You can complete the explanation in your notebook if the table doesn't provide enough space. In some cases, it is possible to select both the Good and Bad boxes. In these cases, the explanation is all the more important – you need to explain why it would be both Good and Bad.

Scenario	Good	Bad	Explanation
Inflation was 5% over the past year and Harry's wage remained at \$50,000 per annum			
Ann Martinos has \$100,000 invested in the bank at a fixed interest rate of 5% per annum for two years. Inflation was 10% per annum over this time			
Australia's inflation rate remains at 3% when inflation rates in all other countries increase above 3%			
A tile importer in Prahran sources all her tiles from India, where the rate of inflation has fallen below Australia's inflation rate			
Australian businesses get caught up in a wage/price spiral			
Bracket creep occurs as a result of inflation			
Consumers gain confidence as inflation is reduced significantly			
Githika lends her friend Tony \$30,000 without charging interest, and the money is repaid one year later. Inflation over this time was 10%			
Zane is an exporter of sheep and Australian inflation rates increase well above the New Zealand inflation rate			
Higher inflation causes the RBA to increase interest rates			

Multiple choice review questions

- 1. Which of the following best describes the government's goal for strong and sustainable growth?**
 - a) A growth rate in real GDP of approximately 3.25%
 - b) The highest rate of economic growth without causing excessive inflation, external and environmental pressures
 - c) The highest growth rate in real GDP that is possible
 - d) The highest growth rate in real GDP without causing excessive inflation

- 2. The total market value of all goods and services sold in Australia over a given period is a definition of:**
 - a) Gross domestic product
 - b) National income
 - c) Consumer price index
 - d) Gross national income

- 3. Which of the following provides the most accurate definition of an annualised rate of economic growth?**
 - a) Multiplying the latest quarterly figure for real GDP growth by four
 - b) Adding the four most recent quarterly figures for real GDP
 - c) Using the real GDP dollar values for the latest quarter and comparing them to the values for the quarter one year earlier
 - d) Adding up four quarterly dollar values for real GDP and comparing these to the figure attained one year earlier

- 4. Australia pursues economic growth for all of the following reasons, except:**
 - a) To promote employment
 - b) To generate incomes
 - c) To help protect the natural environment
 - d) To boost living standards

- 5. In relation to real GDP per capita, which of the following statements is incorrect?**
 - a) It is a measure of material living standards
 - b) It is equivalent to the average amount of income for each Australian
 - c) It will not always increase when real GDP increases
 - d) It is derived by dividing real GDP by the number of employees in Australia

- 6. If the quarterly rate of growth in real GDP is 0.6% this means that the:**
 - a) Annual rate of economic growth is 2.4%
 - b) Annual rate of economic growth is 1.2%
 - c) Annualised rate of economic growth is 2.4%
 - d) Annualised rate of economic growth is 1.2%

- 7. Which of the following is least likely to suggest that living standards in Australia have improved?**
 - a) An increase in GDP per capita
 - b) An increase in the number of people with tertiary qualifications
 - c) Lower oil prices
 - d) Slower rates of economic growth in China

- 8. Which of the following is the least convincing definition of full employment as it applies to Australia?**
 - a) That level of unemployment that exists when the government's economic growth goal is achieved
 - b) Sustainable rate of reduction in unemployment by lifting the pace at which economic growth can be maintained without running into inflationary and external pressures
 - c) When everyone who wants a job can have a job
 - d) The attainment of the lowest unemployment rate possible before inflation begins to accelerate

- 9. Which of the following ranges for unemployment are most likely to represent the NAIRU?**
 - a) 1.75% - 2.75%
 - b) 5.75% - 6.75%
 - c) 5.50% - 6.50%
 - d) 3.50% - 4.50%

- 10. Which of the following types of unemployment is not considered a component of the economy's natural unemployment levels?**
- Cyclical unemployment
 - Seasonal unemployment
 - Structural unemployment
 - Frictional unemployment
- 11. Which of the following best describes structural unemployment?**
- When unemployment occurs due to insufficient levels of structural demand in the economy
 - When unemployment occurs due to insufficient skills held by the unemployed
 - When unemployment occurs due to a change in the structural component of the budget
 - When unemployment occurs due to structural change occurring at workplaces that are foreign subsidiaries of Australian companies
- 12. Which of the following statements is least correct concerning the relationship between the participation rate and the unemployment rate?**
- An increase in the participation rate can reduce the unemployment rate
 - An increase in the participation rate can increase the unemployment rate
 - An increase in the unemployment rate is likely to increase the participation rate
 - An increase in the unemployment rate is likely to decrease the participation rate
- 13. Which of the following statements provides the best description of 'Hidden Unemployment'?**
- When people are working for less than one hour per week
 - When people are forced to work for less than the number of hours they prefer
 - When people exit the labour force and seek voluntary work
 - When people become discouraged and stop looking for work

Employed persons	12,000
Unemployed persons	1,000
Underemployed persons	2,000
Persons not in the labour force but of a working age (over 15)	8,000

- 14. Which of the responses below is the most accurate way of calculating the underutilisation rate from the data contained in Table A above?**
- $(2,000/13,000) \times 100$
 - $(3,000/13,000) \times 100$
 - $(3,000/12,000) \times 100$
 - $(3,000/15,000) \times 100$
- 15. Which of the following is most likely to be a consequence of a high rate of unemployment?**
- Lower labour costs as the labour market loosens
 - Increased incomes enabling individuals to purchase more goods and services
 - Reduced incidence of crime and poverty
 - An increased likelihood of achieving equity in the distribution of income
- 16. The government will accept that small rates of inflation are a feature of a healthy economy. Which of the following is the least adequate explanation for why the government tolerates a small amount of inflation?**
- Some inflation actually represents an increase in the quality of goods and services
 - It allows the real wage to fall over time, helping to ensure that the price mechanism works more effectively in labour markets
 - Targeting low inflation rates will result in lower economic growth and higher unemployment
 - The costs of targeting a very low rate of inflation (such as higher unemployment) may outweigh the benefits
- 17. A reduction in the inflation rate is regarded as desirable because:**
- Imports will be more competitive against domestic industry
 - Business confidence and investment is likely to improve
 - Inflationary expectations are likely to be higher
 - Exporters will be less competitive

- 18. High inflation will tend to do all of the following, except:**
- a) Erode purchasing power
 - b) Cause more spending to be devoted to future consumption
 - c) Reduce international competitiveness
 - d) Encourage greater borrowing in the economy
- 19. Which of the following price increases is unlikely to add directly to inflation as measured by the CPI?**
- a) An increase in the price of tomatoes
 - b) An increase in the price of motor vehicles
 - c) An increase in the price of bank services
 - d) An increase in the price of machinery
- 20. Which of the following factors is not a feature of the wage-price spiral?**
- a) Higher inflation leads to lower nominal wages
 - b) Wage increases feed into higher cost of production
 - c) Higher costs of production lead to higher prices and inflation
 - d) Businesses protect their profits and workers seek to protect real wages

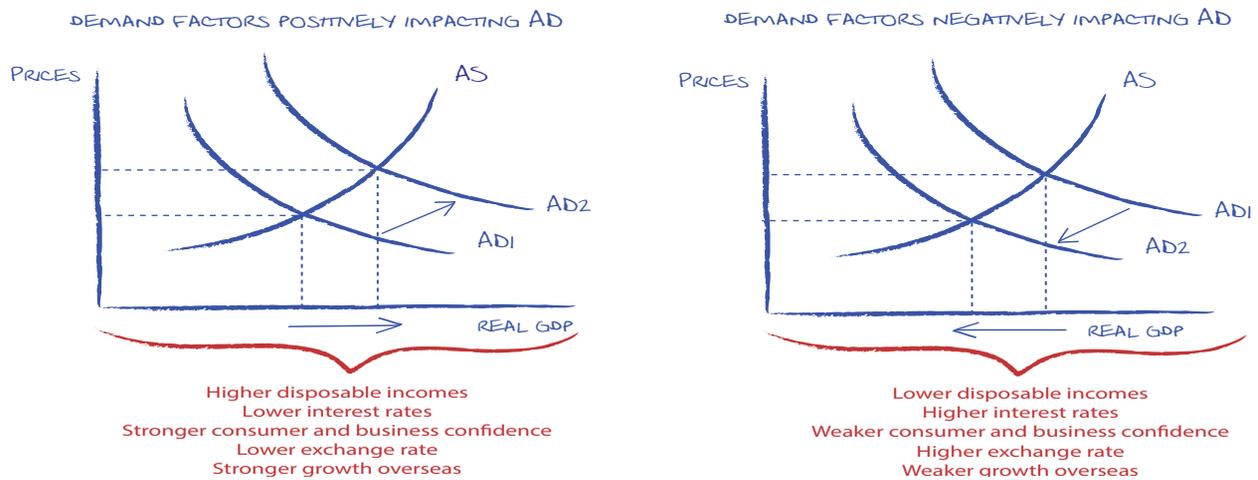
Chapter Summary

1. Economic growth refers to any growth in the amount or level of production over time.
2. The government's goal for strong and sustainable economic growth is to achieve the highest growth rate possible, consistent with strong employment growth, but without running into unacceptable inflationary, external or environmental pressures.
3. In Australia, the gross domestic product (GDP) is used to measure the amount of production taking place in the economy and it is defined as the final market value of all goods and services produced in Australia over a given period.
4. The chain volume measure of GDP is used by the ABS to provide an estimate of 'real GDP' in the economy. In simple terms, it involves using prices from the previous period and applying them to current period volumes. So any increase in the 'value' must have occurred because of rising activity or volumes.
5. The ABS releases statistics for growth in real GDP on a quarterly basis (see ABS Catalogue 5206.0) and the figures can be reported by economists or the media in a number of ways. These include quarterly rates of economic growth, annual rates of economic growth, and annualised rate of economic growth.
6. All governments pursue economic growth as it is the primary means by which nations can maintain and/or improve living standards over time.
7. The government is keen to ensure that the rate of growth in real GDP is sufficient to cater for a continually growing population and to boost overall living standards or welfare of Australians.
8. Economic growth is also pursued because of its positive relationship between employment growth and its ability to reduce rates of unemployment and generate incomes for households.
9. Economic growth is also pursued because it increases the ability of governments to provide essential services, such as infrastructure and welfare.
10. The government pursues a relatively strong rate of economic growth of approximately 3 – 3.5% per annum to ensure that it exceeds productivity growth and caters for an increasing population such that real GDP per capita and living standards increase over time.
11. Material living standards have declined on a number of occasions since 2010 with the most recent 18-month period of negative growth in real GDP representing what many economists describe as a per capita recession.
12. Employment is a key component of economic activity and provides the impetus for growth in the economy and improvements in living standards.
13. To be classified as 'employed' by the ABS, one needs to be over 15 years of age, not in the defence forces, and working more than one hour per week in return for some form of measurable remuneration (such as wages).
14. Full employment is generally regarded as that level of unemployment that exists when the government's economic growth objective is achieved and where cyclical unemployment is non-existent.
15. The government's full employment objective involves the achievement of 'the maximum sustainable rate of reduction in unemployment by lifting the pace at which economic growth can be maintained without running into inflationary and external pressures.'
16. The full employment objective will also typically involve the attainment of an unemployment rate of approximately 4.25% or the lowest rate of unemployment that can be achieved before inflation accelerates (the Non-Accelerating Inflation Rate of Unemployment or NAIRU for short).
17. The recent White Paper makes it clear that the full employment goal is broader than that, with two key components: Sustained full employment and Inclusive full employment.
18. The Phillips curve depicts the relatively short-run relationship or trade-off that sometimes exists between inflation and unemployment.

19. The 'natural rate of unemployment,' is the rate of unemployment that exists when economic growth is relatively strong (in the order of 3-4% per annum) and cyclical unemployment is non-existent.
20. The natural rate of unemployment will encompass structural, seasonal, frictional and hard-core unemployment, but cyclical unemployment will be zero.
21. To be classified as unemployed, a person must be over 15 and actively looking for work.
22. The labour force comprises all those people aged 15 and over who are willing and able to work. It includes the employed and the unemployed.
23. The participation rate is defined as the percentage of the total 'working age' population (over 15) that is a member of the labour force.
24. The unemployment rate represents the percentage of the labour force that is unemployed.
25. A decrease in the unemployment rate is likely to induce a rise in the participation rate.
26. 'Discouraged job seekers' or the 'hidden unemployed' are those who are excluded from unemployment statistics because they have become discouraged about their job prospects and are not actively seeking employment.
27. The underemployed are those individuals that are classified as employed, but who are at least partly unemployed in the sense that they would prefer to be working more hours than they are currently working.
28. The underutilisation rate is calculated by adding the unemployed to the underemployed and dividing by the size of the labour force. It represents the proportion of the total labour force that is 'underutilised.'
29. The recession experienced in Australia during 2020 and its impact on labour market statistics, as well as the ongoing low rate of unemployment over 2023-24 in spite of very low rates of economic growth highlights how a sole focus on unemployment statistics can be misleading.
30. Since the middle of 2023, the unemployment rate has risen relative to the underemployment rate, resulting in an overall increase in the underutilisation rate
31. The underutilisation rate provides a better indicator of the state of the labour market. In particular, it provides a more accurate account of how changes in economic growth will, or have, impacted on both the demand for labour and spare capacity in labour markets, which then has implications for employment, wages and inflation.
32. An increase in the participation rate is likely to cause a short-term increase in unemployment but can help to reduce unemployment in the long run via the effects on the productivity and price of labour.
33. A decrease in the unemployment rate is likely to induce a rise in the participation rate as people become encouraged to re-enter the labour market.
34. A lack of AD will cause cyclical unemployment and is generally associated with economic downturns which are part of the business cycle.
35. Structural unemployment is caused by a mismatch between the skills set of the unemployed and the skills that are needed in the economy and is caused by factors such as the implementation of new capital and technology, changes in tastes and fashions, outsourcing, business restructuring and government microeconomic reforms.
36. The pursuit of full employment also helps to avoid the real economic losses associated with unemployment in terms of lost production or output.
37. Higher unemployment rates will have a negative impact on the government's budget which means that the government will have less money to fund the provision of a host of government provided goods and services that support Australian living standards.
38. High rates of unemployment will tend to increase income inequality and increase the incidence of poverty.
39. Ultimately, high rates of unemployment reduce material and non-material living standards of Australians.
40. Inflation refers to a sustained increase in the general or average level of prices over time.
41. The RBA's inflation target is to contain the increase in 'consumer price inflation' to 2-3% on average over time. This is also referred to as the Goal to achieve a low and stable rate of inflation (or price stability).
42. The government is keen to avoid the economic costs associated with a high inflation rate, where these costs are ultimately borne by all Australians
43. Low rates of inflation are tolerated because they allow for necessary reductions in the real wage, account for quality changes and avoid the costs of reducing it to lower levels.
44. Deflation is the opposite of inflation and refers to a sustained decrease in the general or average price level, which means that prices on average are falling, as they did over the year to end June 2020.
45. The consumer price index (CPI) is the best and most reliable indicator of 'consumer price inflation'.
46. Index numbers are used by statisticians to provide a meaningful way to record movements in the price or value of items that are quite diverse in nature.
47. There are several ways of reporting inflation rates, including quarterly rates of inflation, annualised rates of inflation or the annual rate of inflation.
48. The ABS and the RBA produce a set of inflation statistics that are derived from the original CPI, but exclude various 'volatile' or 'one off' price changes in order to arrive at an 'underlying rate of inflation.'
49. A major cause of inflation is excessive growth in AD relative to productive capacity (referred to as demand inflation)
50. Another major cause of inflation is excessive growth in costs of production (referred to as cost inflation).
51. Inflation will erode purchasing power, distort the allocation of resources, cause a loss in international competitiveness, damage confidence levels, lead to a wage-price spiral, cause interest rates to rise and have negative implications for governments.
52. All countries seek to control inflation rates because it is recognised that high inflation has real negative consequences for their economies, resulting in a reduction in the rates of economic growth, less than full employment, declining incomes and the deterioration of material living standards.

Using the AD/AS diagram to illustrate, the AD factors will cause the AD line to shift. It will shift out to the right when the factor is having a positive impact on AD and back to the left when it is having a negative impact on AD. This is illustrated in Figure 6.1.

Figure 6.1



Aggregate Supply factors

Aggregate supply in the economy is the total volume of production (or output) that suppliers (in aggregate) are prepared to supply to the market. The Aggregate Supply (AS) curve represents the total real value of output that can be produced in relation to various aggregate price levels. It has a positive relationship to the general price level and steepens with increasing levels of output. This is due to the fact that higher output levels become increasingly more difficult to achieve as an economy approaches its productive capacity. At productive capacity, any increases in AD only result in higher prices.

There are several factors that influence AS in the economy and these factors are similar to those influencing individual supply curves. In essence, any factor that causes a change in the **'costs of production'** or **'supply potential'** for the business sector is an AS factor affecting economic growth. Once again, we will use the AD/AS diagram to illustrate in Figure 6.2 below. The change in the AS factors will cause the AS curve to shift. It will shift to the right when the factor is having a positive impact on AS and to the left when it is having a negative impact on AS.

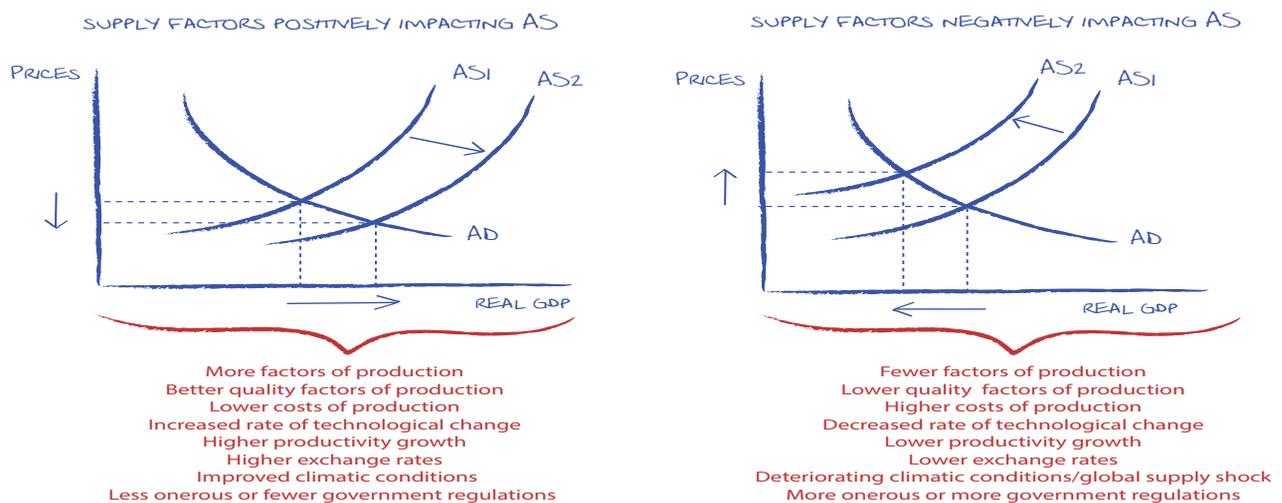
Study tip

Students are reminded that the Study Design no longer makes specific reference to the AD and AS curves, which means that an understanding of the AD/AS model is not required knowledge. However, the use of the model aids in the understanding of how AD/AS factors influence economic activity and the achievement of domestic macroeconomic goals.

Study tip

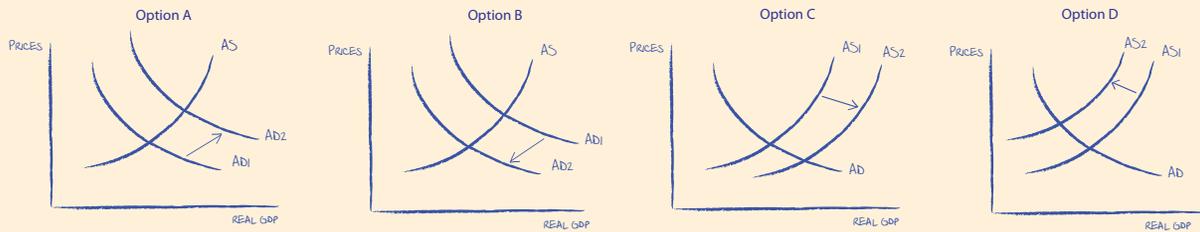
When a factor causes AD to change it will have an indirect effect on AS via a change in the aggregate price level (or inflation). But it is also possible for a factor that shifts the AD curve to have longer term supply side effects. This is often the case for those factors that cause an increase in Investment (such as lower interest rates). In the short term, these factors will increase AD (pushing the AD curve to the right). But once the investment is in place (such as a new factory or a new mine) it starts to have supply side effects, pushing the AS curve to the right as the nation's productive capacity increases.

Figure 6.2



Activity 6a: The impact of AD/AS factors

In the table below, you are provided with a number of hypothetical scenarios relating to the movement in AD/AS factors impacting on economic growth. After examining the AD/AS diagrams, complete the table by selecting/highlighting the most likely option(s), from A, B, C or D, that captures how the particular factor is likely to impact on AD/AS. The first one has been completed for you.

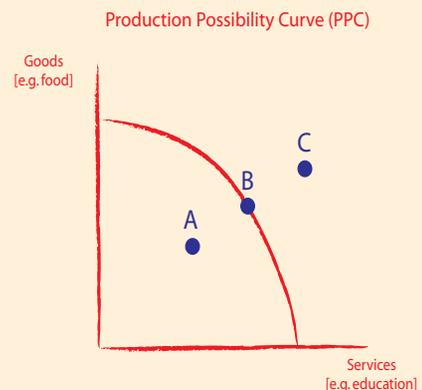


Hypothetical movement in AD/AS factor	A	B	C	D
Economic growth in China rebounds over 2025-26				
Australia increases skilled migration to record levels to tackle skills shortages				
Rapid advances in robotics technology occur in manufacturing				
Costs of raw materials in production increase across the board				
The trade weighted index falls to very low levels				
Consumers become more optimistic as we learn to live with COVID-19				
Interest rates rise further in 2025-26				
Personal income tax rates are raised to reduce future budget deficits				
Global conflict intensifies in both Europe and Asia				
Labour productivity rises significantly				
There is a further increase in the participation rate over 2025-26				

Activity 6b: Aggregate supply and PPC

A Production Possibility Curve (PPC) is sometimes used to demonstrate the favourable impact of aggregate supply factors. Using the adjacent PPC (also called a Production Possibility Frontier or PPF) as a guide, answer the questions that follow:

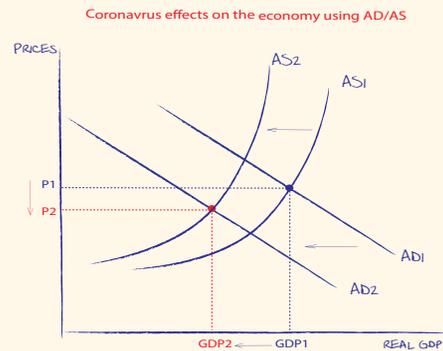
1. Illustrate how an increase in productivity might impact on the economy's productive capacity.
2. Illustrate how the PPC is likely to be affected by an increase in the rate of population growth.
3. Demonstrate how the PPC would change if there was an increase in the quality of human and physical capital employed in the 'services' sector relative to the sectors of the economy producing 'goods'.
4. Outline the implications for the economy if production is occurring at Point A.
5. Apart from raising productivity, increasing the population or improving the quality of factors of production, describe one other way that the economy can increase the production of both goods and services. Use the PPC to illustrate.
6. Distinguish a movement in production from point A to B, from a movement in production from point B to C.
7. Describe the problems that the economy might experience if the demand for goods and services in the economy (i.e. AD) was occurring at point C.



Activity 6C The immediate AD and AS effects of COVID-19

The COVID-19 pandemic caused major disruptions to the Australian economy resulting in the deepest recession Australia experienced since the 1930s. In the June quarter of 2020, real GDP declined by 7% (i.e. an annualised rate of 28%) and the general price level fell by 1.9%.

The spread of the deadly virus restricted the supply of key labour resources to industries (impacting negatively on the quantity of factors of production) and restricted the supply of key inputs from some offshore locations (e.g. China during the early stages of the pandemic). In addition, the spread of the virus created significant panic and anxiety across Australian households (evidenced by panic buying of essential items such as hand sanitizer and toilet paper during the early stages of the crisis) and ultimately resulted in a huge decline in consumer confidence and an increased propensity to save instead of spend beyond the initial panic buying. Businesses were also much more uncertain about the future state of the economy, resulting in a huge decline in business confidence. These factors combined with large negative rates of overseas growth (e.g. deep recessions in Europe and the USA) to exert a negative influence on aggregate demand (reducing Consumption, Investment and Exports). These are examples of how the health pandemic ultimately impacted on both the (aggregate) demand and supply sides of the Australian economy.



However, these negative effects of the virus itself were compounded by the impact of government policy initiatives that were designed to slow the spread of the virus (i.e. physical/social distancing and lockdown measures). These measures not only restricted the ability of consumers to spend (e.g. border closures restricting domestic tourism) they had an immediate negative impact on the ability of numerous businesses to supply goods or services to markets. For example, in hospitality, restaurants and cafes were either forced to close down or restrict operations, and industries such as sport and recreation, were severely limited in their capacity to offer services to clients (e.g. gyms and sports centres being unable to operate and organisations such as the AFL being restricted in how they could supply their services to the market).

The overall reduction in economic activity caused by both the virus itself, and government efforts to contain the spread of the virus, then had further negative impacts on business and consumer confidence, as well as triggering huge reductions in income from wages and salaries, which collectively exerted further negative pressure on aggregate demand. However, the government responded to the 'economic' crisis (as opposed to the 'health' crisis) via huge stimulus programs designed to offset the decline in household (and business) incomes. These programs (e.g. JobSeeker and JobKeeper) actually had the effect of offsetting the declines in wage and salary incomes such that (gross) household disposable income increased over the period (e.g. by 2.2% in the June quarter 2020). The fact that there was a large decrease in Consumption during a time when incomes increased meant that households (in aggregate) increased their savings (e.g. from 6% to 20% in the June quarter).

Questions

1. Explain how the COVID-19 virus itself contributed to a reduction in aggregate demand (AD). In your answer, refer to one of the AD side factors listed at the beginning of this chapter.
2. Explain how the COVID-19 virus itself contributed to a reduction in aggregate Supply (AS). In your answer, refer to one of the AS side factors listed at the beginning of this chapter.
3. Explain how government policy initiatives that were designed to slow the spread of the virus contributed to the reduction in AD and AS referred to in the previous questions.
4. Explain why (gross) household disposable income increased during the June Quarter 2020 despite the fact that wages and salaries of employees actually fell over the same period.
5. Explain why consumption spending fell in 2020 despite the fact that household disposable income increased.
6. Explain why the Australian economy experienced falling prices in the June quarter 2020, despite the existence of negative supply-side forces (which shifted the AS curve to the left).

Review questions 6.1

1. Define AD and list the components of AD.
2. Distinguish an AD factor affecting economic growth from an AS factor.
3. Describe those factors that can act to stimulate AD and boost economic growth.
4. Define aggregate supply.
5. Describe those factors that can increase AS.
6. Explain how a demand factor can ultimately lead to supply side improvements in the economy.
7. Explain how a factor causing an increase in AS can also boost AD.

6.2 Impact of AD and AS factors over the past two years

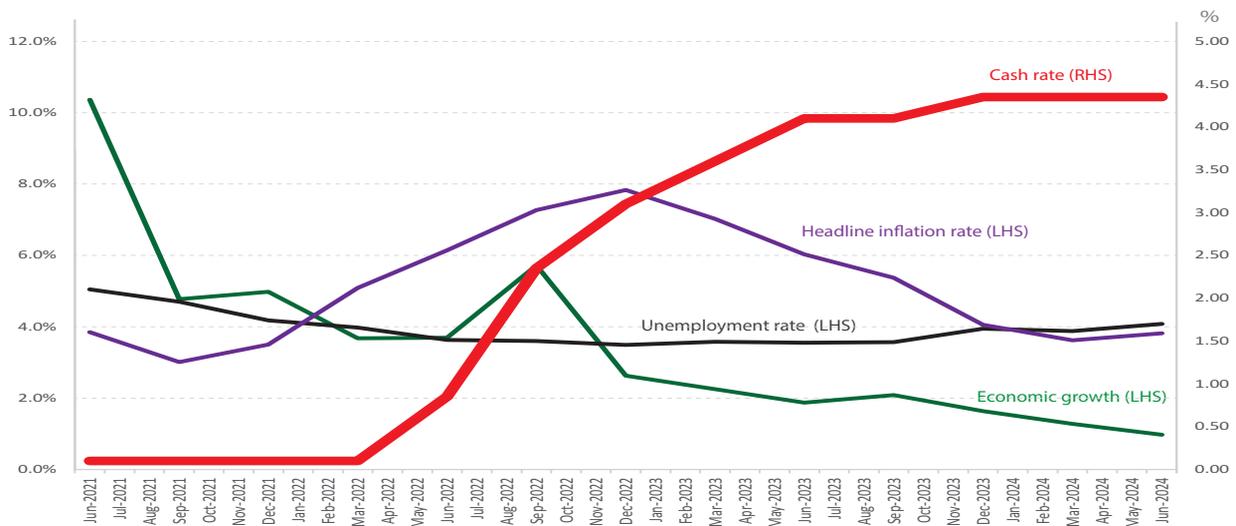
Interest rates

As discussed in Chapter 4, **interest rate** changes will influence AD and economic activity, with lower interest rates expected to stimulate AD and economic activity. However, changes in interest rates will also be closely correlated to rates of economic growth. Higher interest rates tend to occur alongside stronger rates of economic growth and lower interest rates will typically occur alongside lower rates of economic growth. There are two main reasons for why this occurs. First, stronger economic growth brings with it an increase in demand for funds in financial markets which pushes up the ‘price’ of those funds (i.e. interest rates). Of course, the reverse occurs when economic growth is low. Second, when economic growth is high, the RBA tends to tighten monetary policy in order to combat inflationary pressure and when economic growth is low the RBA tends to loosen monetary policy in order to stimulate growth and jobs. [A loosening of monetary policy results in lower interest rates, while tightening monetary policy results in higher interest rates - as outlined in Chapter 9.] Chart 6.1 highlights the relationship between interest rates, economic growth, inflation and unemployment since June 2021.

Study tip

Given that we explored how demand factors affect AD in Chapter 4, it is not necessary to re-examine ‘the theory’ in depth. Instead, we will focus on how the various demand/supply factors have influenced economic growth, the unemployment rate, inflation and living standards over the past two years.

Chart 6.1: Interest rates and key macroeconomic indicators



The cash rate is the key ‘official’ interest rate that acts as a benchmark against which all other interest rates are affectively set in the economy, and it will be covered more fully in the context of monetary policy later in the text (Chapter 9). The very low cash rate over 2021-22 reflected an expansionary monetary policy stance at the time as the RBA was less concerned about inflation and more concerned about economic growth and jobs creation. The resulting very low interest rates played an important role in terms of economic stabilisation following the recession of 2020, helping to stimulate aggregate demand and economic growth, as well as exert downward pressure on the rate of unemployment.

However, the very low interest rates, combined with huge budgetary policy stimulus measures, contributed to growth in demand inflationary pressures, with the headline rate of inflation rising above the top end of the RBA’s target range by the middle of 2021 and even higher over 2022. The higher inflation rate (towards 8%) was also compounded by the effects of the war in Ukraine and ongoing global supply constraints following COVID-19. With respect to the impact on the unemployment rate, given that lower interest rates contributed to stronger rates of economic growth, they ultimately helped to stimulate the demand for labour, boost employment and reduce the unemployment rate from more than 5% in 2021 to less than 4% for most of the period since then. To the extent that very low interest rates helped to prop up economic growth and employment beyond that which would have otherwise occurred, it is fair to say that lower interest rates have helped to support Australian living standards over that time.

Study tip

It is important to understand that the impact of rising interest rates in increasing cost inflation will be more than offset by the opposing effect of rising interest rates in decreasing demand inflation.

The rise in interest rates since the middle of 2022, with the cash rate rising from 0.01% to as high as 4.35% by the end of 2023, had the desired effect of restraining growth in aggregate demand, economic growth and inflation, with

economic growth falling to as low as 1% during 2024 and the rate of inflation falling from its peak of 7.8% in 2022, to as low as 3.8% by the middle of 2024. The higher interest rates were therefore a contributing factor behind the rise in the unemployment rate from a low of 3.5% in late 2022 to 4.1% by the middle of 2024. It is fair to say that the rise in interest rates to their relatively high levels in 2024 has had a negative impact on living standards, but to the extent that these higher interest rates help to reduce inflation back into the target range in the future, it can be argued that the long term effects on living standards are positive.

Disposable income

Gross **Disposable income** is an indicator that is derived from household income account within the ABS' National Accounts. It includes wages and salaries of household members, as well as property income and transfers, and then excludes the income tax payable on that income. When gross disposable income increases, it means that after-tax income has increased, providing the household sector with increased purchasing power.

Chart 6.2: Disposable income and key macroeconomic indicators

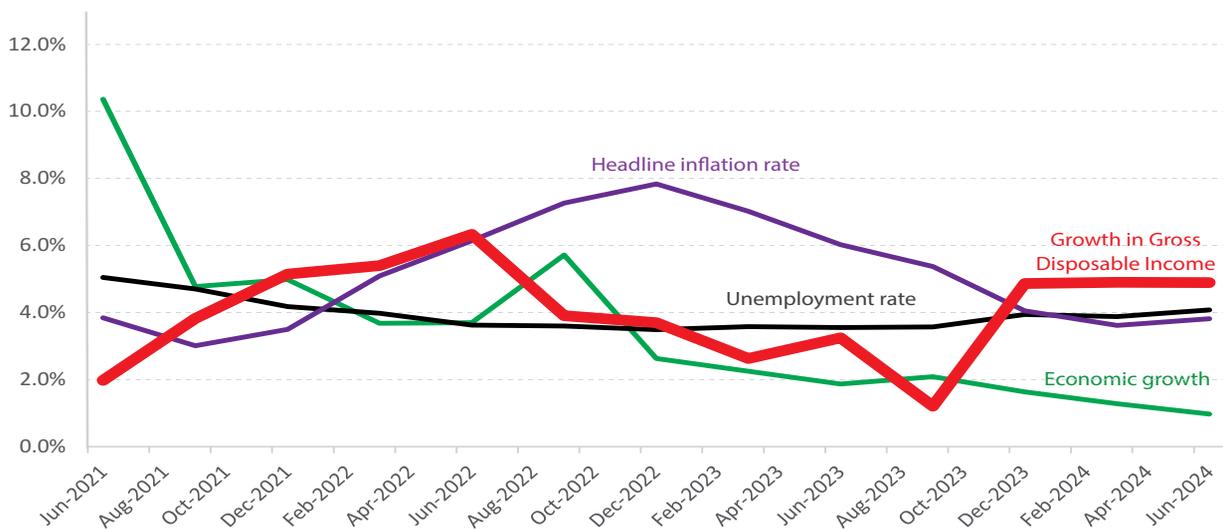


Chart 6.2 captures the relationship between annual growth in gross disposable income and economic growth, inflation and unemployment. Over the period 2021-22, the relatively strong growth in disposable income from 2% per annum to 4% per annum is a factor that helped to stimulate aggregate demand and economic growth, as evidenced by the rate of economic growth remaining close to, or above, 4% over the period. This also contributed to growth in the rate of inflation towards 8% by the end of 2022, as well as a continuing reduction in the rate of unemployment to less than 4%. Over the course of 2023, the growth in disposable income fell to less than 3% (which was less than the rate of inflation). This contributed to a slower rate of economic growth, with the rate of growth in real GDP falling below 2% in late 2023, as well as disinflation, with the rate of inflation falling to 4.1% by late 2023. It also contributed to a small increase in the unemployment rate towards 4% by late 2023. The resurgent growth in disposable income during the first half of 2024, climbing to as high as 4.9%, may be a factor behind the slight increase in inflation (from 3.6% to 3.8% in the June quarter) but the beneficial effects on economic growth and unemployment are not borne out in the data, suggesting there are other factors at play that are exerting downward pressure on economic growth and upward pressure on the rate of unemployment.

The generous tax cuts that came into force on the 1st of July 2024 will have a favourable impact on disposable income over 2024-25 and beyond, which is expected to boost economic growth and reduce unemployment, but add pressure on inflation. [See Activity 6d.]

The exchange rate

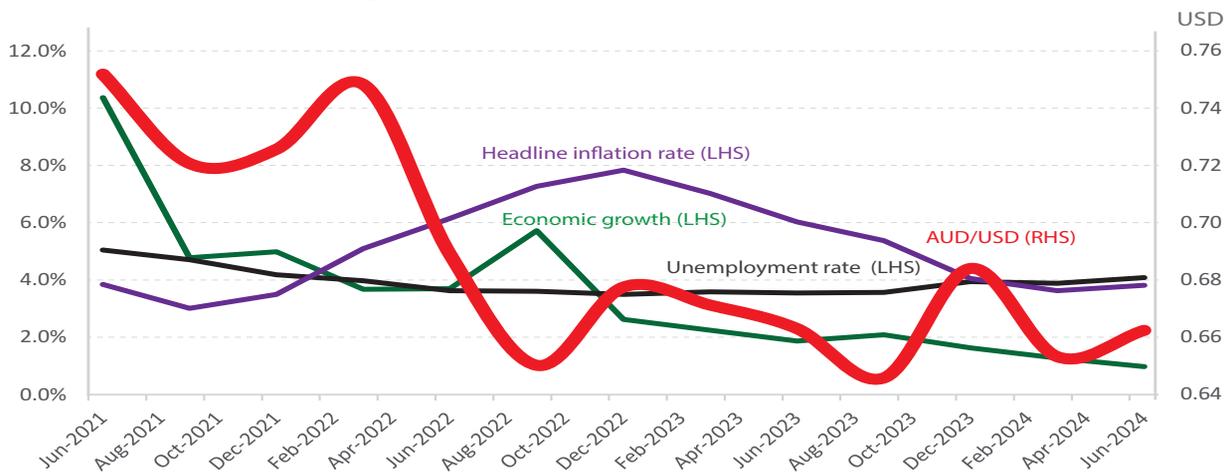
Chart 6.3 on the next page highlights the relationship between Australia's exchange rate, as measured against the USD, and changes in economic growth, inflation and the unemployment rate over the past few years. The depreciation of the exchange rate over 2021-22, provided support to trade exposed industries (such as manufacturing, tourism and education), which enjoyed a fall in the internationally traded price of their respective goods/services, improving international competitiveness and helping to generate greater sales and more production. In addition, those Australian exporters who are 'price takers' (i.e. they exert little or no control over the world price of their export, for example commodities) received more sales revenue for any given volume of exports, which increased export income. The combined effect was to see an increase in net export demand and the associated boost to aggregate demand, helping to raise real GDP and employment beyond that which would have otherwise occurred. This is despite the fact that the depreciation resulted in Australian businesses paying more (in Australian dollar terms) for imported inputs, either

capital goods such as machinery, or intermediate goods such as raw materials. Given that imported inputs generally have a low price elasticity of demand, the depreciation did indeed have a negative impact on production costs over this time, which added to inflation. Overall, however, the demand side effects of the lower exchange rate outweighed the negative supply side effects such that the depreciation up to the middle of 2022 supported economic growth and exerted downward pressure on the unemployment rate. With respect to inflation, the depreciation exerted upward pressure on inflation (both on the demand and cost side) which contributed to the headline rate of inflation climbing well above the RBA’s target zone in late 2022. Since late 2022, the exchange rate has fluctuated around USD0.66, highlighting that there are a variety of factors influencing its value and its effects over 2023-24 were somewhat mixed. [The causes and effects of recent exchange rate movements will be explored more fully in Chapter 7.]

Study tip

It is important not to confuse the causes and effects of a change in the exchange rate. A weaker Australian dollar can reflect weaker net export growth, which reduces inflationary pressure. However, a lower dollar will then cause an increase in inflationary pressure. The causes and effects of changes in the exchange rate are examined in greater detail in Chapter 7.

Chart 6.3
Exchange rates and key macroeconomic indicators



Consumer and business confidence

Chart 6.4 highlights the relationship between **consumer confidence** (as measured by the Westpac-Melbourne Institute consumer sentiment index) and the key macroeconomic indicators. A consumer confidence index of below 100 means, on balance, consumers are more pessimistic than optimistic, and vice versa. Like earlier factors, confidence levels both follow economic activity as well as cause changes in activity. The recovery from the recession of 2020 saw confidence levels rise over 2021 as government stimulus measures and very low interest rates provided households with a greater degree of confidence about the economy going forward. The effects of expansionary monetary and budgetary policies helped to boost both disposable and discretionary incomes of households, contributing to the relatively strong rate of economic growth over 2021-22, the declining rates of unemployment and a higher rate of inflation. The fall in consumer confidence into negative territory (i.e. below 100) between 2022-23, due largely to the effects of the war in Ukraine, natural disasters, the rise in interest rates, and the ‘cost of living crisis’ started to have a negative impact on economic growth and the unemployment rate started to rise from its low of 3.5%. While consumer confidence has increased over the first half of 2024, it remains in negative territory, exerting downward pressure on economic growth, employment and inflation.

Chart 6.4: Consumer confidence and key indicators

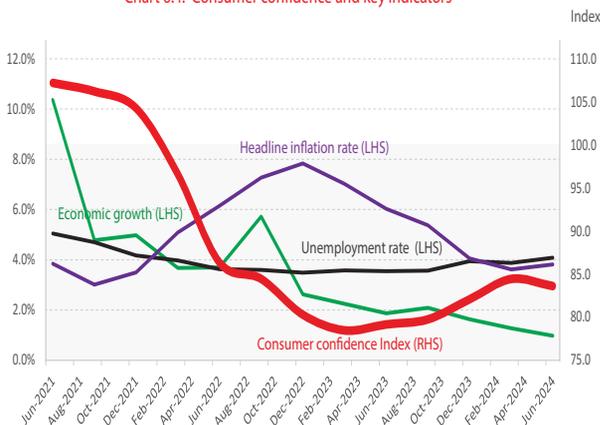
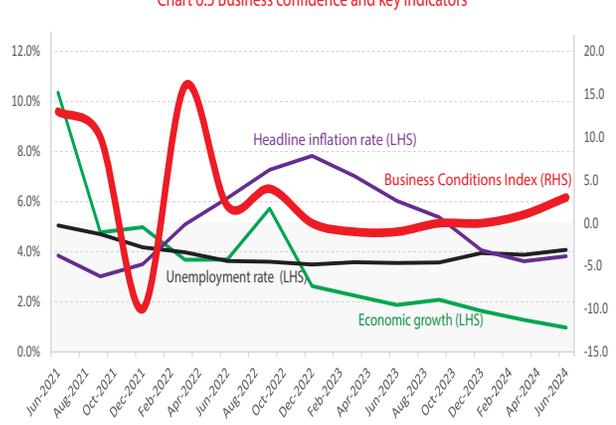


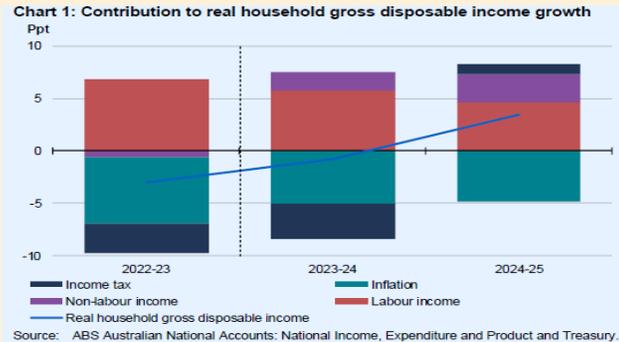
Chart 6.5 Business confidence and key indicators



The changes in **business confidence** typically follow the changes in business conditions (including profitability levels and labour hiring intentions) as measured by the NAB business conditions index (net balance basis). A business confidence reading above zero reflects high(er) business confidence and a reading below zero reflects low(er) confidence. As was the case with consumer confidence, business conditions/confidence will both follow economic activity as well as contribute to changes in activity. Chart 6.5 highlights that, like consumer confidence, the recovery from the recession of 2020 saw positive confidence levels for most of 2021-22 as government stimulus measures for businesses combined with very low interest rates, to provide businesses with greater confidence about future sales. This contributed to the relatively strong rate of economic growth over 2021-22, the declining rates of unemployment and a higher rate of inflation. Since 2022, however, business confidence levels have been mixed, with businesses being generally negative over much of 2023, before becoming positive over the first half of 2024.

Activity 6d: Recovery in real household disposable income

Real disposable income is forecast to grow by 3½ per cent in 2024–25, as shown in the chart below. This is expected to be driven by a 4½ percentage point contribution from growth in labour incomes and a 1 percentage point contribution from the Government’s cost-of-living tax cuts. Inflation is expected to be a smaller drag on real incomes compared to recent years. If realised, this would be the fastest rate in over a decade (excluding the pandemic).



Australia’s resilient labour market and historically low unemployment rate means more Australians have jobs. Employment in Australia grew faster than in any major advanced economy over the past year, with more Australians now securing meaningful work. Employment is expected to continue to grow next year, even as the labour market softens in response to weaker growth. Nominal wages are now growing at their fastest rate in nearly 15 years. This is due to strength in the labour market and the Fair Work Commission’s wage determinations, which the Government supported. Continued growth in wages will contribute to the improvement in household disposable incomes over the coming year.

The Government’s cost-of-living tax cuts will ensure households keep a greater proportion of their incomes to help navigate cost-of-living pressures. Compared to previously legislated settings, 11.5 million taxpayers will receive a larger tax cut. The Government’s tax cuts deliver a permanent reduction in tax for all taxpayers, with an average tax cut of \$1,888 in 2024–25 compared to 2023–24 settings. In addition, the continued moderation of inflation and the Government’s responsible cost-of-living policies will strengthen the purchasing power of households.

Source: Box 2.1 Statement 2, Budget Paper No. 1 of the 2024-25 Budget.

Questions/tasks

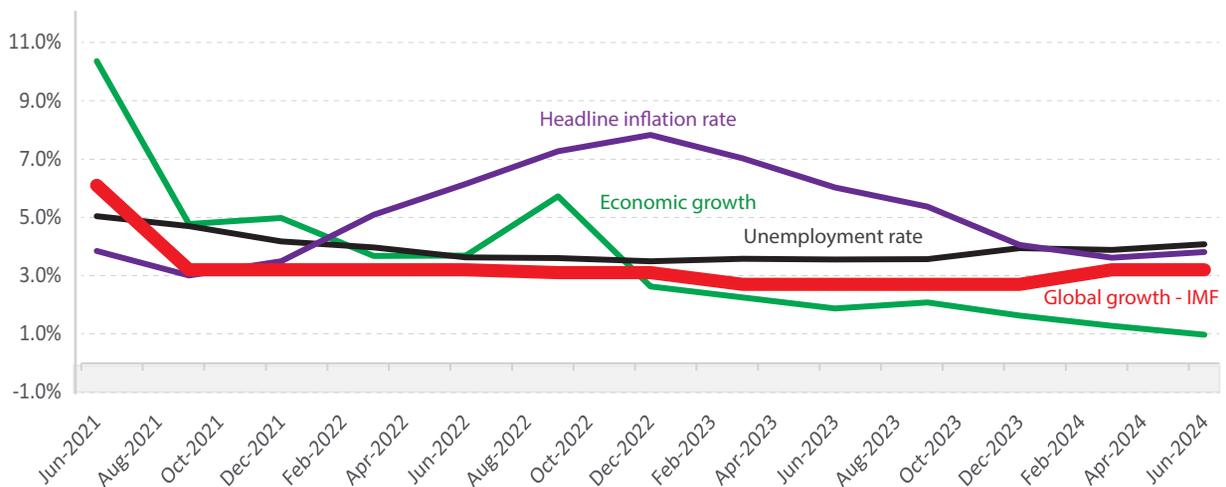
1. Identify the various factors that influence ‘real’ household disposable income.
2. Describe the factors that are primarily responsible for the projected rise in real household disposable income over 2024-25.
3. Explain the impact that inflation has had on real household disposable income in the period covered by the chart.
4. Distinguish nominal wages from real wages and describe the factors contributing to growth in nominal wages.
5. Apart from a tax cut, describe one other policy initiative that has (or could) strengthen the purchasing power of households.
6. Explain how the projected movement in disposable income is likely to influence the achievement of the government’s key macroeconomic goals.

Overseas rates of economic growth

Australia is particularly exposed to rates of growth in the developing world, given that a significant share of Australia’s exports are needed to fuel their growth in industrial production (e.g. exports of iron ore, coal and natural gas). The benefits of stronger global growth will, for a country like Australia, largely come from the related boost to the terms of trade and the rising levels of national income that result. [Further examination of the causes and effects of a change in the terms of trade is covered in Chapter 7.] Chart 6.6 highlights that global rates of economic growth have fallen since 2021 (albeit slightly higher in 2024), which has had a negative impact on both export demand and the rate of economic growth, as well as contributing to the downward pressure on prices growth (disinflation) since late 2022. With Australia’s fortunes heavily tied to the rate of growth in our largest trading partner, China, the slower growth in China over 2024 (which is related to a property market collapse) will continue to exert negative pressure on Australian growth rates.



Chart 6.6: World economic growth and key Australian macroeconomic indicators

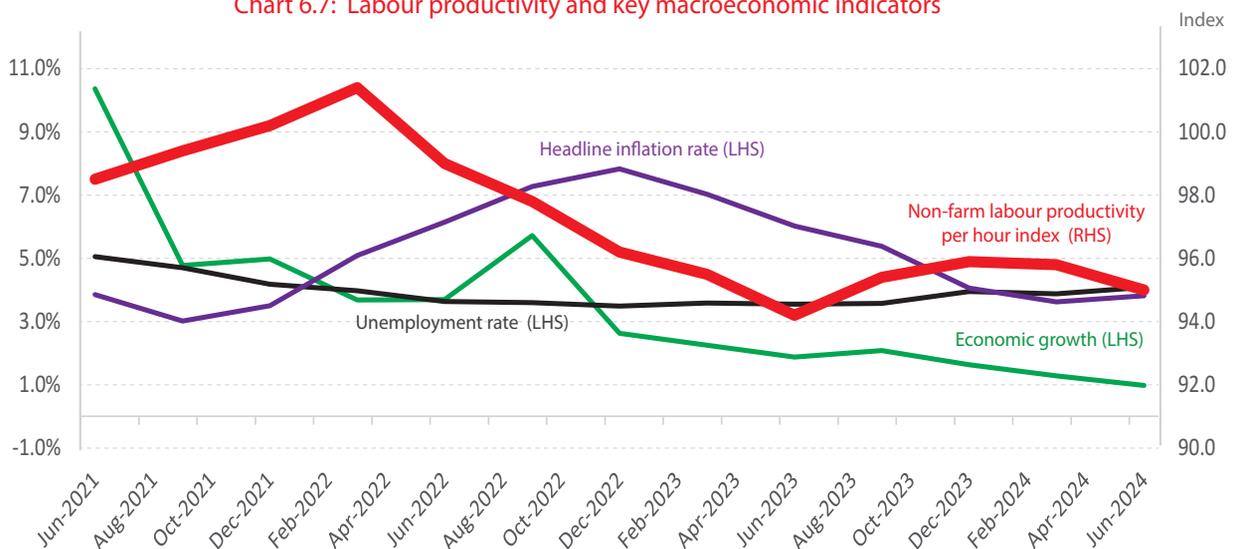


Quality of factors of production, technological change and productivity

The quality of Australia’s factors of production, such as the skills possessed by **human capital** (e.g. labour), the output potential of **physical capital** (e.g. machinery), or the fertility of land (e.g. farms), ultimately determines **productivity** or efficiency of our factors of production. As the quality of our factors of production increase, we would expect that there will be an increase in the nation’s output relative to inputs. For example, increases in educational attainment should help to improve the quality of human capital and therefore lead to an increase in **labour productivity** (output per hour worked). Similarly, advances in technology can result in an increase in the quality of both physical capital, such as developments in robotics that accelerates growth in **capital productivity**, and natural capital, such as the fertility of farmland improving because of new technology that improves the quality of fertilisers. Taken together, an improvement in the quality of Australia’s factors of production should be reflected by an increase in multifactor productivity, which is defined as the ratio of output to a combination of inputs, typically labour and capital.

Chart 6.7 highlights that labour productivity has trended down over the past couple of years, from an index above 100 in early 2022, to an index of 95 by the middle of 2024. Taken as a whole, this represents negative productivity growth of 6.3% (i.e. productivity has fallen by 6.3% between 2022 and 2024). This means that labour resources (or labour hours) are producing less output than before, which contributes to growth in unit labour costs, adding to the cost of production and contributing to the relatively high rate of inflation experienced in Australia during this time. This in turn negatively impacts on economic growth, the demand for labour and unemployment.

Chart 6.7: Labour productivity and key macroeconomic indicators



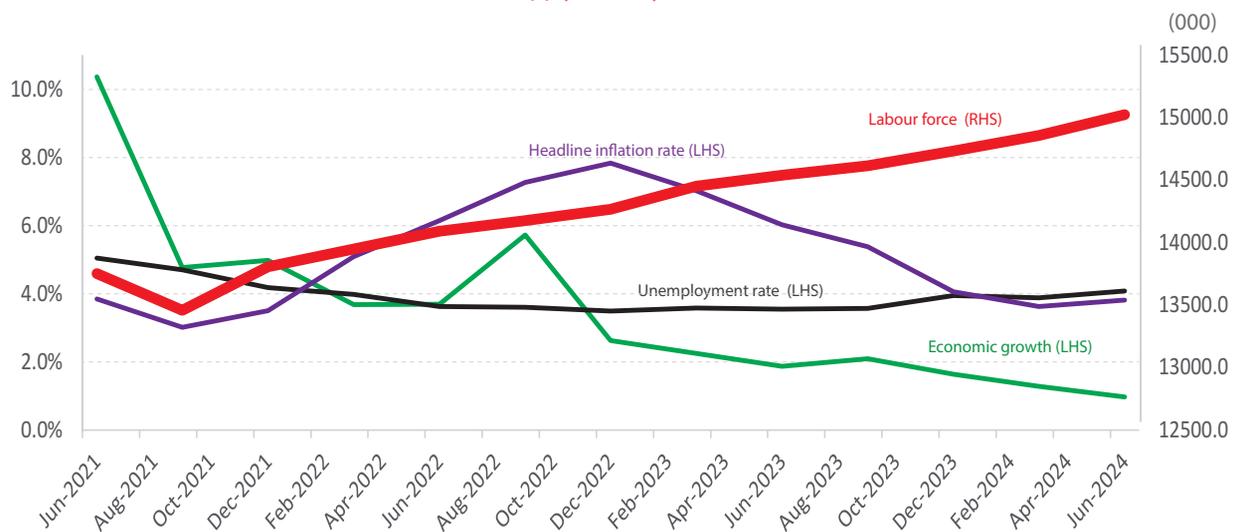
Quantity of factors of production

Increasing the size of the **labour force** (e.g. by increasing immigration), making more machinery or equipment (e.g. by investing more in capital) or finding more natural resources (e.g. discovering new mineral deposits) are all ways that Australia could increase the size or quantity of its factors of production. In contrast to increasing the quality of factors of production, increasing the **quantity of our key resources** is one of the major factors accounting for economic growth over time. For example, increasing the (skilled) migration intake has helped to increase the labour supply, and alleviate **skills shortages** and/or **capacity constraints** that have existed in some sectors of the economy. The same logic applies to all factors of production, where a greater volume of resources makes it easier for businesses to access resources for production, which in turn raises productivity and/or reduces the costs of production.



Chart 6.8 highlights the relationship between the **supply of labour** (i.e. the **labour force**) and the relevant key macroeconomic indicators. There has been steady growth in the supply of labour since the end of 2021, from 13.5 million members of the labour force in June 2021 to 15.0 million by June 2024, a growth rate of 11.1%. This has helped to improve supply conditions for businesses. Not only did the larger labour supply exert downward pressure on labour costs (see 'Costs of production' below) and contribute to disinflation after 2022, it meant that businesses were likely to be less burdened by capacity constraints (or skills shortages) and more able to increase production in line with growth in (aggregate) demand. The increased labour supply, helped along by immigration (see Chapter 10), has therefore been a factor contributing to economic growth remaining positive over 2023-24. As discussed in Chapter 5, in relation to Australia's 'per capita recession' over the past 18 months, without population growth (and the associated growth in the labour force), Australia's rate of economic growth would have been negative over 2023-24.

Chart 6.8: Labour supply and key macroeconomic indicators



With respect to the impact on the unemployment rate, the relationship between a larger labour supply and the rate of unemployment was examined in Chapter 5 (when discussing the relationship between the participation rate and the unemployment rate). In the short term, an increase in the labour supply is likely to have caused a short-term increase in unemployment. However, over the longer term, a larger labour supply can exert downward pressure on the unemployment rate because of the positive impact on economic growth and corresponding increase in the demand for labour. In addition, downward pressure is placed on the price of labour (e.g. wages) and/or upward pressure is placed on labour productivity (as greater competition for jobs can increase intensity of effort at workplaces). As a result, these factors may have increased the demand for labour over time, creating more jobs and helping to keep the rate of unemployment close to or below 4% over the past couple of years.

Costs of production

As discussed earlier, all AS factors will ultimately impact on the **costs of production**, with favourable supply side factors exerting downward pressure on production costs, such as productivity growth, and unfavourable supply side factors exerting upward pressure on production costs, such as a lower exchange rate. Two major costs of production for most businesses are **labour costs** (e.g. wages) and **raw material costs** (e.g. the cost of crude oil).

Labour costs

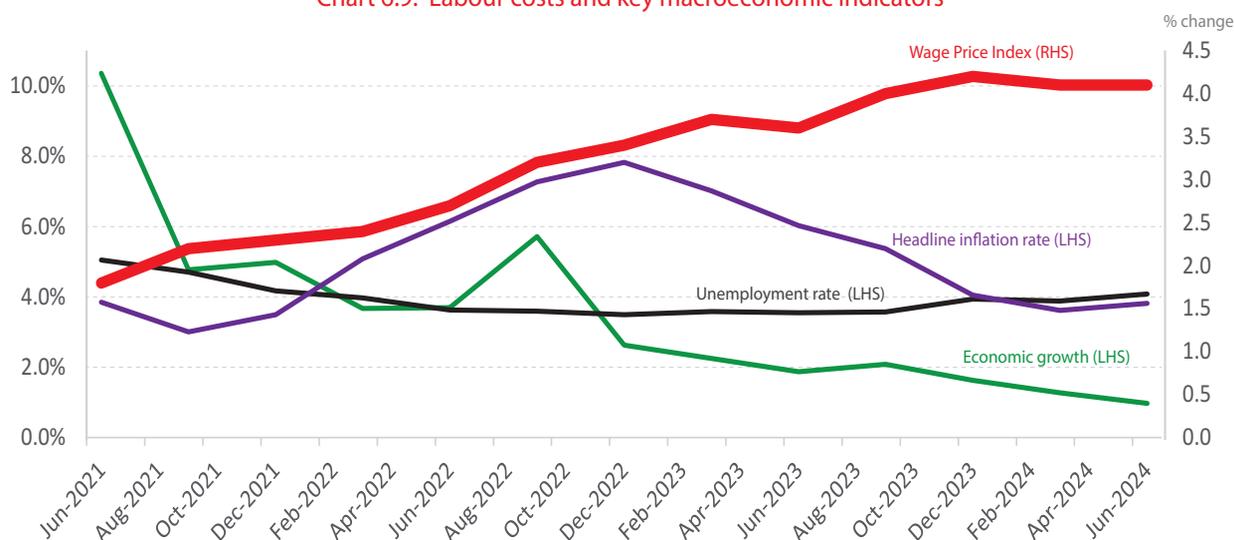
Labour costs are one of the major costs of production for businesses. When labour costs are too high relative to labour productivity, it will tend to create what has become known as **'classical unemployment.'** In this situation, labour costs increase to the point where businesses reduce their demand for labour and employment growth in the economy is restrained. Of course the reverse occurs when labour costs are falling, with the lower 'price of labour' improving supply conditions for businesses, which reduces production costs and stimulates economic growth.



Chart 6.9 highlights the movement in labour costs, as measured by the **Wage Price Index (WPI)**. While the price of labour has certainly increased over the past couple of years, it is only during 2024 that the WPI exceeded the rate of inflation, meaning that real wages fell for most of the period since 2022. With the rate of inflation over 2022-23 exceeding the growth in the WPI, it meant that real wages fell, to the detriment of workers, but to the benefit of businesses. This relatively low growth in the WPI up to 2023 largely stems from more flexible and open labour markets, as well as technological advances (e.g. the rise of the digital economy), that contributed to a larger labour supply which has helped to drive down the price of labour. This has helped to boost the demand for labour, and reduce the rate of unemployment.

The very low unemployment rate in 2022 suggested that the labour market was very tight and that wages would quickly accelerate, adding to production costs and further increasing inflationary pressures. However, this did not occur, perhaps suggesting that the NAIRU (non-accelerating inflation rate of unemployment) is lower than previous estimates of 4.25% (see Chapter 5). Accordingly, the high rate of inflation over 2022-23 was largely due to the supply shocks, as mentioned previously, rather than higher labour costs. Since 2023, however, wages growth has been relatively high, particularly when compared to weak/declining rates of productivity growth, which is a factor that has kept inflation above the 3% range over 2023-24.

Chart 6.9: Labour costs and key macroeconomic indicators



The effect on living standards is therefore mixed. While lower wage costs help to benefit the macroeconomy over time, reducing inflation, boosting growth and creating (casual/part-time) employment, it can have distributional effects that impact negatively on some groups, such as those with limited economic bargaining power (e.g. young workers and those with limited skills).

Crude oil costs

Crude oil is one of the most important energy/raw material costs for businesses. It is an input in fuels, heating, plastics, insulation, and electricity. When the price of crude oil falls, it reduces the costs of production and provides enormous supply side benefits for a country like Australia.

Chart 6.10: Oil prices and key macroeconomic indicators

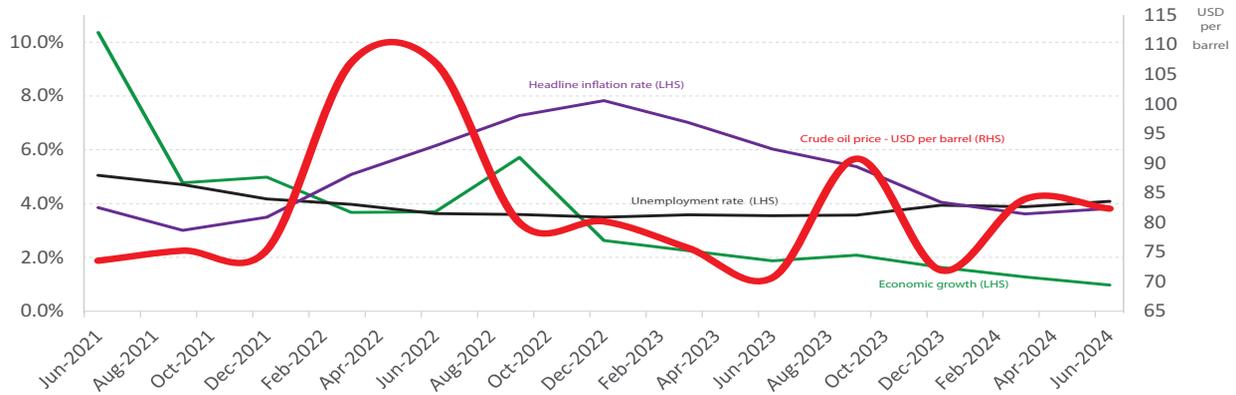


Chart 6.10 depicts the movement in the global oil price since June 2021 compared to the changes in the key macroeconomic variables. It highlights the large rise in global oil prices over 2021-22, as both demand and supply pressures forced prices upwards. On the demand side, the rebound in global industrial production from the global recession caused the demand for key production inputs, including oil, to rise significantly. In addition, the war in Ukraine created a major supply shock, with the price of oil increasing to levels not seen since 2008. This was a major factor behind the increase in the rate of inflation to relatively high levels in 2022, and was a factor exerting a negative influence on economic growth and the derived demand for labour. The fall in oil prices between 2022-23 helped to make a net contribution to economic growth in Australia because we are a net importer of oil. It was one of the many factors contributing to a lower rate of inflation, stimulating economic growth (above that which would have otherwise occurred) and further reducing pressure on the unemployment rate. However, the rise in oil prices over 2023-24 is likely to be having the reverse effects, dampening economic growth, increasing pressure on unemployment and exerting upward pressure on inflation.



Climatic conditions and other economic shocks

Climatic events such as **droughts, floods, bushfires and cyclones** influence the supply and cost of inputs used by industries. When these events occur, they can result in an increase in the costs of production for those businesses relying on inputs that are produced in these regions. In addition, national (or even global) resources can be mobilised to assist in the relief and clean-up effort, which further adds to costs of other goods and services as supplies are affected and key resources (such as labour) become relatively scarce. This then results in an increase in inflationary pressure, lower rates of economic growth and upward pressure on the rate of unemployment. [However, reconstruction efforts following natural disaster can also help to boost growth and employment.]

Major floods in eastern Australia between 2021 and 2023, are the most recent examples of adverse weather events that have caused significant disruptions to the macroeconomy. However, more recently, many parts of Australia have been affected by a number of less severe weather events, including tropical cyclones in Queensland in January 2024, bushfires in NSW during February 2024, a minor earthquake in Victoria during August 2024 and various bushfires, storms and floods in January/February 2024 in south eastern Australia.

To the extent **climate change** affects the frequency and severity of adverse weather events, such as droughts and floods, it can also be considered a supply factor that increasingly impacts negatively upon AS over time. [See Activity 6e: Economic impact of the February 2022 floods].

Global **economic shocks** are defined as random or unpredictable events that cause significant damage to economies, such as an oil price shock, the COVID-19 pandemic, or a shock created by geopolitical instability, including conflicts such as the war in Ukraine and the ongoing instability in the Middle East. These shocks have the potential to reduce economic

growth and increase both unemployment and inflation in Australia. They will typically manifest in disruption to global supply of goods and services, surging commodity prices (e.g. the huge increases in the prices for crude oil, natural gas and energy more generally that we experienced over 2022-23) as well as create negative consumer and business sentiment. While higher prices of commodities (e.g. wheat in 2022) can benefit Australia, the higher prices for key commodities of which Australia is a net importer (e.g. crude oil) will inflate production costs and inflation, and reduce AD, economic growth and employment.



Review questions 6.2

1. Distinguish an AD from an AS factor that may affect the achievement of strong and sustainable economic growth, price stability and full employment.
2. Explain how interest rates have impacted on economic growth, inflation and the unemployment rate over the past two years.
3. Describe the movement in real disposable income since 2022 and explain how it is related to economic growth and living standards.
4. Explain how the movement in real disposable income since 2022 affected the achievement of strong and sustainable rates of economic growth, price stability and full employment.
5. Discuss how the change in the value of the AUD since 2022 is likely to have influenced economic growth, inflation and the unemployment rate. Refer to both the demand and supply side impacts.
6. Explain how the movement in consumer sentiment since 2022 may have impacted on economic growth, inflation and the unemployment rate.
7. Explain how the recent movement in business confidence since 2022 has affected economic growth, inflation and the unemployment rate.
8. Explain how the change in global growth since 2022 may have impacted on Australia's rate of economic growth, inflation and the unemployment rate.
9. Define productivity and explain how the movement in productivity since 2022 is likely to have influenced economic growth and inflation.
10. Explain how the movement in productivity since 2022 is likely to have influenced the unemployment rate.
11. Explain how productivity growth can have both a positive and a negative effect on living standards.
12. Describe the change in Australia's labour supply since 2022 and explain how this might have influenced economic growth, inflation and the unemployment rate.
13. Define classical unemployment and explain why a fall in labour costs might help to maintain downward pressure on the rate of unemployment.
14. Explain how a lower WPI can have both a positive and a negative effect on living standards.
15. Explain how the change in oil prices since 2022 may have impacted on Australia's rate of economic growth, inflation and the unemployment rate.
16. Explain how natural disasters and economic shocks may have had negative implications for Australian rates of economic growth, inflation and unemployment.

Activity 6e: Economic impact of the February 2022 floods

In late February and early March, severe flooding affected many parts of South-East Queensland and New South Wales. Many individuals and communities affected by the floods face temporary displacement, uninsured losses and a long road to recovery.

The physical damage has not yet been fully assessed and uncertainty remains about the full extent and timing of the impact on economic activity. The direct economic cost of the floods is expected to generate a drag on real GDP growth of around ½ a percentage point in the March quarter, largely due to reduced activity in the mining, agriculture, accommodation and food services, retail trade and construction industries. This overstates the net impact of the floods on real GDP over the longer term as this direct cost will be partially offset by increased investment to replace and rebuild damaged housing, infrastructure and household goods. Federal government support will assist in funding the recovery through direct financial support to affected households, as well as contributing to local and state governments' recovery effort.



Subdued coal exports are expected in the March quarter, with weather-related disruptions weighing on production. However, the impact of the floods on coal mining is expected to be smaller than previous major weather events, such as the floods and Tropical Cyclone Yasi in 2010-11, which caused coal exports to fall by around 7 per cent in 2011. There will likely be significant localised impacts in the agriculture sector, but the impact on national production quantities and aggregate exports is likely to be limited.

While Treasury analysis of bank data showed that the floods had a negative impact on spending in parts of Queensland and New South Wales in late February and early March, spending has since recovered. Labour market impacts will also be largely seen through an initial reduction in hours worked, with employers expected to retain workers through a temporary period of disruption. Rebuilding activity following the floods is expected to add to real GDP growth over the next few years, consistent with the experiences following previous natural disasters. However, the scale and timing of this is uncertain, and the rebuilding efforts will place additional pressure on the already strained supply of building materials and labour in the construction sector.

Source: Box 2.3 Statement 2, Budget Paper No. 1 of the 2022-23 Budget.

Questions/tasks

1. Identify the extent to which the floods were expected to impact on the level of real GDP.
2. Identify those industries that were expected to experience reduced levels of activity as a consequence of the floods.
3. Select one of the industries that you have identified in the previous question (apart from mining) and describe how the floods may have reduced output in this industry.
4. Explain why the reduced economic activity stemming from the floods overstates the direct long term costs of the floods.
5. Explain how floods and/or a cyclone can negatively influence the coal mining industry.
6. Explain how flood affected businesses choosing to retain workers during the period of disruption might statistically impact on the labour force underutilisation rate.
7. Explain how the construction industry typically gains from natural disasters and outline why the costs of reconstruction projects will be much higher than in the past.

Activity 6f: AD or AS impacts?

In the table below, you are provided with a number of hypothetical scenarios relating to the movement in AD/AS factors impacting on inflation. Complete the table by selecting/highlighting the most likely option(s), from A, B, C or D, that captures how the particular factor is likely to impact on inflationary pressures. The first one has been completed for you.

Option A	Option B	Option C	Option D
Demand inflationary pressure increases	Demand inflationary pressure decreases	Cost inflationary pressure increases	Cost inflationary pressure decreases

Hypothetical movement in AD/AS factor	A	B	C	D
Economic growth in China increases by 12%				
Over 200,000 skilled migrants enter Australia				
Rapid advances in robotics technology occur in manufacturing				
Oil prices climb back up to more than \$100 per barrel				
The exchange rate falls to very low levels				
Consumers become much less optimistic about future income levels				
Interest rates continue to fall				
Personal income tax rates decrease				
Business conditions improve and confidence in future profit levels rise				
Labour productivity falls significantly				
An ageing population causes a fall in the size of the labour force				

Activity 6g: Factors affecting the key macro variables

Refer to the following table and answer the questions that follow:

Factors affecting economic growth, inflation and unemployment rates											
Quarter/ year	Economic growth (Annual)	Underlying inflation (Annual)	U/E rate	Interest rates (cash rate %)	Gross Disp income % (Quarterly change)	Exchange rate (AUD/ USD)	Price of crude oil per barrel (USD)	Consumer Conf Index	WPI % change (Annual)	Labour supply (labour force) [000]	Overseas growth (% Annual change)
Jun-2022	3.7%	4.9	3.6%	0.85	6.3%	0.69	107	86.4	2.7	14091	3.2
Sep-2022	5.7%	6.0	3.6%	2.35	3.9%	0.65	79.91	84.4	3.2	14177	3.1
Dec-2022	2.6%	6.8	3.5%	3.10	3.7%	0.68	80.16	80.3	3.4	14267	3.1
Mar-2023	2.2%	6.5	3.6%	3.60	2.6%	0.67	75.68	78.5	3.7	14452	2.7
Jun-2023	1.9%	5.8	3.5%	4.10	3.2%	0.66	70.66	79.2	3.6	14538	2.7
Sep-2023	2.1%	5.1	3.6%	4.10	1.2%	0.65	90.77	79.7	4.0	14616	2.7
Dec-2023	1.6%	4.1	3.9%	4.35	4.9%	0.68	71.89	82.1	4.2	14733	2.7
Mar-2024	1.3%	4.0	3.9%	4.35	4.9%	0.65	83.96	84.4	4.1	14858	3.2
Jun-2024	1.0%	3.9	4.1%	4.35	4.9%	0.66	82.33	83.6	4.1	15025	3.2

Questions/tasks

- Describe the movement in economic growth, inflation and the unemployment rate since the middle of 2022.
- Explain how the movement in interest rates since 2022 may have influenced economic growth, inflation and the unemployment rate.
- Explain how the change in Gross Disposable Income over the course of 2023-24 may have influenced economic growth, inflation and the unemployment rate.
- Describe the trend movement in the value of the AUD over the past two years and explain how it may have had a positive and a negative impact on economic growth and inflation.
- Describe the movement in consumer confidence levels over 2022-23 and explain the likely impact on economic growth, inflation and the unemployment rate.
- Explain how the movement in the wage price index (WPI) over 2023-24 may have influenced economic growth, inflation and the unemployment rate.
- Account for the movement in the size of the labour force over 2023-24 and discuss how this is likely to have influenced economic growth, inflation and the unemployment rate.
- Explain how movement in the rate of global growth over 2023-24 may have impacted on economic growth, inflation and the unemployment rate in Australia.
- Describe the movement in oil prices over 2023-24 and discuss the implications for the achievement of domestic economic stability in Australia.

Multiple choice review questions

- Which of the following is not a demand factor affecting the level of economic growth?
 - Labour productivity
 - Interest rates
 - Disposable income
 - Overseas rates of growth
- Which of the following is not a supply factor affecting the rate of economic growth?
 - Changes in real unit labour costs
 - Higher multifactor productivity in the economy
 - Changes in the income of consumers
 - Changes in the exchange rate
- Which of the following statements is most correct in relation to oil prices since 2022?
 - Oil prices fell which negatively impacted on aggregate supply and stimulated economic growth in Australia
 - Oil prices fell which positively impacted on aggregate supply and stimulated economic growth in Australia
 - Oil prices rose which negatively impacted on aggregate supply and stimulated economic growth in Australia
 - Oil prices fell which favourably impacted on aggregate supply and reduced economic growth in Australia
- Which of the following best describes how the Chinese economic boom assisted Australian economic growth in the past?
 - Large growth in the imports of cheap Chinese consumer items
 - Large growth in exports of commodities, such as iron ore
 - Large growth Chinese migration to Australia
 - Large growth in direct Chinese Investment into Australia

- 5. Which of the following has increased the quality of Australia's human capital over recent years?**
- Greater investment by businesses in physical capital
 - Less money spent on training and development of staff
 - Greater discovery of mineral resources
 - An increase in skilled immigration
- 6. Which of the following would raise costs of production for Australian businesses over 2025-26?**
- Growth in labour productivity
 - A lower exchange rate
 - Low growth in the Wage Price Index
 - A rebound in the labour force participation rate
- 7. Which of the following is least likely to suggest that living standards in Australia have improved?**
- An increase in GDP per capita
 - An increase in the number of people with tertiary qualifications
 - Higher oil prices
 - Stronger rates of economic growth overseas
- 8. Which of the following factors is not likely to cause economic growth and inflation to be higher in the economy over time?**
- A decrease in the rate of productivity growth
 - An increase in disposable income
 - Lower rates of personal income tax
 - Lower levels of business confidence
- 9. Which of the following can be considered as both a demand and supply factor that has affected economic growth, inflation and unemployment over the past two years?**
- The value of the Australian dollar
 - Real unit labour costs
 - Productivity
 - Quantity of factors of production
- 10. Which combination of factors has contributed to a weaker rate of economic growth and lower inflationary pressure over 2024?**
- A fall in consumer confidence and a decrease in global rates of economic growth
 - A higher Wage Price Index and higher interest rates
 - Growth in the labour supply and lower levels of consumer confidence
 - Slow growth in productivity and the ongoing war in Ukraine
- 11. Which combination of factors is most likely to reduce the rate of economic growth and increase the unemployment rate?**
- Lower levels of business confidence and higher productivity
 - A fall in disposable incomes and a lower value of the currency
 - Lower levels of consumer confidence and higher crude oil prices
 - Higher interest rates and a decrease in the trade weighted index
- 12. Which of the following is likely to increase labour costs?**
- A rise in the labour force participation rate
 - The emergence of skills shortages
 - A falling price of capital or machinery
 - A large rise in the level and rate of unemployment
- 13. Which of the following factors is least likely to contribute to an increase in the unemployment rate?**
- Lower consumer confidence
 - Lower interest rates
 - Negative economic growth overseas
 - A higher wage price index
- 14. Which of the following factors is unlikely to have contributed to the lower rate of unemployment in 2022-23?**
- A higher terms of trade
 - A depreciating exchange rate
 - The level of consumer confidence at the time
 - The level of interest rates up to the middle of 2022

15. **If wages are increased by 1% when productivity increases by 3%, this is likely to:**
- Reduce inflationary pressure and stimulate economic growth
 - Increase inflationary pressure and stimulate economic growth
 - Cause a decrease in Australia's international competitiveness and economic growth
 - Not have any effect on inflation but increase our competitiveness and stimulate economic growth

16. **Increases in aggregate demand in the economy:**
- Always lead to demand inflation
 - Never lead to demand inflation
 - Cause demand inflation when the economy is approaching productive capacity
 - Cause demand inflation regardless of whether the economy is in a boom or recession

17. **Which of the following is likely to have contributed to deflation for the year ended 30 June 2020?**
- An increase in disposable incomes
 - Lower interest rates
 - An increase in spare capacity within labour markets
 - A decrease in the size of the labour force

Questions 18-19 relate to the following AD/AS diagrams



18. **In Diagram A, the shift in AS from AS1 to AS2 may:**
- Have been caused by a higher value of the dollar
 - Be the result of higher income levels of consumers
 - Have been the result of higher real unit labour costs
 - Have been due to higher productivity levels
19. **In Diagram B, the movement in AD from AD1 to AD2 is most likely to be the result of:**
- A depreciation of the AUD
 - An increase in personal income taxes
 - Lower real unit labour costs
 - An increase in productivity
20. **Which of the following factors is likely to have contributed to the economic slowdown experienced in Australia over 2023-24?**
- Higher interest rates
 - Tax cuts
 - Lower unemployment rates
 - Growth in the labour force

Chapter Summary

1. Aggregate demand (AD) and aggregate supply (AS) factors will impact on economic growth over time.
2. Any factor that influences the level of AD is considered an AD factor affecting economic growth.
3. Any factor that causes a change in the 'costs of production' or 'supply potential' for the business sector is an AS factor affecting economic growth.
4. Interest rates are primarily considered a demand factor affecting growth. When interest rates increase, this should lead to a reduction in AD and economic growth.
5. The rise in interest rates since the middle of 2022, from 0.01% to as high as 4.35% by the end of 2023, had the desired effect of restraining growth in aggregate demand, economic growth and inflation, with economic growth falling to as low as 1% during 2024 and the rate of inflation falling from its peak of 7.8% in 2022, to as low as 3.8% by the middle of 2024. The higher interest rates were therefore a contributing factor behind the rise in the unemployment rate from a low of 3.5% in late 2022 to 4.1% by the middle of 2024.
6. The rise in disposable income over recent years helped to boost growth and jobs over time and reduce the unemployment rate, thereby boosting living standards. However, it contributed to an increase in inflationary pressures.
7. The depreciation of the exchange rate over recent years has had a positive impact on economic growth and employment but helped to raise inflationary pressures.
8. The low levels of consumer confidence over recent years, has negatively impacted on economic growth and jobs, and contributed to disinflation since 2022.
9. During 2021, business confidence was relatively high, which helped to stimulate growth and inflation and reduce the rate of unemployment, but it trended downwards between 2021 and 2023, having the reverse effects, before rising once more over the past year.
10. Declining or low rates of global economic growth over recent years have negatively impacted on Australian rates of economic growth, exerted upward pressure on the rate of unemployment and downward pressure on prices.
11. Lower rates of labour productivity over recent years have negatively impacted on economic growth, unemployment and prices.
12. The steady increase in the size of the labour force (i.e. the labour supply) has helped to support economic growth and reduce prices. In the short-term, higher labour supply exerted upward pressure on the unemployment rate, but over time its ability to reduce labour costs (and prices), and promote economic growth is likely to have increased the demand for labour and reduced pressure on the unemployment rate.
13. The relatively low labour costs enjoyed over recent years (evidenced by declining real wages and/or low growth in the WPI) worked as a favourable supply-side factor supporting economic growth (and jobs) and further reducing pressure on prices into 2023-24.
14. The general rise in global oil prices over 2022 was an unfavourable supply factor reducing the rate of economic growth (and jobs) and increasing inflationary pressure. However, the rise in oil prices over 2023-24 is likely to have the reverse effects, dampening economic growth, increasing pressure on unemployment and exerting upward pressure on inflation.
15. Recent natural disasters such as bushfires and floods have negatively impacted on supply conditions, reducing rates of economic growth and exerting upward pressure on the rate of unemployment.
16. Global economic shocks have negatively impacted on Australian production costs, raising prices (and inflation) which has negatively impacted on economic growth.

Activity Centre: Unit 3 Outcome 2

This activity centre contains a sample of practice SAC and exam questions relating only to those key knowledge dot points covered in Area of Study 2 (Unit 3) of the VCE Economics Study Design (2023-2027). It also contains a crossword puzzle to help students familiarise themselves with some of the key definitions or concepts relating to this area of study. The answers to all of the questions and crossword can be found at the CPAP website at www.commpap.com.

Question 1

- Define the government's goal for strong and sustainable economic growth. (2 marks)
- Discuss why a growth rate of 2½ percent might not lead to a desired reduction in the rate of unemployment (2 marks)
- Define 'living standards' and outline how a high terms of trade may cause a fall in living standards for some sectors or groups in Australia. (4 marks)

Question 2

Australia's rate of productivity growth will be a major determinant of future income growth and of how well the country can meet longer term challenges such as population ageing and climate change.

- Define productivity growth. (2 marks)
- Explain how productivity growth can cause an increase in economic (or income) growth (2 marks)
- Explain how a reduction or slowdown in the rate of productivity growth can have a negative impact on unemployment over time. (2 marks)
- Explain why the ageing of the population is likely to reduce the rate of economic growth (2 marks)

Question 3

- Distinguish the 'underlying rate of inflation' from the 'headline rate of inflation', providing an example to highlight the difference. (3 marks)
- Explain how an increase in the Trade Weighted Index (TWI) is likely to: (4 marks)
 - Reduce the rate of inflation
 - Worsen the balance on goods and services (BOGS)
- Explain why an easing of wages growth in the private sector has helped to reduce inflationary pressure (2 marks)

Question 4

Tobacco excise is legislated to increase by 5% per year, providing clear incentives for current smokers to substitute into the consumption of products that are less harmful to health.

- Discuss why tobacco excise is an example of indirect tax rather than a direct tax. (2 marks)
- Explain how the increase in tobacco excise is likely to have impacted on both the headline and underlying rates of inflation. (3 marks)
- Explain how the implementation of indirect taxes, such as tobacco excise, is likely to impact on 'living standards.' (4 marks)

Question 5

- Select any two of the following factors and explain how they are likely to impact on economic activity.
 - A recession in both the USA and Japan
 - A pandemic such as COVID-19
 - Relatively high interest rates (4 marks)
- When an economy experiences an economic downturn (or recession), analyse the impact that this is likely to have on inflation. (2 marks)
- Explain why large falls in economic growth might have a minimal (or insignificant) impact on the unemployment rate. (4 marks)
- Describe how personal tax cuts are likely to impact on both the participation rate and the unemployment rate. (4 marks)

Question 6

- Outline the difference between real and nominal GDP. (2 marks)
- Outline how a fall in the unemployment rate might impact on future rates of economic growth. (4 marks)
- Explain why relatively low growth in the wage price index (WPI) might help to create jobs in the economy. In your answer, refer to 'aggregate supply'. (3 marks)
- Define living standards and explain why higher productivity levels should improve Australian living standards. (4 marks)
- Outline how stronger rates of economic growth might not improve living standards. (2 marks)
- Explain how lower interest rates and lower oil prices over recent years may have impacted on economic growth. (4 marks)

Question 7

- Explain how the overall movement in the exchange rate over the past two years may have affected the consumer price index (CPI) and living standards. (3 marks)
- Outline how lower oil prices are likely to have impacted on the rate of inflation (2 marks)
- Explain how slower global economic growth rates over recent years impact on the goal of price stability in Australia. (3 marks)

Question 8

- Explain how lower company tax rates might impact on strong and sustainable economic growth (3 marks)
- Outline how an increase in productive capacity or aggregate supply is likely to impact on economic growth and the achievement of the RBA's low inflation goal. (4 marks)
- Distinguish the underutilisation rate from unemployment rate. (3 marks)
- Describe one possible reason to explain why the underutilisation rate is not falling by as much as the unemployment rate. (3 marks)
- Explain how growth in the participation rate may have impacted on the rate of unemployment. (3 marks)
- Outline how lower interest rates can stimulate aggregate demand via a change to the exchange rate. (2 marks)
- Explain how a fall in both crude oil prices and the household savings ratio may impact on economic growth. (4 marks)

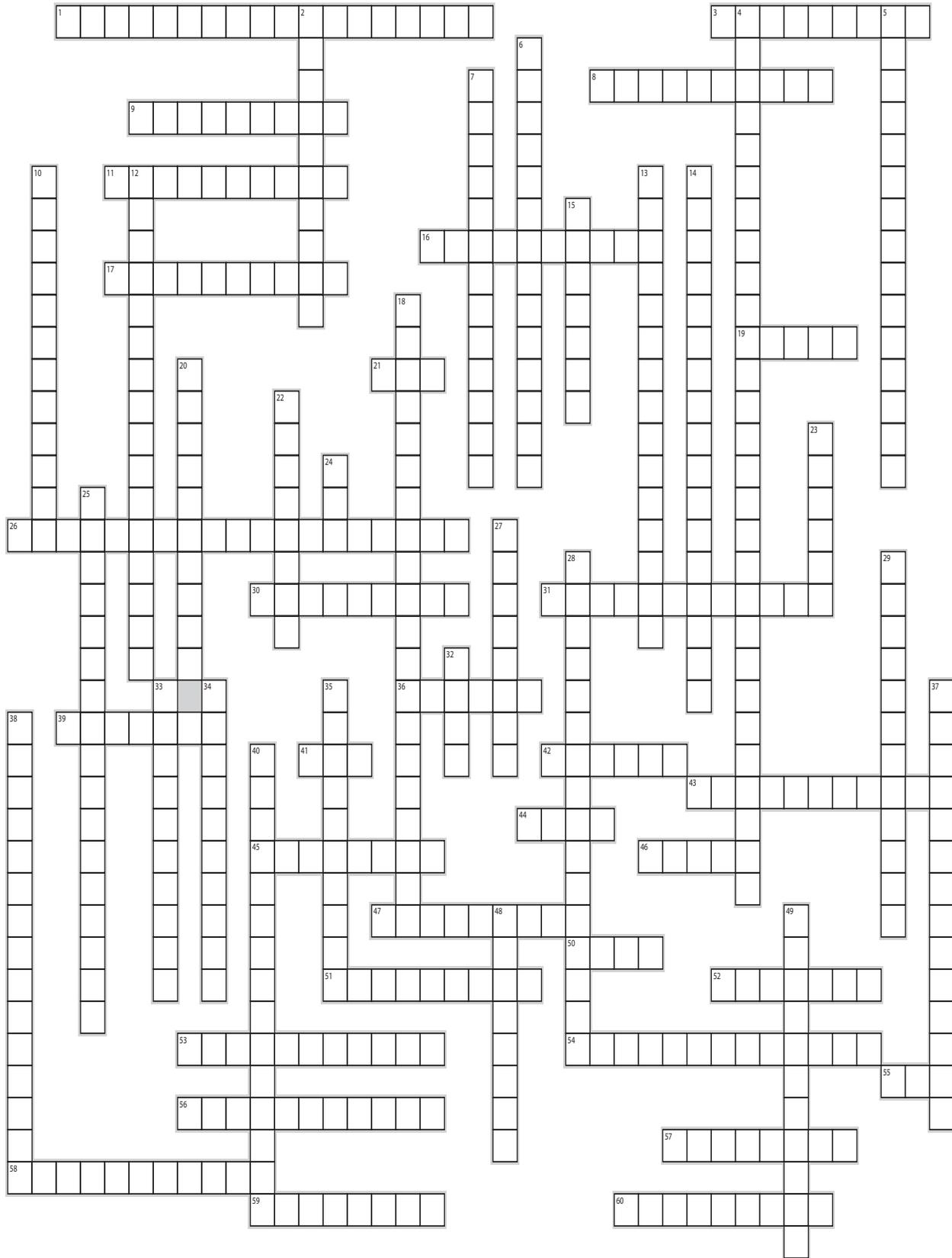
Giant Crossword Puzzle - AOS 2 Unit 3

Across

1. A measure of headline inflation and measures the change in the prices of goods and services purchased by the average Australian household (3 words)
3. That sector of the economy acting as the intermediary between savers and investors. It includes banks and other financial institutions.
8. when these costs increase it will reduce business profitability and cause the AS curve to shift to the left.
9. A type of unemployment also referred to as underemployment.
11. Exports minus imports (2 words)
16. When someone is over 15, without work or working for less than one hour per week, and actively looking for (more) work.
17. A rate of inflation that provides the best indicator of the predominant price pressures existing in the economy.
19. Acronym for the lowest unemployment rate possible before inflation begins to accelerate (approx. 4.25% U/E).
21. The acronym to describe the final market value of all goods and services produced in the Australian economy over a given period of time (2 words)
26. The rate at which industries are producing in relation to maximum capacity (2 words)
30. A sustained increase in the general or average price level over time.
31. When the rate of inflation falls.
36. A period of very low rates of growth in production (or real GDP) or the lowest point in the business cycle.
39. a period of time when all prices, including those in both product and factor markets, are fully flexible (2 words)
41. Total expenditure by Australians on goods and services produced in Australia and the rest of the world.
42. The income that represents the return to factors of production for the contribution to production
43. A downturn in economic activity.
44. An acronym for the average costs of labour (adjusted for inflation) divided by average labour productivity
45. The type of unemployment that occurs when the economy is not operating at its full capacity due to a deficiency of aggregate demand.
46. Money collected by governments, mostly based on the income earned by economic agents such as businesses and households. Also a leakage from in the circular flow model of income.
47. Two consecutive quarters of negative economic growth.
50. Inflation caused by supply side pressures, such as lower productivity and higher cost of capital imports.
51. A decrease in the average price level over time.
52. Goods and services purchased by Australians that are made overseas. Also a leakage from in the circular flow model of income.
53. Periods of low economic growth, high unemployment rates and high inflation rates.
54. Another way of describing the business cycle (2 words)
55. The acronym to describe the indirect tax in Australia that collects significant amounts of revenue for the government.
56. All those people aged 15 and over who are willing and able to work; it includes the employed and the unemployed (2 words)
57. The curve representing the trade-off that sometimes exists between inflation and unemployment.
58. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
59. A pick up (or return to normal) levels of economic activity.
60. These economists believe that AD does have a role to play in achieving strong and sustained economic growth because of price rigidity ('stickiness') in factor and product markets.

Down

2. The purchase of new equipment and plant, buildings and vehicles, as well as the addition to inventories (or stock).
4. Also one of the reasons explaining the downward sloping AD curve where an improvement for Australia means that Australian are producing goods and services at relatively lower prices or higher quality compared to competitors overseas (2 words)
5. Total expenditure on Australian made goods and services (2 words)
6. That level of unemployment that exists when the government's economic growth objective is achieved and where cyclical unemployment is non-existent (2 words)
7. The cyclical movement of economic activity over time, with periods of above average rates of economic growth and periods of negative or low rates of growth. Also referred to as the economic cycle (2 words)
10. A measure of material living standards (3 words)
12. Volume (or real value) of production, employment, incomes and expenditure in an economy (2 words)
13. Those individuals that are classified as employed, but who are at least partly unemployed in the sense that they would prefer to be working more hours than they are currently working.
14. A period of stable economic activity that is characterised by healthy and sustainable rates of economic growth, full employment and low inflation. Also referred to stability in the level domestic economic activity (2 words)
15. This global event caused recessions around the globe (including Australia) during 2020
18. Adding the unemployed to the underemployed and dividing by the size of the labour force (2 words)
20. According to the ABS, occurs when a person over 15 years of age is working more than one hour per week in return for some form of measurable remuneration (such as wages).
22. That rate of inflation as captured by price movements of all goods and services contained in the CPI.
23. The type of 'unemployment' that occurs when potential workers are excluded from unemployment statistics because they have become discouraged about job prospects and do not actively seek employment.
24. The government body responsible for gathering and reporting statistical information (acronym)
25. A record of the financial transactions between residents of Australia and residents of the rest of the world. Includes the Current Account and the Capital and Financial Account (3 words)
27. Money that is diverted away from Consumption in the circular flow model of income
28. The total income that households have received in exchange for their participation in the production process plus government transfers less direct (income taxes). Also gross income less the direct taxes levied by governments (2 words)
29. The volume of output (e.g. real GDP) that is produced from a given number of inputs (e.g. labour and capital resources)
32. A period of very high rates of growth in production (or real GDP) that is likely to be unsustainable.
33. The type of unemployment where a person is unemployed for that period of time whilst they are moving from one job to another.
34. an increase in funds flowing back into the core of the economy in relation to the circular flow model of income (e.g. Exports and Investment).
35. involves multiplying a quarterly variable (e.g. inflation or real GDP) by four to arrive at a figure that can be compared to annual figures.
37. An increase in the amount or level of national production that has occurred over time. Most commonly measured by changes in the level of real GDP (2 words)
38. The aggregate welfare of people in a country like Australia, made up of both material factors (such as access to goods and services) and non-material factors (such as quality of life) (2 words)
40. The ability of cash, money or income to acquire goods and services. This erodes over time with inflation (2 words)
48. a period of time when all prices, including those in both product and factor markets, cannot adjust and are therefore fixed (2 words)
49. Describes an economic variable that moves in the same direction as the change in the economic (or business) cycle. For example, business confidence increases when economic activity is high (2 words)



Chapter 7

Australia and the international economy

7.1 The gains from international trade

Australia's prosperity depends, in part, on the world economy and its interaction with other economies. **International trade** between nations can be mutually beneficial in the same way that gains are made from trading goods and services in any market. Ultimately, international trade occurs because it increases the material and non-material living standards of the citizens in all affected countries. There are a wide range of international transactions that are undertaken, and they have added to the wellbeing and economic prosperity of Australia.

International trade in goods and services

International trade is typically broken up into exports and imports of goods and services. Australian **exports** are Australian-made goods and services that are purchased by foreign households, businesses, governments and other groups. Australian **imports** are foreign produced goods and services that are purchased by Australian households, businesses, governments or other groups (such as not-for-profit organisations). Over the past 10 years, on average, exports of goods and services have made up approximately 21% of GDP while imports have made up approximately 20% of GDP. This means that **net exports** (exports minus imports) made a net contribution to AD and GDP of approximately 1% on average over the past 10 years.



International trade enables the living standards of both trading countries to increase. From Australia's perspective, the purchase of imports allows residents to purchase goods that Australia may not be able (or choose not) to produce, from the cheapest and best quality in the world. By doing so, Australians have access to a more culturally diverse range of products, along with having access to the best technology available. Buying imports also allows the smooth functioning of Australian businesses and governments, because more than half of Australia's imports are inputs in the production process (such as telecommunications parts, robotics, plastics, aircraft parts). Imports also include spending on overseas holidays and the purchase of foreign entertainment, such as movies and TV shows, which add to the enjoyment of life for many Australians.

The selling of exports also improves living standards because it creates a new market for goods and services that have been produced in Australia but may not have been purchased by Australians. For example, Australia has an abundance of resources such as iron ore and coal which can be sold to other countries in exchange for income. In fact, Australia has a **competitive advantage** in the production of these resources and is one of the world's largest producers of them. Australia is therefore able benefit by producing larger quantities of them for sale to overseas customers. The production of exports requires labour, and so jobs are created through the selling of exports. The additional income is likely to be spent in the economy, further stimulating economic activity and creating jobs in unrelated sectors. For example, the mining sector in Australia, while only providing around 2% of Australian employment, produces export income that is then spent, creating jobs and income in other industries. Therefore, a mining export boom will benefit the whole economy, whether Australians work in the mining sector or not.

International trade also promotes competition and the incentive to innovate and create new products. Businesses have the incentive to find ways to beat their competitors and are exposed to new ideas through the use of technology that may have been developed in another country.

International trade allows businesses in the world to sell to a larger market. This means that they may be able to benefit from **economies of scale**. When a business produces a large volume of goods and services it is able to spread the fixed costs (those costs that will always be the same irrespective of volume) over a larger base. This will mean that the cost per unit will tend to decrease and consumers will be able to purchase the products at lower prices. (See Activity 7b

for a further explanation of economies of scale and its advantages). Lower prices further promote increases in living standards because purchasing power increases and more goods and services can be purchased from a given income. [See Section 7.9 'Factors affecting Australia's international competitiveness'.]

Other international transactions

In addition to the exchange of goods and services, Australia is involved in a number of other international transactions that influence living standards.

Financial capital flows

Australia is a relatively young country that has many investment opportunities available. Businesses often have a need to expand and purchase capital and equipment. This spending needs to be financed and, generally speaking, there has not been enough **Savings** in Australia to fund this **Investment**. Australia, as a country with a typically low savings rate, relies on the savings of those countries with high savings rates to finance the purchase of houses, business expansions and the accumulation of government debt (e.g. when budget deficits are delivered, such as those handed down over recent years). These transactions are also mutually beneficial. The lenders in the foreign country receive interest for lending to Australians, and Australian organisations can use the funds to expand operations, invest in new technology, research and development, or the provision of a range of services (such as education, training, or infrastructure) which should, ultimately, increase incomes and/or improve Australian living standards. Whenever Australian entities borrow money from foreign lenders it will add to the stock of Australian foreign debt. In contrast, when Australian entities lend to foreign borrowers it will mean that Australia's stock of **net foreign debt (NFD)** will fall, where NFD is the most common indicator of Australia's net debt obligation to the rest of the world.

There is another form of raising funds in financial markets, typically referred to as the buying and selling of 'equity', with the most common form of equity being shares/stock. This is distinct from the selling and buying of 'debt' (i.e. borrowing and lending) referred to in the previous paragraph and, like borrowing, has the real potential to provide benefits for Australian institutions. It allows them to raise more money in global markets to fund investment projects, or to take advantage of investment opportunities abroad. For example, companies like BHP purchase shares in foreign companies and the profits are sent back to Australia. By investing overseas, Australian entities can look for the best rates of return, which can provide an additional source of income.

So when an entity has insufficient savings to fund investment, it will typically raise funds by issuing/selling debt (i.e. borrowing money) and/or issuing equity (e.g. selling shares). Of course, when Australian companies issue equity in global markets, it means that foreigners providing the funds become part-owners of the company, as distinct from lenders to the company in the case of foreign debt. The reverse is also true when Australian entities purchase foreign equity (e.g. an Australian superannuation fund purchasing shares in a US company). The total stock of **net foreign equity (NFE)** in Australia will be made up of the total value of Australian equity owned by foreign investors minus the total value of foreign equity owned by Australians. A negative figure for NFE (which is currently the case in Australia) means that Australia owns more foreign equity than foreigners own Australian equity. Like debt, the existence of foreign equity transactions create international financial obligations that need to be serviced. In the case of debt, the servicing occurred via the payment/receipt of interest, whereas equity is serviced by the payment of dividends. [The recording of these transactions will be examined in Section 7.2.]

Human capital flows

The proliferation of trade agreements (or globalisation more generally) has also seen an increase in the freedom for people to work in other countries, which is commonly referred to as global movement in **human capital**. While this is an example of the export and import of (labour) services, it is usually distinguished from other services, such as education and tourism.

Australia will receive income from abroad when Australians perform work in other countries. Similarly, Australian organisations will pay for foreign labour via working visas such as the Temporary Skill Shortage visa or the Working Holiday visa (see Chapter 10). In addition to the income generated by Australians working abroad, the ability for Australians to work overseas helps to improve the quality of Australian human capital because any new skills that are acquired overseas can then be brought back into Australia. Further, the ability for Australia to take advantage of skilled

Study tip

While the transactions listed in this section can also be considered examples of 'services' in the context of trade in 'goods and services', they are typically isolated and reported separately in the balance of payments.



foreign labour has clear benefits for the business sector. It can help to alleviate capacity constraints or skills shortages that may exist in some industries or occupations and it can improve the quality of human capital as skills transfer takes place between foreign and local workers. This ultimately flows through to benefit consumers as goods and services can be produced more cheaply and/or with higher quality.

International transfers

Australia, as a relatively rich country, has the ability to assist those nations who are deemed to be heavily indebted and low-income, by assisting them with their economic development. If the Federal Government, businesses and households provide both monetary funding and goods and services (often in the form of donations or grants) to help nations, then those countries may be able to address the causes of poverty and develop self-sufficiency. In the long term, this will raise living standards in both the donor and the recipient countries. In future economic periods, economic growth might increase, which will increase the ability of the recipients to purchase goods and services and avoid the health problems associated with poverty. Australians may benefit because they feel good knowing they are helping those less fortunate, and in future they may be able to trade with the country.



Review questions 7.1

1. Explain the difference between an export and an import.
2. Identify the total value of Australia’s net exports as a percentage of Australia’s total value of production.
3. Explain why or how (net) exports help to boost Australia’s national production and income.
4. Explain why greater international trade between nations might help to contain inflationary pressures within Australia.
5. Explain how greater international trade can help Australia achieve ‘economies of scale’ benefits.
6. Distinguish between the two main types of financial capital flows into and out of Australia and explain how these capital flows can contribute to higher living standards in Australia.
7. Explain how the increased global movement of human capital can improve Australian living standards.
8. Explain why it is beneficial for countries to engage in international transactions in terms of its effect on their living standards.
9. Explain why transferring funds to low-income countries might boost living standards in Australia.

Activity 7a: True or False [International trade and living standards]

Answer true (T) or false (F) to the following statements:

Statement	T	F
International transactions can increase non-material living standards		
Australian exports are foreign-made goods and services that are purchased by Australians		
The purchase of imports enhances living standards on the whole		
International trade reduces domestic competition		
Exports are a component of aggregate demand and each dollar spent results in an increase in national income and production		
Trade will most likely prevent nations from specialising in those areas where they have a competitive advantage		
International trade allows businesses in the world to sell to a larger market		
Australian organisations rely on foreign savings or foreign capital to fund investment		
Increased trade in goods and services prevents superannuation funds from diversifying		
International trade creates additional incentives for local businesses to become more productive		

Activity 7b: Economies of scale

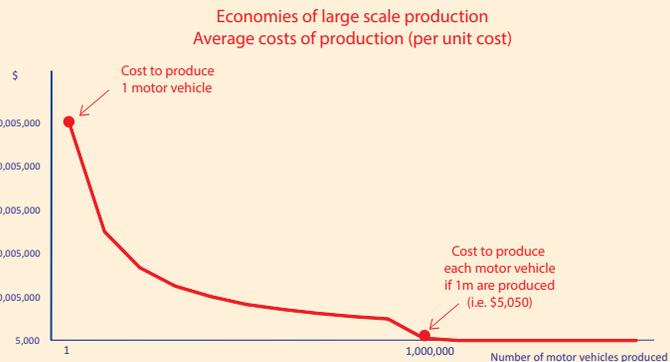
When a business produces, it can experience cheaper production costs per unit of its output, the higher the volume of output it produces. This is called achieving economies of scale, which refers to the reduction in costs per unit of output (i.e. average costs) gained from increasing the volume of production. For many years, it has been observed that one of the challenges facing the Australian economy has been that our market is too small to take advantage of the economies of scale. By creating an export market, it can increase the volume produced and take advantage of economies of scale because the costs of production can be divided, roughly, between two main types - the fixed costs and the variable costs.

The fixed costs of production remain the same regardless of the volume of production. Up to a certain amount of output, the factory and plant (machinery used) can be considered a fixed cost in the manufacture of, for example, cars, regardless of how many cars the factory produces. The company can therefore spread the fixed costs across a larger volume of production if the factory produces a larger number of that product. In contrast, the variable costs of production are those that vary according to the volume produced, which includes the cost of the steel, plastics, paint, electricity and the labour hours employed.

A simple way of demonstrating this is by considering a hypothetical example. Imagine you are a car manufacturer and your fixed costs amount to around \$50 million per year, including the annual cost of maintaining your factories and equipment, and your advertising and management costs, plus research and development. You've also calculated that it costs \$5,000 in variable costs to make each car. This includes the cost of labour, electricity, paint, tyres, other component parts, and delivery to the dealership. The relationship between the total production of cars and the costs per car are summarised in the table below.

A	B	C	D	E	F	G (Cost per car)
Output [number of cars]	Fixed costs \$	Average Fixed Costs (B/A) \$	Variable costs per car \$	Total variable costs (A x D) \$	Total costs of production (B+E) \$	Average costs of production (F/A) \$
1	50,000,000	50,000,000	5,000	5,000	50,005,000	50,005,000
10	50,000,000	5,000,000	5,000	50,000	50,050,000	5,005,000
100	50,000,000	500,000	5,000	500,000	50,500,000	505,000
1,000	50,000,000	50,000	5,000	5,000,000	55,000,000	55,000
10,000	50,000,000	5,000	5,000	50,000,000	100,000,000	10,000
100,000	50,000,000	500	5,000	500,000,000	550,000,000	5,500
1,000,000	50,000,000	50	5,000	5,000,000,000	5,050,000,000	5,050
50,000,000	50,000,000	1	5,000	250,000,000,000	250,050,000,000	5,001

Clearly, the production of one car would be cost prohibitive, given that the manufacturer would need to pay the \$50m set up costs in addition to the variable costs of \$5,000 - a total cost for the car of \$50,005,000 (column G). However, as output (column A) increases, it enables the fixed costs to be spread over a greater number of cars, leading to both lower average fixed costs (column C) and lower average costs/cost per car (column G). Only once car production reaches more than 1000 does it start to become a viable proposition for the manufacturer, with the cost per car falling to \$10,000 when output reaches 10,000 and as low as \$5,500 if it reaches 100,000. Notice what happens to the average fixed cost (column C) and the cost per car (column G) if the \$50m manufacturing plant could support the production of 50m cars. Spreading the \$50m over 50m cars results in an average fixed cost of only \$1 and a cost per car of only \$5,001 (the variable cost of \$5,000 plus the \$1!). These benefits of economies of scale can also be seen in the adjacent chart.



Questions:

1. Distinguish fixed costs from variable costs.
2. Identify the cost to produce 'each car' if only 10 cars were produced and outline why this 'average cost' falls as the production of cars increases. In your answer, refer to economies of scale.
3. Explain why international trade enables Australian businesses to take advantage of 'economies of scale' and outline why Australian consumers also benefit.
4. Use the chart to outline why per unit costs fall as output increases and explain why the per unit cost (i.e. the cost per car) cannot fall below \$5,000.

7.2 Australia's Balance of Payments and its components

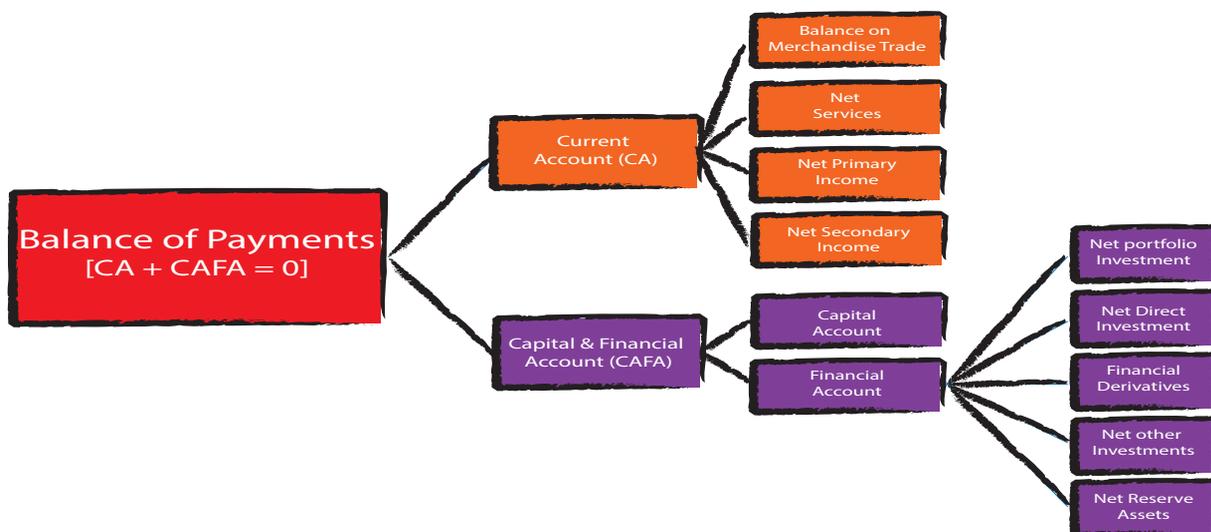
All financial transactions with the rest of the world are recorded in the Balance of Payments, and the data for the recording of the Balance of Payments (BOP) is collected by the ABS. The Balance of Payments is a useful accounting summary of the areas where money is received from other countries and where Australia spends money in the rest of the world. It essentially shows all of Australia's international transactions. When an item is recorded in the Balance of Payments it is categorised into separate accounts and recorded as either a debit or a credit.

Credit – whenever money is **received** (the movement of money from foreign countries to Australia). These are shown as **positive** entries in the accounts.

Debit - whenever money is **outlaid** (the movement of money from Australia to foreign countries). These are shown as **negative** entries in the accounts.

The BOP comprises two major sets of accounts: the Current Account (CA) and the Capital and Financial Account (CAFA). Each of these accounts will have a positive or a negative balance and, at the end of any particular period, any CA deficit (CAD) must be exactly offset by a CAFA surplus, such that the BOP must equal zero. Similarly, any current account surplus needs to be offset by a CAFA deficit. The structure of the BOP is depicted in Figure 7.1.

Figure 7.1: Structure of the Balance of Payments



The Current Account (CA)

The CA records all receipts and payments of a '**current**' nature, as opposed to transactions of a '**capital**' nature which are recorded in the CAFA. A deficit on the Current Account (i.e. a CAD) means that payments to foreigners (debits) exceed receipts from foreigners (credits).

The CA is made up of four separate parts:

The Balance on Merchandise Trade (BOMT): This is made up of merchandise export receipts (credits) minus merchandise import payments (debits), such as the sale or purchase of manufactured goods. It is sometimes referred to as the '**balance on goods**' or even '**net goods**'.

Net Services: This is made up of services export receipts (credits), such as the money received for the provision of education to foreigners, minus services import payments (debits), such as money spent overseas by Australian tourists. Net services is also referred to as 'balance on services' and economists sometimes refer to the total of BOMT and Net services as the '**Balance on Goods and Services**' (abbreviated to the acronym '**BOGS**!'). [In RBA and ABS charts, the BOGS is often called the 'Trade Balance'.]

Net Primary Income: This is made up of receipts (credits) of income from holding foreign assets, such as dividends from shareholdings in foreign companies or interest repayments from foreigners, minus payments (debits) of income to service foreign liabilities, such as dividend payments for foreign equity (e.g. profits sent to overseas owners) and interest repayments for foreign debt. In addition, it includes receipts or payments of income earned from international labour.

Study tip

With respect to the distinction between current and capital transactions, think of current transactions as those that do not result in any future obligations, whereas capital transactions do result in future obligations. For example, the receipt of money for exports does not result in any future obligation for either the Australian exporter or the overseas importer (purchaser). However, the receipt of money in the form of a loan from a foreign bank is capital in nature because it results in future obligations (repayment of both the loan and the interest) to the overseas lender. The distinction is similar to the difference between C and I or between G1 and G2.

Net Secondary Income: This section usually involves a one-way movement of money where nothing is expected in return. It is simply a transfer from one country to another. The most common forms of secondary income credits are the payment of foreign pensions from foreign countries to those living in Australia and gifts from abroad. Australia's main secondary income debit is foreign aid sent to those overseas from Australia. It also includes gifts or other gratuitous payments. The four sections of the CA are summarised in Table 7.1.

Relevant subsection	What is recorded in this subsection	Examples of credits (\$ coming into Aust)	Examples of debits (\$ leaving Aust)
BOMT	Exports and imports of goods	Iron ore, coal, wine, beef, medicines	TVs, cars, furniture, gadgets
Net Services	Exports and imports of services.	Education, tourism, banking and insurance.	Entertainment, call centre services, tourism.
Net Primary Income	Payment/receipt of income flows that service net foreign liabilities (debt and equity) or reflect payment for foreign labour	Dividends/profits received on foreign shareholdings/ownership and interest received from foreign borrowers	Profits/dividends/rent paid to foreign owners of Australian assets and interest paid to foreign lenders
Net Secondary Income	A transaction that involves the transfer of funds in one direction (creates no future or current obligation)	Gifts sent from overseas to Australia. The payment of a European pension to an Australian immigrant	Payment of foreign aid to heavily-indebted, low-income countries

The Australian current account returned to surplus in 2019 for the first time since 1973 and Table 7.2 provides information on both the structure of the account and the quarterly figures since December 2020.

Quarter/year	A	B	C	D	E	F	G	H	I	J	K	L	M
	Export Goods Credits	Import Goods Debits	(A - B) BOMT (Net Goods)	Export Services Credits	Import Services Debits	(D - E) Net Services	(C + F) BOGS	Primary Income Credits	Primary Income Debits	(H - I) Net Primary Income	Net Sec. Income	(G+J+K) Current A/C Bal	CA as a % of GDP
Dec-2020	95722	-83556	12166	16810	-12905	3905	16071	14702	-16852	-2150	-364	13557	2.3%
Mar-2021	99782	-78028	21754	16132	-11795	4337	26091	15686	-24314	-8628	-752	16711	3.1%
Jun-2021	115372	-82713	32659	14746	-12841	1905	34564	15767	-22686	-6919	-1825	25820	4.5%
Sep-2021	121294	-87150	34144	14356	-13889	467	34611	17658	-35382	-17724	-502	16385	2.9%
Dec-2021	122110	-96279	25831	14624	-16603	-1979	23852	19136	-37036	-17900	-476	5476	0.9%
Mar-2022	131196	-99089	32107	15742	-18812	-3070	29037	20196	-46915	-26719	-1223	1095	0.2%
Jun-2022	157444	-105625	51819	16505	-22422	-5917	45902	23057	-48557	-25500	-1276	19126	3.2%
Sep-2022	150507	-114946	35561	19797	-29198	-9401	26160	22480	-58381	-35901	-25	-9766	-1.6%
Dec-2022	155668	-114454	41214	23400	-30643	-7243	33971	25384	-49496	-24112	23	9882	1.6%
Mar-2023	144450	-104621	39829	26664	-28420	-1756	38073	22393	-53896	-31503	-715	5855	1.0%
Jun-2023	139936	-105906	34030	25621	-33408	-7787	26243	23559	-41603	-18044	-833	7366	1.2%
Sep-2023	133830	-112239	21591	30235	-39088	-8853	12738	24897	-50718	-25821	-482	-13565	-2.2%
Dec-2023	141072	-111465	29607	30780	-35727	-4947	24660	24849	-42973	-18124	152	6688	1.1%
Mar-2024	130909	-108976	21933	31545	-33164	-1619	20314	26000	-51441	-25441	-532	-5659	-1.0%
Jun-2024	130266	-111320	18946	28572	-35402	-6830	12116	26063	-43710	-17647	-727	-6258	-1.0%

Historically, the **BOMT** (column C) fluctuates between a deficit and a surplus. However, since the end of 2017 the BOMT has been in surplus and the surplus has steadily increased to levels not seen in over 60 years, with the BOMT surplus rising to a very high \$52 billion (8.7% of GDP) in the June quarter of 2022. This was mainly driven by strong growth in mining export demand (including the growth in natural gas exports) and, to a lesser extent, by a fall in the value of imports. This improvement in Australia's trade balance follows the rebound in commodity prices (and terms of trade) and the generally lower exchange rate that has helped to boost the competitiveness of Australia's **tradables sector** (exporters and import competing businesses). In addition, Australian mining export volumes were boosted as a consequence of the investment phase of the earlier mining boom being replaced by the production phase of the mining boom. In other words, the investment in new mining capacity (e.g. the development of new mining fields) that was spurred by the earlier growth in commodity prices finally resulted in the ability to extract more minerals for export. [See

Activity 7k: The 3 phases of the mining boom.] While the BOMT has remained in surplus since 2022, the recent fall in commodities has been the major factor behind the fall in the BOMT over 2023-24.

Net Services (column F) has been in deficit for the entire period since the end of 2021, with the imports of services (such as outbound tourism and travel) exceeding the exports of services (including education and inbound tourism), however the reverse was true over 2020-21 as the closure of Australia’s borders limited the flow of service imports relative to exports. Together, the BOMT and Net Services make up the **BOGS** (column G), which climbed from a deficit in December 2017 (not shown in the table) to a historically high surplus of \$46 billion for the June Quarter of 2022. While the BOGS balance has deteriorated since then, it remains in surplus, meaning that Australia has exported a larger value of goods and services than it has imported over the period shown in the table.

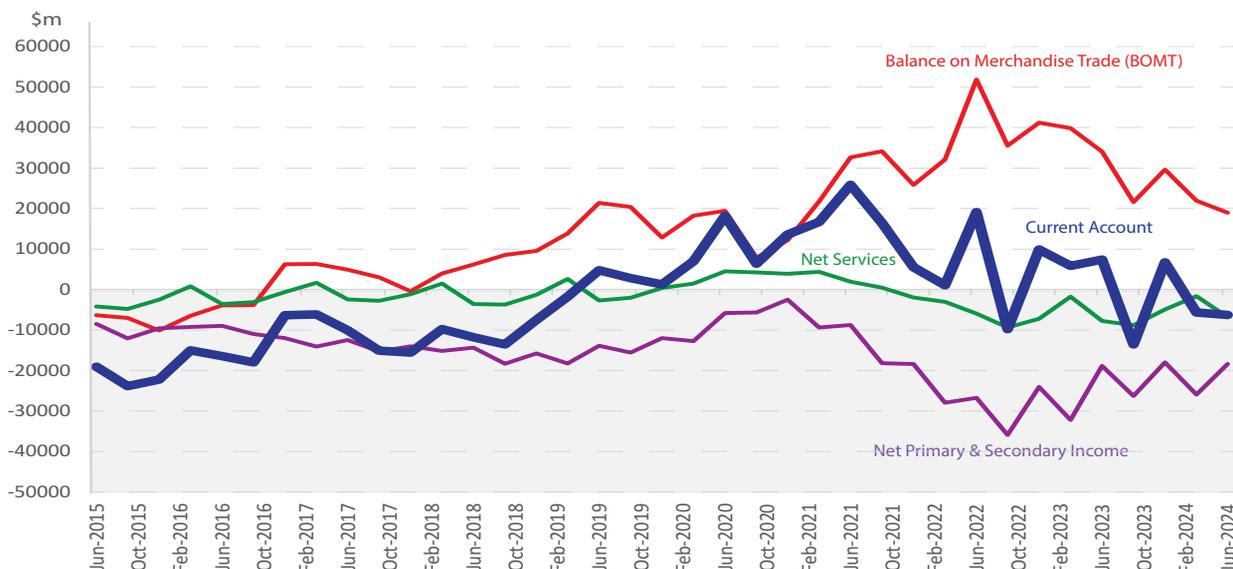
Study tip

It is easy to get mixed up when attempting to interpret or quote CA statistics. For example, the -\$7,434 billion CA balance (column L) for the Dec quarter 2018 is typically referred to as a \$7.4 billion CA deficit. Notice that the minus sign no longer needs to appear in front of the \$7.4 billion. This is because of the inclusion of the word ‘deficit’ which effectively replaces the minus sign. It is common for students to report this as a CA balance of \$7.4 billion or a CAD of -\$7.4 billion – both are incorrect.

The **Net Primary Income (NPI)** section (Column J) is usually the largest (negative) component of the current account and has historically been the primary reason for the relatively large CADs experienced by Australia (at least up until the end of 2015 when Australia’s CAD was a large 5% of GDP). The NPI’s average size since June 2022 has been approximately a \$28 billion deficit per quarter and is due to the fact that Australia continues to hold high levels of net foreign debt (NFD), whose servicing obligations require a net outflows of funds, in the form of interest payments to foreign lenders. [The value of Net Secondary Income is relatively insignificant and can be ignored for simplicity.] Up until the end of 2020, the NPI deficit fell as a consequence of both declining world rates of interest, a general decline in the value of Australia’s financial obligations to the rest of the world (see Capital and Financial Account on the next page) and a lower exchange rate over 2020-21. [The valuation effects of a changing exchange rate are considered later in Section 7.8 ‘The effects of changes in the exchange rate.’] In addition, Australian mining companies, which have substantial foreign shareholdings, froze dividend payments during the pandemic, which further reduced the size of NPI debits. However, since then, the NPI deficit increased once more as interest rates started to rise and mining companies increased dividend payments to compensate for the ‘freeze’ during the pandemic. The return of the current account balance to deficit in 2024 will result in higher net foreign liabilities and continued pressure on the NPI deficit.

The movement in the major components of the current account since the middle of 2015 are summarised in Chart 7.1 below. The major points to note are, first, the current account balance (the thick/solid blue line) returned to surplus in the middle of 2019 for the first time since 1973. As highlighted earlier, this was due to the record growth in exports relative to imports that resulted in the BOMT recording the largest surplus for more than 60 years. Second, prior to 2019, the current account remained in deficit despite periods where exports of goods (and services) exceeded imports of goods (and services), evidenced by the red and/or green lines in the chart moving above the zero line while the thick/solid blue line (current account) remained below zero (i.e. in deficit).

Chart 7.1: Current Account components - quarterly values



The **current account as a percentage of GDP** (column M in Table 7.2) is a common statistic referred to when discussing movements in the current account. The highest it has been since 2019 is 4.5% of GDP for the June quarter of 2021 before it returned to deficit for parts of 2022-23 and again in 2024. The annual figure for the financial year ended 30 June 2024 is derived by adding the last four quarters of 2023-24 together. These annual figures are summarised in Table 7.3 and clearly highlight the points made earlier. First, Australia will often record a CAD (\$18.8 billion) despite the fact that we have also recorded a (large) BOMT surplus. In the example here, where the value of exports exceeds the value of imports by \$92 billion. Second, the NPI section is the largest negative component of the current account (-\$87 billion) which is primarily responsible for the existence of a CAD. This relates to the ongoing high level of NFD (or net foreign liabilities more generally) which, in turn, reflects many years of national spending exceeding national income (i.e. insufficient national savings). This is explored later in Sections 7.3 and 7.4.

<i>BOMT</i>	\$92,077
<i>Net Services</i>	-\$22,249
<i>Net Primary Income</i>	-\$87,033
<i>Net Secondary Income</i>	-\$1,589
<i>Current Account (CA) balance</i>	-\$18,794
<i>CA balance % of GDP</i>	0.8%

The Capital and Financial Account (CAFA)

The **Capital Account** is a relatively insignificant account and covers capital transfers (such as debt forgiveness) and the acquisition/disposal of non-produced, non-financial assets (such as sales of copyrights, licenses or patents) between residents and non-residents.

The **Financial Account** is the more important account in that it effectively records how Australia finances any CADs (i.e. how Australia sources any shortfall of national savings from abroad). So when Australia experienced a CAD of \$18.8 billion for 2023-24, it effectively meant that Australia spent \$18.8 billion more than it earned as a nation. In other words, national spending (GNE) exceeded national income (GDP) because Australia spent more on the combination of imports and servicing foreign liabilities (such as interest on foreign debt) than it received from the combination of exports and earnings from foreign assets (such as dividends from offshore equity investments). This \$18.8 billion shortfall was typically financed in the form of loans (debt), or the sale of Australian assets (equity), and led to an increase in Australia's net foreign liabilities (NFD + NFE). When these amounts entered the country, they were recorded in the CAFA as a combined \$18.8 billion credit, the vast majority of which entered via the Financial Account. Of course, during those periods between 2019 and 2023 when Australia recorded current account surpluses the reverse was true. Australia earned more than it spent over this period, fuelled primarily by the enormous growth in net export sales as Australia was able to generate more income from foreign sources. Given that the balance of payments must equal zero, any current account surplus must be reflected by (or offset by) the CAFA moving into deficit. The major components of the CAFA are summarised in Table 7.4.

Relevant subsection	What is recorded in this subsection	Examples of credits (\$ coming into Aust)	Examples of debits (\$ leaving Aust)
Capital account			
	Movement of 'capital' between nations.	The sale of license to a USA broadcaster to use content developed by Australians	The Australian Government agrees to cancel a loan owing from Papua New Guinea
Financial account			
Direct investment	The creation of new assets and liabilities in a foreign country, including the setting up of a production facility or controlling 10% or more of a company's shares	The purchase of the Toll Group by Japanese company, Japan Post Holdings, or the opening of a new store by Uniqlo at Chadstone shopping centre	A new oil field opened in Papua New Guinea by Oilsearch (an Australian company)
Portfolio investment	Transactions involving less than 10% control of a company and the sale/purchase of debt	The sale of shares in Qantas to a foreign household or the sale of bonds to foreigners	The purchase of shares in Apple by Australian Super or the purchase of foreign bonds
Financial derivatives	Complex financial instruments that create assets or liabilities	The sale of options by the Commonwealth Bank of Australia to an American merchant bank	The purchase of iron-ore futures by Fortescue Metals Group.
Other investment	Investment flows that do not fit in one of the other categories (e.g. trade credit and some special categories of loans, such as those between central banks)	Receipt of a shipment of imports where payment is delayed until a future date	Delivery of exports to foreigner where receipt of funds is delayed until a future date
Reserve Assets	RBA and government transactions involving foreign currency and contributions to the IMF and UN.	The RBA purchases AUD on the foreign exchange market to smooth out volatility in the exchange rate.	The Australia Government sends money to the UN to help them with their research.

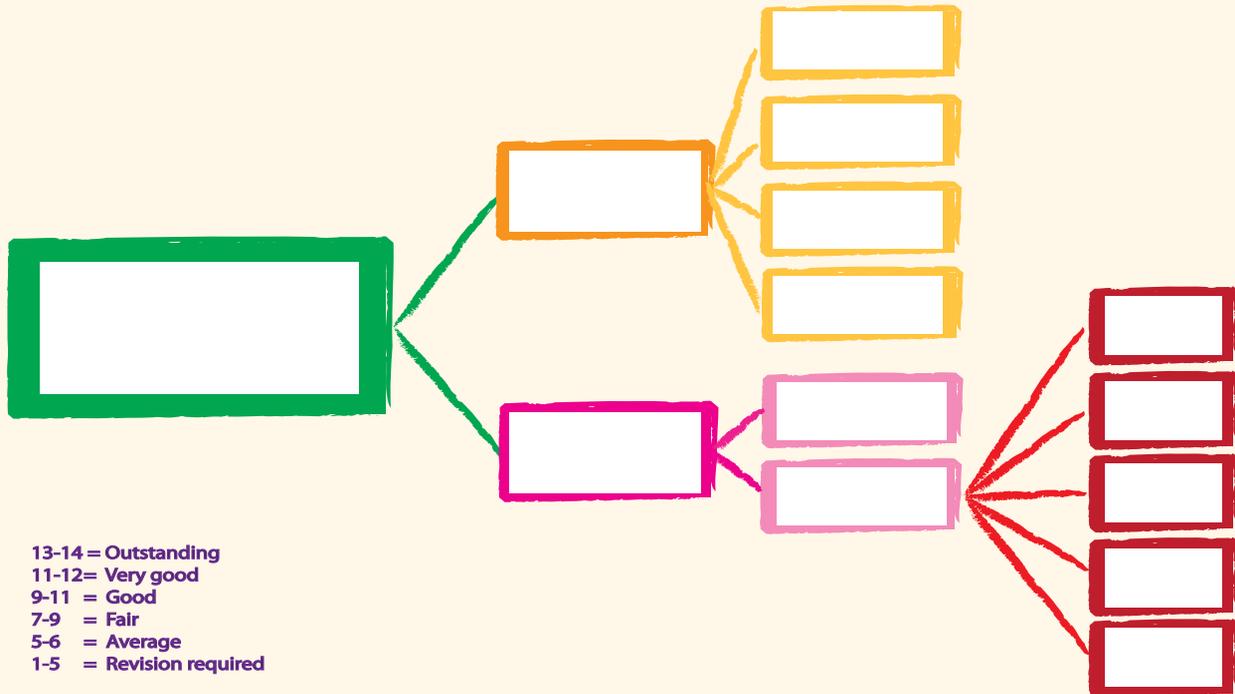
Table 7.5 contains the key components of the CAFA over 2023-24. The CAFA surplus of \$18.8 billion represents the net receipt of funds (either debt or equity) that has occurred as a consequence of the CAD of \$18.8 billion for the same period (as shown in Table 7.3). Once again, it highlights that national spending or Gross National Expenditure (GNE) exceeded national income or GDP (i.e. insufficient national savings), which is further explained in the next section (Section 7.3).

TABLE 7.5: CAPITAL AND FINANCIAL ACCOUNT (\$m)									
	A	B	C	D	E	F	G	H	
Quarter/ year	Capital Account	Financial Account							
		Net Direct Investment	Net Portfolio Investment	Financial derivatives	Other investment	Reserve assets	Net errors & omissions	CAFA Balance	
Sep-2023	-171	-2437	-6503	8186	9430	624	4435	13564	
Dec-2023	-146	25701	5020	-36136	-3599	242	2231	-6687	
Mar-2024	46	16868	-5766	-8664	9427	-2227	-4025	5659	
Jun-2024	-105	16887	53953	-32411	-27345	-1732	-2989	6258	
TOTAL	-376	57019	46704	-69025	-12087	-3093	-348	18794	

Activity 7c: Balance of payments structure

Without turning back to earlier pages in the text, identify each of the 14 accounts/sections within the balance of payments on the diagram below. Attempt this task in two minutes and award yourself a score out of 14. Determine your performance using the scale below.

Identify the structure of the Balance of Payments



Activity 7d: Debits or credits?

For each of the transactions below, identify whether the Balance of Payments will be credited (money coming into Australia) or debited (money going out). The first one has been done for you.

Transaction	Credit (Cr)	Debit (Dr)
Georgie, a teacher from Melbourne, purchases shares in Google on the US Stock Exchange		
Westpac borrowing from Lloyds Bank, UK		
The National Australia Bank repays interest on German debt		
Microsoft establishes a creative hub in Echuca		
Foreign aid is sent to the Sudan by Oxfam Australia		
Justin K, an Australian economist, is paid for advice to the UK's central bank on how to reduce unemployment		
Blackmores Australia pays dividends to French investors		
The Empire of the Sun (an Australian dance act) play a gig in Camden, London		
Heinz Australia sends profits to its parent company in USA		
An English tourist goes to the MCG for a day/night game and spends \$100		

Activity 7e: Which account in the BOP?

For each of the following transactions, determine if they are a credit or debit and then place in the appropriate section of the Balance of Payments: The first one has been done for you.

Transaction	Credit	Debit	BOMT (X-M of goods)	NS (X-M of services)	Net Primary income	Net Secondary income	Financial Account	Capital Account
Charlie borrows \$1000 from a US Bank								
BHP sells iron ore to China								
BHP pays Dutch shipping company to transport goods to China								
Sam, a foreign tourist, spends \$5000 in Australia								
Alan Brayden receives a \$1m gift from grandma in the USA								
Sanderson Timber enterprises purchases a \$1m saw from Germany								
Rio Tinto pays a \$5000 dividend to Huan Dang in Hong Kong								
The Australian Government sells a bond to a Chinese investor								
Ted Roberts builds a \$1 trillion house and uses an American architect for the design								
Bob Katter, an Australian fruiterer, buys banana from Fiji								

Activity 7f: Calculating the Current Account balance

Answer the following questions that relate to the hypothetical economy of Delloro. You must show your calculations:
Delloro – Balance of Payments

Item	\$b
Credit for goods	200
Debits for goods	150
Credits for services	150
Debits for services	80
Credits for primary incomes	40
Debits for primary incomes	170
Credits for secondary incomes	15
Debits for secondary incomes	10



Questions

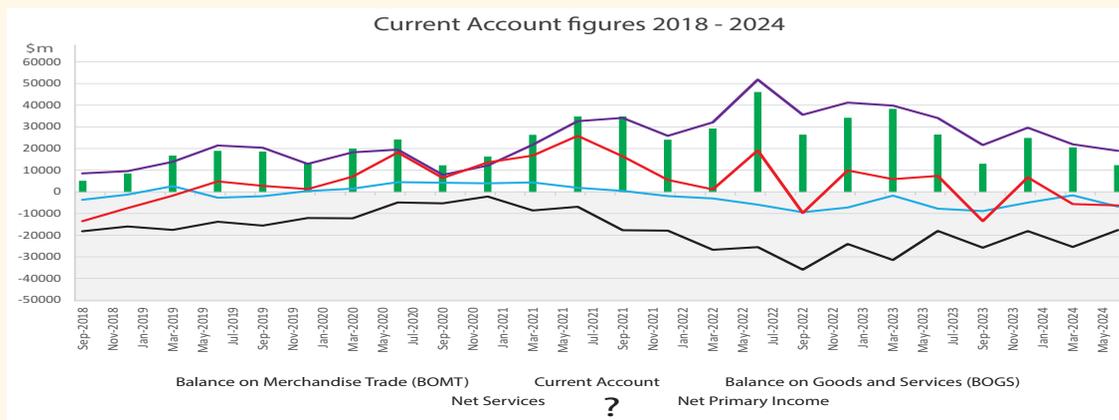
- Calculate the balances for each of the following accounts
 - Balance of Merchandise Trade (BOMT)
 - Net Services (NS)
 - Net primary income
 - Net secondary income
 - The Current Account
- Determine the size of the Capital and Financial Account (CAFA) and indicate whether it is a deficit or surplus.
- Explain why Delloro has a CAFA balance of the size you have indicated in Question 2.

Review questions 7.2

- Distinguish a debit in the BOP from a credit.
- Outline the structure of the 'current account' in the BOP. Describe the nature of transactions that are recorded in the current account, providing two examples of these transactions.
- Refer to Table 7.2 and identify the section of the current account contributing most to the CAD during the first half of 2024.
- In relation to the previous question, explain why this section of the current account is relatively large.
- Provide two possible reasons to explain the improvement in the BOMT over recent years.
- Explain why a reduction in global interest rates helps to reduce the size of the NPI deficit within the current account.
- Explain how it is possible for Australia to export goods and services worth more than it imports and yet still experience a CAD.
- Explain what is meant by the statement that 'the Financial Account effectively records how Australia finances any CADs.'
- Discuss why the 'Financial Account' is more important than the 'Capital Account.'
- Distinguish direct investment from portfolio investment.
- Provide a possible explanation for the CAFA moving from a surplus to a deficit between 2019 and 2023 and then from deficit to surplus over 2023-24.

Activity 7g: Current account stats

Complete the following tasks in relation to the incomplete chart below



- Match each of the current account variables/labels below the chart to one of the four coloured lines (purple, red, light blue and black) or green bars.
- Establish a meaningful economic relationship between at least three of the five variables.
- Determine how each of the relevant variables will be influenced by a large increase in the prices received for major Australian exports such as iron ore, coal and natural gas.
- Explain the significance of the red line moving above zero in the middle of 2019 and the significance of the purple line being above the green bars since 2022.
- Describe the movement in the black line between 2019 and 2020 and explain how lower global interest rates contributed to this trend.
- Explain a factor that may have contributed to the black line becoming more negative over 2022.

While Australia did occasionally record a **Balance on Goods and Services (BOGS)** surplus prior to 2019, this was largely attributable to growth in the terms of trade, fuelled largely by strong Chinese demand for Australian iron ore and coal. However, since June 2019, the BOGS surplus increased to record levels, helping the current account to return to surplus for most of the time between 2019 and 2023. As explained earlier, this occurred largely as a consequence of strong growth in mining export values on the back of continuing growth in commodity prices, which saw Australian miners receiving more for each tonne of ore exports. In addition, Australian miners were able to take further advantage of higher world prices because of the expanded capacity of mines (following many years of strong mining investment). The BOGS improvement was also driven by the steady depreciation of the Australian dollar over the past few years, which has helped to increase the international competitiveness of Australia's **tradables sector**, and the recent declines in Consumption and Investment (reducing demand for imports). The global reduction in interest rates also help to reduce the net primary income deficit within the current account given that it was cheaper for Australian borrowers to service foreign debt.

Study tip

The VCE Economics study design requires students to demonstrate an understanding of the causes of the cyclical and structural influences on Australia's current account balance. The fact that the current account has mostly returned to surplus (since 2019) should be no cause for confusion. Students should focus on factors that have (or can) caused the current account balance to change and determine whether these are likely to be structural or cyclical in nature. For example, the large increase in the current account balance since 2019 is mostly cyclical in nature. It occurred in part because of the huge reduction in Australia's rate of national spending or economic growth (i.e. the recession) which caused a large decrease in the demand for imports relative to exports as well as the record growth in commodity prices.

Cyclical component of the current account

During periods of strong growth in national spending, the current account balance is more likely to move towards a deficit, because the gap between Investment and Savings gets larger and spending tends to spill over into greater import demand. This means that not only is there more borrowing from overseas to fund Investment, adding to the deterioration of the current account balance (because of increased Net Primary Income debits required to service these liabilities), but also that the BOGS is more likely to also record a deficit (owing to the stronger growth in import demand), further contributing to the likelihood of a current account deficit (CAD) being recorded. In contrast, when national spending and economic activity are weak, households and businesses save more and spend less, reducing the gap between Investment and Savings. In addition, there is less spill over into import spending and, overall, the current account balance will improve.

The movement in the current account that is tied to changes in the economic cycle is referred to as the **cyclical component** of the current account. If we remove these cyclical movements from any change in the current account, then what remains is the **structural component**. As mentioned earlier, Australia's current account balance was traditionally at its 'structural level' when the economy was running at its long run trend rate of growth. Typically, high rates in AD (or specifically national spending) are likely to be associated with a worsening CA balance for cyclical reasons while lower growth in AD is likely to be associated with an improving CA balance.

However, Australia's current account balance will also move in line with changes in the **global economic cycle**. Given that Australia is a major commodity exporter (e.g. iron ore, coal, and natural gas), rises and falls in global production will have major influences on the terms of trade and the value of Australian exports. The fall in the **terms of trade** over 2023-24 is one of the major reasons for the recent deterioration in the current account balance (as the lower prices received for exports has led to a fall in export values) which can be considered to represent a cyclical improvement to the current account.



However, it can sometimes be difficult to disentangle cyclical from structural improvements to the current account. For example, if there is a shift in the global demand for Australian commodities because of a change in the structure of global industries, then this would be considered a structural factor causing an improvement in the current account. To illustrate, the move to more renewable forms of energy is currently resulting in large scale growth in the global demand for lithium (used in battery production). This would increase Australia's terms of trade but represent a **structural improvement** to the current account rather than a **cyclical improvement** that would occur if the terms of trade increased because of strong global growth and the higher demand for raw materials (e.g. Australian iron ore) that are required to fuel that growth.

The return of the current account to surplus in 2019 was primarily due to cyclical factors, such as the large reduction in national spending during COVID-19 which reduced the demand for imports, as well as the huge growth in the terms of trade (or commodity prices) that was related to relatively strong growth in global demand for minerals such as iron ore

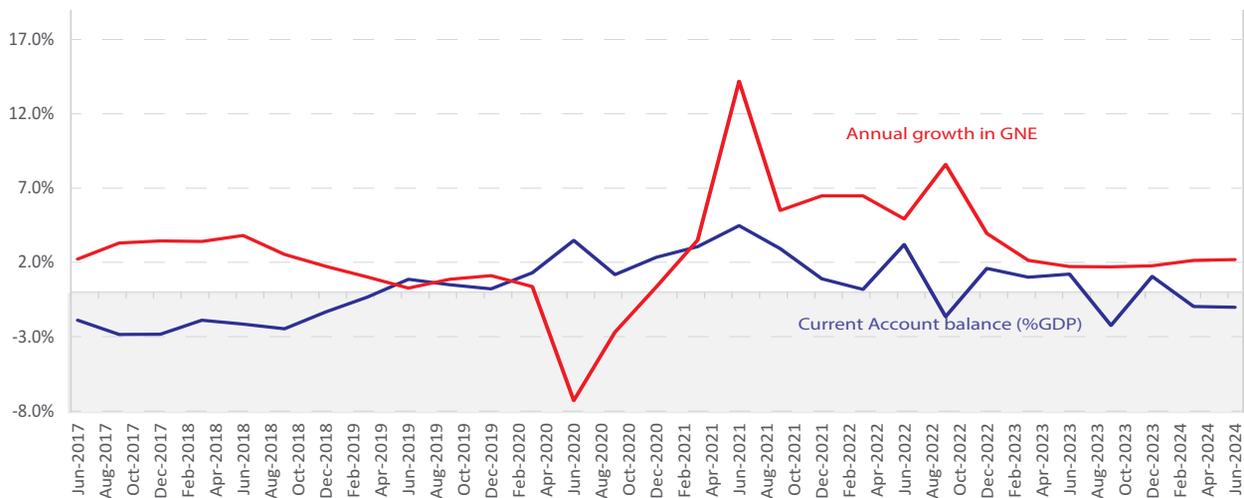
and natural gas. As expected, the current account returned to deficit over 2023-24 due primarily to the fall in the terms of trade.

Recent movements in the current account balance

Chart 7.2 highlights the relationship between rates of national spending and the CA balance since 2017. As expected, when growth in **Gross National Expenditure (GNE)** was strong (e.g. close to 4% in 2018), the CA balance remained in deficit. However, when GNE growth was negative (i.e. GNE fell) by close to 8% during COVID-19, the CA balance improved, with the CA surplus rising significantly over the course of 2020-21. Over this time, the demand for imports (particularly service imports such as tourism) fell relative to service exports (e.g. because national borders closed and Australia is a net importer of tourism). In addition, the demand for capital and intermediate imports (which make up the bulk of Australia’s imports) fell, as businesses reduced investment demand during this time. These were examples of the current account improving for cyclical reasons rather than structural reasons (e.g. improvements in productivity). The improvement in the CA was also a response to a surge in exports (mainly mining exports) as commodity prices kept rising, another cyclical factor influencing its growth.

The deterioration in the CA balance over the past couple of years is primarily related to fall in the terms of trade from their most recent high in the middle of 2022. This resulted in a huge fall in the value of exports, which caused the BOMT to fall by 63% from \$52 billion to \$19 billion.

Chart 7.2: National spending and CA balance



Activity 7h: Structural or cyclical?

For each of the factors below, identify whether each will cause an increase **or** decrease in the structural **or** cyclical component of the CAD. The first one has been done for you.

Transaction	Cyclical	Structural	↑	↓
There is an increase in national spending				
Reduction in national productivity				
Reductions in national savings				
Falls in demand for Australian minerals from India and China				
Falls in consumer and business confidence				
Increased government tax concessions for savings				
Cost inflation caused by inefficient business practices				
Excessive borrowing				
Rapid advances in technological uptake in Australia				
A booming economy causes strong growth in capital imports				

Review questions 7.3

1. Explain what is meant by the 'savings/investment imbalance' and discuss its relevance to Australia's current account deficit.
2. Explain what is meant by the cyclical component of the current account.
3. Identify Australia's ranking in the latest global competitiveness report and explain its relevance to Australia's structural current account balance.
4. Distinguish a movement in the current account balance that is caused by cyclical factors compared to a movement that has been caused by structural factors.
5. Refer to Chart 7.2 and explain how the movement in the current account balance might be related to the movement in national spending/economic growth.
6. Explain how a slowdown in national investment and an increase in national savings over the past few years is impacting on the current account balance.

Activity 7i: Is a CAD a problem?

The value of the CAD on an annual basis provides an indication of the extent to which Australia is spending beyond its means. Just like a household that borrows to finance current expenditure, the excess of expenditure over income (i.e. the deficit) need not necessarily be a problem if the borrowed funds are generating sufficient income to repay the debt. For example, a household can increase its long-term wealth by borrowing to finance the acquisition of assets (such as property) that will provide it with future returns in the form of accommodation/rent and capital gains. Similarly, Australia is still a young country with a relatively small population and an abundance of natural resources. To maximise our growth potential, continued investment is required. However, for most of the past 50 years (with the exception of the period 2019-2023), the savings required to fund this investment could not be sufficiently raised in Australia. The Savings/Investment imbalance therefore needed to be filled by foreign funds in the form of debt or equity. Accordingly, the increase in Australia's net foreign liabilities (i.e. debt and foreign equity) that occurred was not a problem if the funds were used productively (i.e. they generated sufficient returns to adequately service the debt and equity that was accumulated in the form of net foreign liabilities).



While the current account returned to surplus during 2019, it was expected to return to a deficit once the economy recovered from the recession and the terms of fell from its high levels. This is indeed what occurred over 2023-24 and some forecasts see the CAD rising above 5% of GDP in the near future. A CAD deficit to GDP ratio of more than 5-6% of GDP is unlikely to be sustainable in the longer term. This is because persistent and growing deficits as a percentage of national income (GDP) means that increasing amounts of our current income are required to repay and service foreign liabilities. To the extent that Australia's income growth cannot be sustained over the longer term (e.g. because our heavy reliance on mineral exports exposes the economy to a massive reduction in income in the event of a large falling commodity prices or there is a collapse in demand for coal and gas as countries move to more renewable forms of energy production), the CAD and NFD may place constraints on future growth. For example, it is possible that a relatively high CAD and NFD will constrain rates of economic and employment growth as global financial markets become more reluctant to 'roll over' (refinance) Australian debt in future years (just as foreign lenders were reluctant to rollover Australian debt without a government guarantee during the GFC).

Despite this, there has been a widespread acceptance that the CAD in the past (and the one that is with us again) is simply a structural feature of a young economy in need of continued borrowing to finance necessary investment. It need not be problematic if institutions make rational savings and investment decisions that are guided by the disciplines of the marketplace. In other words, institutions are responsible enough to make decisions based on market information relating to the perceived costs and benefits of any debt or equity financed investments. This is sometimes referred to as the 'consenting adults' view of Australia's CADs, where proponents of this view assert that governments should not implement policies that are purely designed to reduce the size of the NFD. Instead, government intervention is only needed to ensure that (financial) markets are competitive and free from distortion (see Chapter 3), promoting efficient savings and investment decisions to take place.

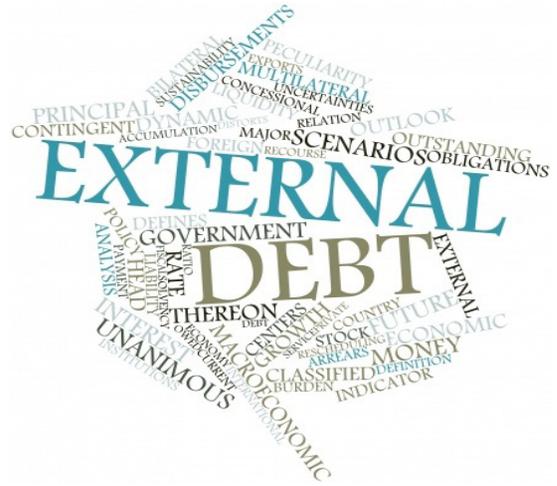
The government also acknowledges that the CAD is highly cyclical in nature, growing during times of strong economic growth and falling during downturns. This reflects the fact that periods of strong domestic demand create both additional import demand (as the nation is closer to productive capacity) and contribute to pressure on the gap between national spending and national income. Similarly, periods of low growth are consistent with an increase in savings (or de-leveraging) and/or reduction in spending, which reduces the spillover into imports, as well as a reduction in the gap between spending and income. This was evident over 2020-21 as the economy entered a recession and the current account moved further into surplus. While much of this improvement was due to a surge in commodity prices and the additional export income this generated, it was also due to the rapid slowdown in National Investment relative to National Savings, which effectively reduced the national savings/investment imbalance that was the primary cause of the CAD. The reduction in global interest rates, and the retention of company profits over these years, also helped to increase the current account surplus via an improvement to the NPI section of the current account.

Questions/tasks

1. Explain why a CAD provides an indication of the extent to which a country is spending beyond its means.
2. Define a savings/investment imbalance and outline its relationship to net foreign liabilities.
3. Explain why the CA balance returned to deficit (i.e. a CAD once more) in 2023-24.
4. Explain why a CAD/GDP ratio of more than 5-6% could be unsustainable in the long run.
5. Explain how a large CAD might be a structural feature of the Australian economy.
6. Referring to the structural component of the CAD, explain why the CAD was relatively high in the past.
7. Explain how the recession in 2020 contributed to the current account (CA) moving into surplus.
8. Describe how a reduction in interest rates, and a retention of company profits, helped the CA move into surplus.

7.4 Composition and cause of net foreign debt and net foreign equity

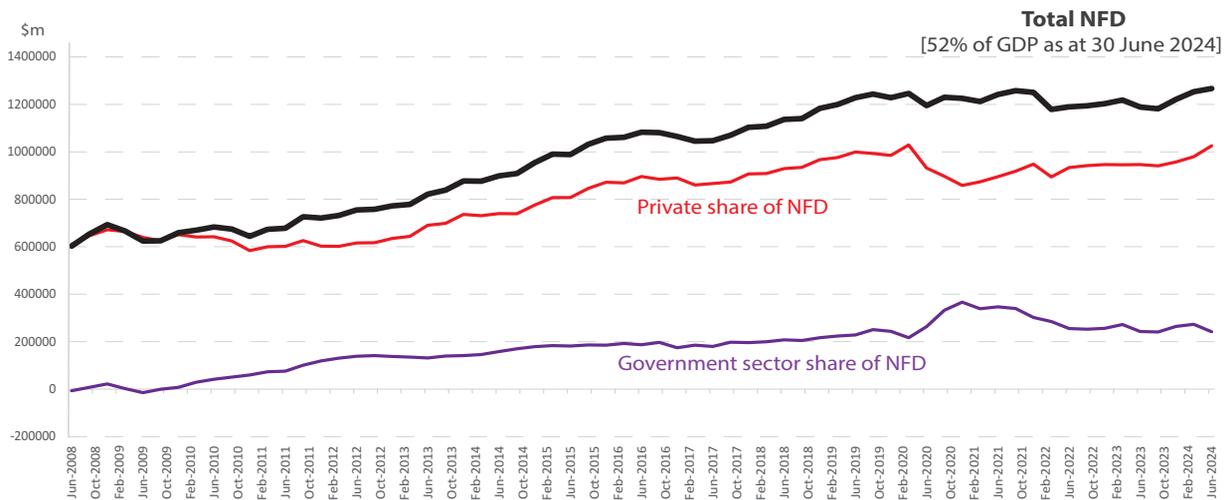
When the ABS releases statistical information related to Australia’s Balance of Payments, it will also include statistics on the changes that have taken place to the value of Australia’s **Net International Investment Position (NIIP)**, which is essentially the value of Australia’s **net international financial obligations** to the rest of the world. This is made up of Australia’s stock of **net foreign liabilities (NFLs)**, which is comprised of both **net foreign debt (NFD)** and **net foreign equity (NFE)**. An examination of changes to Australia’s NIIP will help policy makers to determine the sustainability of CADs and the accompanying growth in Australia’s stock of net foreign liabilities.



Net foreign debt (NFD)

NFD obligations flow from Australia’s total ‘borrowing from foreign lenders’ and ‘lending to foreign borrowers’. It is calculated by adding up the total value of debt owed to foreigners and subtracting the total value of debt owed by foreigners to Australians. It is the largest component of Australia’s net foreign liabilities and is the most common statistic used when determining the ability of Australia to meet its international financial obligations. Chart 7.3 highlights the growth in the value of NFD since 2008, where it climbed from \$600 billion in the middle of 2008 (42% of GDP) to \$1.3 trillion by mid 2024 (52% of GDP). The largest contributor to NFD is the private sector (households and businesses), holding 81% of the total NFD, with the remaining 19% held by the public sector (i.e. governments).

Chart 7.3 Australia’s Net Foreign Debt (NFD)

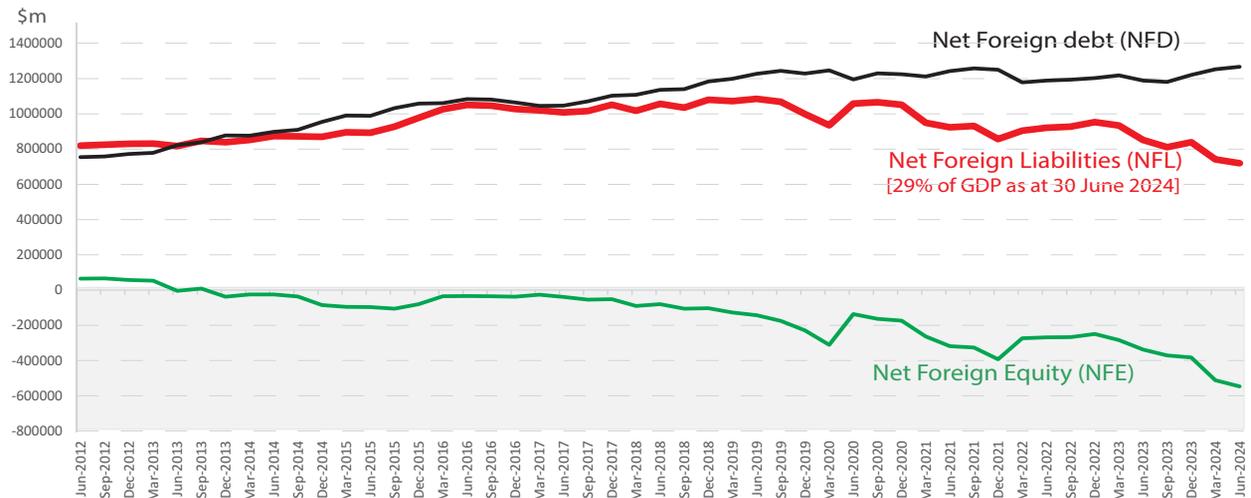


Net foreign equity (NFE)

NFE is equal to the net equity obligations that stem from foreign ownership of Australian assets (such as property, shares and land) and Australian ownership of foreign assets. It is calculated by adding up the total value of Australian assets owned by foreigners and subtracting the total value of foreign assets owned by Australians. It is the smallest of the two components of Australia’s NFLs, and will effectively be recorded as a net asset rather than liability when Australia’s ownership of foreign assets exceeds foreign ownership of Australian assets.

This has indeed been the case in Australia since the end of 2013 and is highlighted in Chart 7.4 by the green line falling below the zero line. This has contributed to the vast improvement in Australia’s Australia’s net international investment position (i.e. NFLs) that has occurred since 2019, with NFLs falling from \$1.038 trillion in June 2019 (52% of GDP) to \$834 billion by June 2024 (29% of GDP). The total NFLs as at the end of June 2024 was made up of \$1.27 trillion of NFD and -\$547 billion in NFE. In other words, Australia’s net debt obligations was effectively the sole cause of our total financial obligations to the rest of the world, with our favourable equity position (Australian ownership of foreign assets exceeding foreign ownership of Australian assets) helping to reduce our net financial obligations to the world.

Chart 7.4 Australia's Net Foreign Liabilities (NFE + NFD)



Historically, Australia's large stockpile of NFLs (or NFD in particular) is caused by the same reasons as Australia's relatively large CAD in the past, which of course is the fact that national spending exceeded national income for many years (or that Australia continued to have an insufficient level of national savings to support investment). However, as was highlighted earlier, there has been a significant improvement in Australia's current account position since 2017, which helped to reduce the rate of growth in Australia's NFLs. The return of the current account to surplus in June 2019 was the key factor behind the actual fall in NFLs since then. This meant that the existence of **current account surpluses** for most periods since 2024 necessarily resulted in a net outflow of funds (through the CAFA and resulting in CAFA deficits) as Australian entities purchased more foreign financial assets, particularly equity (e.g. shares). This is evidenced by the NFE becoming increasingly negative. [It is useful to remember that the outflow of funds through the CAFA, or specifically CAFA deficits, was necessary to ensure that the balance of payments equalled zero.]

Study tip

It is natural to think that any given CA balance will result in an equivalent change in NFLs. For example, a CAD of \$50 billion is expected to result in an increase in NFLs of \$50 billion. However, this ignores possible 'valuation' effects which can cause a change in the value of NFLs independent of any change in the CA. These effects typically arise from changes in variables like interest rates, exchange rates or share prices. For example, in 2020, NFLs increased despite the existence of a large CA surplus because global share prices plummeted, reducing value of Australia's NFE. The reverse occurred over 2024, with NFLs continuing to fall despite the re-emergence of a CAD.

When examining Australia's **external position**, policy makers will typically focus on NFD rather than NFE. This is because NFD represents the vast majority of Australia's NFLs and, since 2013, has represented all of Australia's NFLs (as highlighted in Chart 7.4). In addition, foreign debt involves greater 'risk' to Australians in the event that we experience difficulty servicing the debt. This is because foreign investors (i.e. lenders) will often continue to demand debt and interest repayments even when Australian borrowers experience financial hardship. NFE, on the other hand, involves less risk for Australians because the foreign equity holders (e.g. shareholders) will be relatively more 'patient.' This is because, as owners of Australian assets, they are exposed to greater risk of loss if the Australian based company does end up being declared bankrupt. Importantly, given that Australia currently has positive NFE, it means that Australia has more overseas equity investments than equity investments (ownership of Australian assets) held by overseas investors.

The primary means by which the government can make Australia more externally stable is to ensure that we do not have a large imbalance between **national spending and income** such that our NFLs (or more importantly, NFD) become too difficult to service over time, imposing excessive burdens on future generations of Australians. This means that the government is keen to ensure that our International Investment Position remains sound and is not undermined by poor spending or investment decisions that lead to an unsustainable build-up of NFLs. Specifically, the government tries to ensure that our NFD (and CAD) are sustainable, such that its size does not pose problems for the wider economy. A CAD and/or NFD that is not sustainable is likely to result in falling credit ratings, withdrawal of foreign capital (money), higher interest rates and a rapidly depreciating value of the exchange rate when it becomes clear that Australia is struggling to meet its financial obligations to foreigners.

The improvement in Australia's external accounts leading into 2023-24 (i.e. record growth in the BOGS component of the current account) has been driven largely by record growth in mining export sales that have occurred due to a combination of record growth in the **terms of trade** and the production phase of the mining boom (See Activity 7k). In addition, there was a reduction in import purchases during the early stages of COVID-19 which further helped to improve the current account balance. The improved current account position and the related reduction in NFLs ensures that

our international investment position is more secure and that we are in a better position to meet our international financial obligations into the future. To the extent that part of this improvement is cyclical in nature (e.g. contributed to by the recession of 2020), it means that our current account position will deteriorate, as is the case in 2024, as the economy returns to its normal growth trajectory and commodity prices return to more normal levels. This means that Australia will require a net inflow of foreign funds to ‘finance the CAD’ which should lead to an increase in NFLs over time. [See Study Tip on the previous page to learn about other factors that influence the ‘value’ of NFLs.]



To develop a deeper understanding of the importance of NFLs to the Australian economy, complete Activity 7j based on the article written by Ross Gittins ‘*Foreign investment helped to make us rich*’.

Review questions 7.4

1. Define the term Net International Investment Position.
2. Define Net Foreign Liabilities (NFLs) and outline the relationship between NFLs and the current account balance (CAB). For example, how can an increase in NFLs impact on the CAB and how can an increase in a CAD impact on NFLs.
3. Referring to Chart 7.3, describe and account for the trend in net foreign debt (NFD) since the end of 2016.
4. Distinguish between NFD and NFE and explain why NFD is given greater prominence (relative to net foreign equity) when discussing the ability of Australia to meet its international financial obligations. Use Chart 7.4 to support your response.
5. Explain how it is possible for Australia’s NFLs to be \$720 billion as at June 2024 when NFD was \$1276 billion.
6. Referring to Chart 7.4, describe the trend in NFE since 2020 and examine the implications for the stability (or sustainability) of Australia’s international investment position.
7. Describe a possible reason for NFLs falling in the June quarter of 2024 when the current account recorded a deficit for the same quarter.

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Activity 7j: Foreign investment helped to make us rich

An edited version of an article written by Ross Gittins on Sunday 28/8/2016 (www.rossgittins.com) but updated for 2024.

If foreign investment in Australian businesses is so unpopular with so many people, why do we persist with it? Short answer: because we prefer our material standard of living to go up, not down. A recent poll revealed the full extent of the public's reservations about foreign investment. Foreign investment in mining was regarded as "bad for the economy" by 28 per cent of respondents. ... When you remember that our level of material prosperity has been dependent on foreign investment since the arrival of the First Fleet, it's a wonder so few punters can join the dots. Viewed through economic eyes, the First Fleet was just the arrival in this country of its first foreign investor, in boats laden with labour, materials and supplies, intent on getting a new subsidiary going.



There were a lot of imports with, on the other side of the transaction, an inflow of foreign capital owned by the British government. The term's gone out of fashion, but since white settlement Australia has always been a "capital-importing country". To develop a country economically you need lots of money - known here as financial capital - to pay for all the construction and equipment, known as physical capital. Where does this money come from? Someone has to save it by not consuming all their income. Ideally, all the savings necessary to finance the economic development of our country would come from Australians. Then we'd own everything ourselves and all the profits would belong to us.

But we've always had a small population relative to the huge opportunities to farm our land, exploit our untold mineral wealth and develop our economy in many other respects, such as making ourselves an attractive destination for tourists and university students. So, from the beginning, we've always invited foreigners to bring their savings to Australia and help us develop our economy much faster than we could if we relied solely on our own savings. That's what makes us a capital-importing country. The attraction to the foreigners is that they own the businesses they build and keep the profits they make. The attraction to us is we get a bigger economy than we otherwise would. The foreign firms provide a lot of employment for Aussies, buy a lot of their supplies from local businesses and, of course, pay tax to our government on their profits. That's always been the deal. Had we kept the foreigners out, our economy and population would now be much smaller than they are and, in consequence, our standard of living would be much lower than it is.

At first the foreigners most willing to invest in Oz were the Brits. Then it was the Americans, then for a few decades the Japanese, and now the Chinese. I'm old enough to remember when it was American investment that people objected to when we first started worrying about "selling off the farm". But when the Japanese economy was riding high in the 1970s and '80s, and Japan began looking for profitable investments here, I remember how much the farmers carried on. They thought Japanese feed lots were the beginning of the end of Oz. The Japanese came and stayed and eventually the farmers realised they were no threat. But now it's the Chinese, and farmers are back to manning the barricades. They're going to dig up our farms and take them back to China. You know they will because their skin's a different colour. Or maybe they'll sabotage the communications and power networks they now own, just before they invade us.

The globalisation of financial markets has made it much easier for money to move between countries and thus complicated the picture I've just described. These days, we can borrow foreigners' savings, not just let them set up new businesses here. And it's easier to sell them their existing businesses. It's easier for foreigners to buy some shares in listed Australian companies (known as "portfolio investment") rather than acquiring a controlling interest in a new or existing business ("foreign direct investment"). Before globalisation, countries tended to be either owners of many foreign businesses ("equity capital") or to have a lot of their businesses owned by foreigners. They either owed a lot of money ("debt capital") to foreigners or foreigners owed them a lot of money.

These days, every country does a lot of both. In March 2016, we owed \$2126 billion to foreigners, while foreigners owed us \$1098 billion, leaving us with net foreign debt of \$1028 billion. Foreigners had equity investments in Oz worth \$996 billion, while we had equity investments in other countries worth \$1012 billion, leaving us with net foreign equity (NFE) assets of \$16 billion. You read that right. But if this makes you think we'd be better off borrowing all the savings we need rather than selling off the farm, remember this final complication: foreign direct investors in Australian businesses don't just bring their savings, they also bring their managerial skills and often their more advanced technology, which Australian workers learn to use and then take on to local businesses. And in this ever more integrated world, foreign investment and international trade tend to go together. Going for trade without investment is another way to be poorer than necessary.

Between 2019 and 2023, however, the savings investment imbalance that previously required a net inflow of foreign investment (either debt or equity) has mostly been reversed, resulting in the current account moving into surplus for most quarters. Of course, this surplus on the current account must be offset by a CAFA deficit, which equates to a net outflow of foreign investment in the form of debt [repayments] and equity [the buying of overseas assets such as shares], resulting in a corresponding reduction in net foreign liabilities from \$1084 billion in June 2019 to \$720 billion as at June 2024. Since 2019, our NFE assets have increased from \$143 billion to \$547 billion by June 2024.

Questions/tasks

1. Define foreign investment and discuss how foreign investment might impact on living standards.
2. Using evidence from the 'Essential Poll', outline whether Australians support foreign investment.
3. Explain the difference between financial capital and physical capital, using examples to support your explanation.
4. Explain the relationship between consumption and savings.
5. Explain the relationship between capital (both financial and physical) and savings.
6. Explain why Australia has always been a 'capital-importing country'.
7. Outline what is meant by the expression "selling off the farm".
8. Discuss whether Australians should be concerned about foreign investment from China.
9. Distinguish portfolio investment from foreign direct investment, giving an example of each.
10. Distinguish equity capital from debt capital, giving an example of how each could increase over time.
11. Outline the key difference between 'foreign debt' and 'net foreign debt'.
12. Explain what it means for Australia to have NFE assets increase from \$143 billion to \$547 billion by June 2024.
13. Outline one cost and one benefit associated with prohibiting direct foreign investment in favour of portfolio investment.

7.5 Terms of trade

The **Terms of Trade (TOT)** is a ratio of the average prices received for Australian exports relative to the average prices paid for our imports and is measured using an index of export and import prices over a number of years.

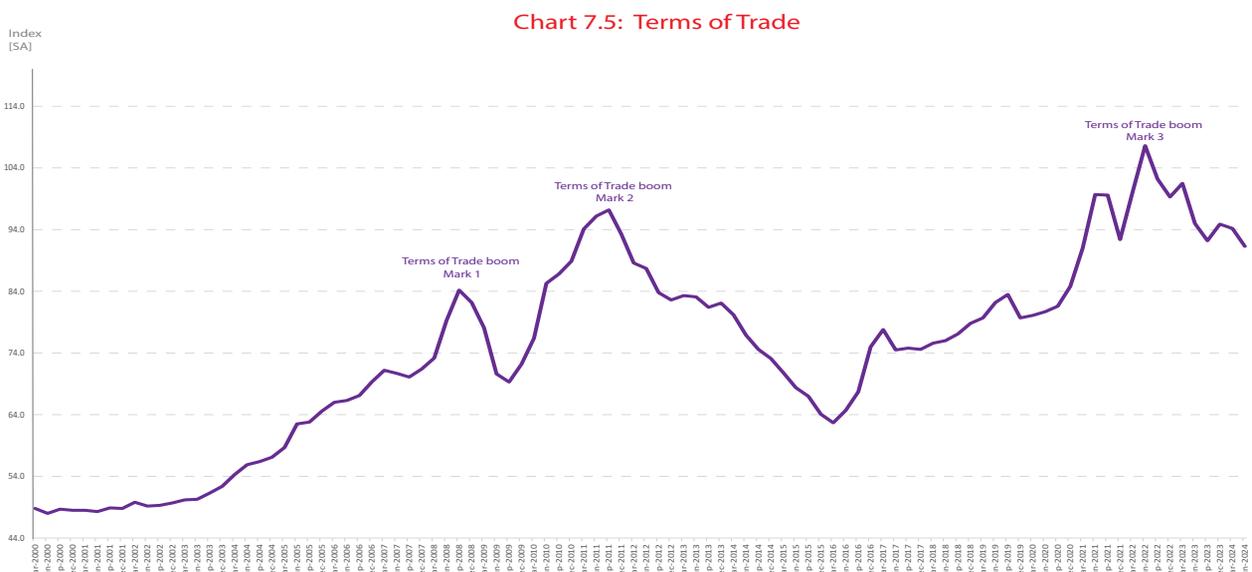
$$\text{Terms of Trade Index} = \frac{\text{Export price index}}{\text{Import price index}} \times 100/1$$

The number for any TOT index is meaningless on its own unless we compare it to the index for previous periods. If the TOT increases, there must be a rise in the average prices received for exports relative to the average price we paid for imports. It therefore means that a greater volume of imports can be purchased from the sale of a given quantity of exports. In this respect, an increase in the TOT is considered to be favourable for a country in terms of the impact on national income and the balance of payments.

Causes of changes in the TOT

Given that movements in the TOT is dependent on the changes that have taken place to the prices received for exports and the prices paid for imports, it stands to reason that any factor causing export or import prices to change will influence the TOT. Changes to the prices received for exports will necessarily depend on forces of demand for and supply of Australian exports. For example, when there is an increase in the global demand for goods and services which Australia exports, we would expect export prices to rise. In contrast, when the global supply of goods and services which Australia exports rise, we would expect the prices to fall. Similarly, changes to import prices will depend on global demand and supply conditions, such that a growth in the demand for goods and services which Australia imports will result in higher prices, and growth in supply results in lower prices.

Chart 7.5 highlights the unprecedented growth in the TOT between 2000 and 2011. This was primarily due to the huge growth rates experienced by China and India and the associated large demand for raw materials (e.g. minerals such as iron ore, coal and increasingly natural gas) which raised the world price of Australian commodity exports. It was also partly a result of an improvement in the international competitiveness of countries like China, whose average **costs of production** continued to fall on the back of productivity growth, which helped to reduce the prices of many manufactured imports into Australia. In addition, general advances in technology around the world, including Australia's other trading partners, helped to reduce costs and prices of high technology goods of which Australia is a net importer.



The combined effect of large growth in export prices and lower import prices resulted in what became known as the ‘TOT boom Mark 1’ (that peaked in 2008) and the ‘TOT boom Mark 2’ (that peaked in 2011). The decline in the TOT Between 2011 and 2015 reflected the large fall in **commodity prices** as a consequence of an increased global supply, combined with a slowdown in global demand (particularly from China whose declining steel production required fewer iron ore and coal inputs). However, between 2016 and 2022, the TOT rebounded once more, entering new heights as commodity prices reached the highest levels seen for more than five decades. This was due to factors on both the demand and

supply sides of the economy. First, the global demand for commodities increased on the back of a resurgence in global industrial activity, in particular China's continuing thirst for iron ore and coal for use in the manufacturing of steel. In addition, cold winters abroad and growth in the demand for renewable and traditional energy have resulted in higher demand for commodities used in energy production, such as (thermal) coal, natural gas and more recently, lithium. On the supply side, at various stages over the past few years there have been global supply disruptions in some countries which has caused commodity prices to rise. For example, supply disruptions in countries like South Africa and Brazil resulted in a reduced supply of iron ore to world markets over 2019-20 and Indonesia's supply of coal to the global market was banned by the Indonesian government for a period in early 2022. More recently, the war in Ukraine not only disrupted the global supply of crude oil, it reduced the supply of other key commodities such as coal, natural gas, nickel and wheat, causing prices to surge over 2022 to the benefit of Australian exporters of these commodities. The decline in the terms of trade since 2022-23 is largely related to the slowdown in Chinese industrial production, which itself is related to the property market crisis caused by years of over-development and the collapse of large property developers (e.g. the Evergrande Group). This contributed to a relatively large fall in the prices of key Australian commodities, specifically coal and iron ore that is used in Chinese steel production. Over this period, there was also a small rise in import prices (e.g. petroleum products) that contributed to the decline in the TOT.

In relation to the surging price of crude oil, given that oil is a commodity that Australia exports, one would expect that the rise in oil prices would contribute to growth in Australia's terms of trade. However, while Australia does indeed export oil, it is actually a net importer of oil (i.e. our imports of oil exceed our exports of oil). This means that a rise in oil prices exerts downward pressure on the TOT (resulting in Australia being able to purchase fewer oil imports for any given volume of exports).

Study tip

The relationship between the TOT and the exchange rate is much easier to understand when examining how a change in the TOT will impact on the exchange rate, with a higher TOT resulting in an exchange rate appreciation as the demand for Australian dollars in foreign currency markets increases (or the supply decreases). This will be discussed further in Section 7.6.

Apart from the normal forces of demand and supply causing the TOT to change, changes in the **exchange rate** can also influence the TOT to the extent that exports and imports are traded in different currencies. For example, a depreciating exchange rate will lead to an increase in the TOT if Australian exports are denominated in US dollars and imports are denominated in Australian dollars. Alternatively, a depreciating exchange rate will lead to a decrease in the TOT if Australian exports are denominated in Australian dollars and imports are denominated in US dollars. This is further explained in Box 7.1 below.

Box 7.1 How a lower exchange rate impacts on the terms of trade (TOT)

To illustrate the effects of a depreciating exchange rate on the TOT, let's assume that Australia exports 10 tonnes of iron to China for 100USD per tonne and imports 10 machines from China for 500AUD per machine. If 1 AUD could be exchanged for 1 USD (i.e. parity between the Australian and US currencies), then Australian miners will receive 100 AUD for every tonne of iron ore it ships to China, while Australian importers will be required to pay \$500AUD per machine. If the Australian exchange fell dramatically from parity with the USD to 0.50USD, then this would have the following effect on the TOT. The price that Australian miners receive per tonne in AUD terms will double from 100AUD to 200AUD. This occurs because the money received in USD of 100USD per tonne converts to 200AUD once exchanged into Australian dollars. In contrast, the lower exchange rate has no impact on the price paid for imported machinery because the price was denominated in Australian currency. In this hypothetical scenario, the lower exchange rate has caused an increase in the TOT given that the prices Australia received for exports has increased while the prices paid for imports has remained unchanged. Of course, the reverse would apply if the exchange rate appreciated, or if export contracts were denominated in Australian dollars and import contracts in US dollars.



The effects of movements in the TOT on living standards

When the TOT increases it means that we have been able to purchase more imports for any given volume of exports. In this respect, an increase in the TOT is a good outcome because it means that we have experienced an increase in our purchasing power, reflected by a higher level for real **Gross Domestic Income (GDI)**. For example, when prices for iron ore and coal increase, this will lead to an increase in the TOT (ceteris paribus) and boost the incomes (or profits) for mining companies for any given level of output. While the higher TOT will not directly be reflected in a higher level for real GDP (because Export **volumes** remain unchanged), the higher income levels enable the companies to increase Investment (such as a greater exploration effort) and/or boost Factor Income (such as wages or dividends). These factors are likely to boost Consumption, Investment and Exports, providing a stimulus to AD and **economic growth** over time and therefore contribute to growth in **material living standards**.

When the TOT increases for Australia it is lauded as a great result for two important reasons:

Firstly, more than 50% of Australia's **exports** are **commodities** (such as coal, iron ore and natural gas) whose prices are largely determined on world markets. Accordingly, when the price of commodities increases, this reflects either a growing world demand for the commodity (e.g. China's large demand for Australian steel inputs including iron ore and coking coal) or a global supply shock or falling supply of the commodity (such as international conflicts disrupting world supplies). So when the price of commodities increases, it will have a relatively large impact on the export price index and therefore the TOT. Australian commodity exporters will benefit because any given volume of output can be sold for a higher price, boosting export incomes and nominal GDP, which then encourages exporters to increase Investment demand, or distribute the extra income to employees or shareholders. This process boosts AD via an increase in Investment and Consumption demand, which ultimately increases real GDP or economic growth. In this respect, the TOT is regarded as a demand factor helping to boost material living standards (as measured by real GDP per capita) as Australians will have access to more goods and services.

Secondly, more than 50% of Australia's **imports** are manufactured capital (or intermediate goods) that have relatively few import-competing products in Australia. Accordingly, the **price elasticity of demand** for these imports is quite low, meaning that Australian industries will not significantly reduce the demand for capital imports when prices rise. Accordingly, if the prices paid for capital imports fell, this would benefit Australian industries because they can acquire their capital at a lower overall cost, reducing production costs and providing greater incentives to expand their productive capacity over time. In this respect, the TOT is regarded as a supply factor improving AS conditions, reducing price pressures and allowing AD to expand. This helps to boost material living standards as real GDP per capita should increase over time.

It is theoretically possible for a higher TOT to have negative consequences, but this is unlikely to occur in Australia given our huge reliance on commodity exports whose prices are determined in world markets. It all depends on the underlying reasons for the change in prices as well as the export industry in question. Consider the hypothetical example of the TOT being lifted solely by a higher average price received for our tourism exports. This could have negative implications if the higher prices had been caused by lower efficiency levels and higher costs in the Australian tourism sector. Prospective foreign tourists are likely to start taking their business to a neighbouring country, reducing Australian tourism exports and economic growth. Similarly, if the TOT increased because of a fall in the prices paid for manufactured imports, like motor vehicle (MV) components, this could have negative consequences if it is a result of increased price competitiveness of foreign MV component manufacturers (perhaps due to government subsidies). Even though local consumers benefit, and it forces local producers to become more efficient over time, it is likely to lead to lost income (and jobs, since Australia still has a substantial MV components industry) and have a negative impact on economic growth (particularly in the short to medium term).

The higher TOT will also tend to have negative effects on other sectors in the economy to the extent that a higher TOT results in both an appreciation of the exchange rate (See Section 7.7) and an increase in interest rates as the RBA tightens monetary policy to control inflation (See Section 9.9 of Chapter 9). For example, the increase in the TOT between 2020 and 2022 contributed to an exchange rate appreciation which reduced the competitiveness of Australia's exports such as tourism and education.

Terms of trade and domestic macroeconomic goals

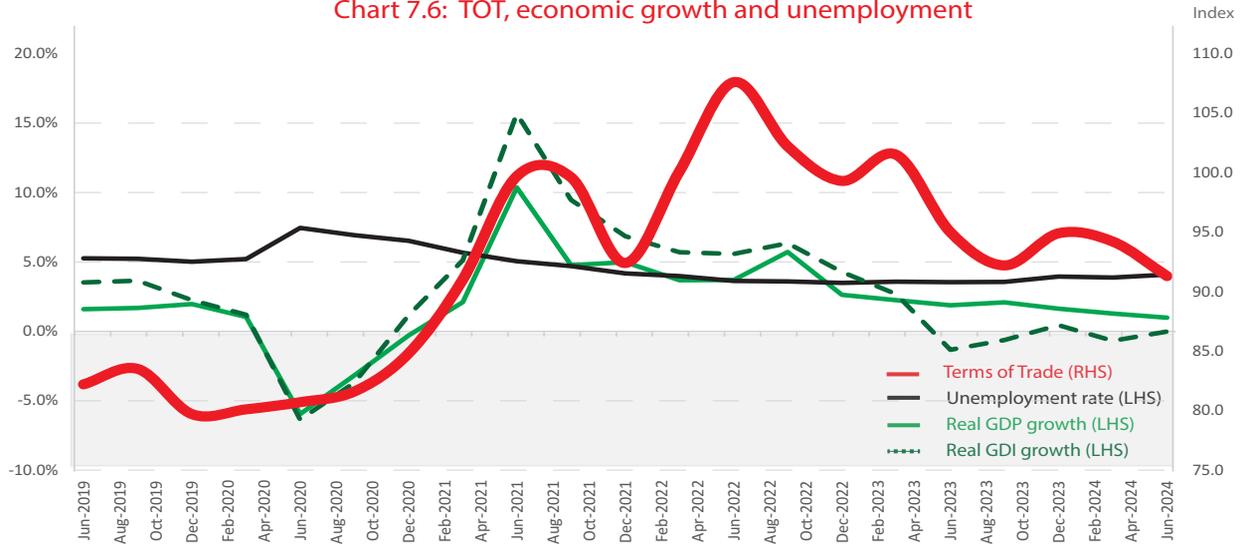
Economic growth and full employment

Given the growth in national income that stems from a higher TOT, we would expect that a higher TOT will help to achieve the domestic goals of strong rates of economic growth and full employment. Assuming that any growth in the TOT is primarily driven by growth in the prices received for exports, it will lead to growth in export incomes which then flows through to raise Consumption, Investment, AD and real GDP (i.e. **economic growth**). This should raise the demand for labour, boost **employment growth** and contribute to downward pressure on the **unemployment rate**. To the extent that growth in the TOT is driven by lower import prices, it can help to reduce production costs (given that most imports are capital or intermediate goods) and prices and provide supply side benefits for producers which ultimately boosts Australia's competitiveness. Once more, this can assist with the achievement of stronger economic growth and full employment.

Chart 7.6 highlights the relationship between changes in the TOT and economic growth/unemployment over recent years. The strong growth in the TOT between 2020 and 2022, fuelled by strong world demand for resources such as iron ore, coal and natural gas, helped to stimulate economic growth. The higher commodity prices resulted in Australian

mining companies receiving more income, which caused Gross Domestic Income (GDI) to accelerate to as high as 15% per annum (indicated by the dashed green line in the chart). The higher incomes then helped to support economic growth, with real GDP growth exceeding 4% per annum over this period. This was one of the factors that helped to maintain downward pressure on the unemployment rate, falling to as low as 3.4% in the middle of 2022. However, the fall in the TOT since 2022 has been a major factor behind the fall in economic growth to as low as 1% by the middle of 2024. More significant is the impact this has had on national income (or GDI), which has recorded either zero or negative growth over 2023-24. Declining production and income has therefore been one of the factors lifting the unemployment rate above 4% in 2024.

Chart 7.6: TOT, economic growth and unemployment

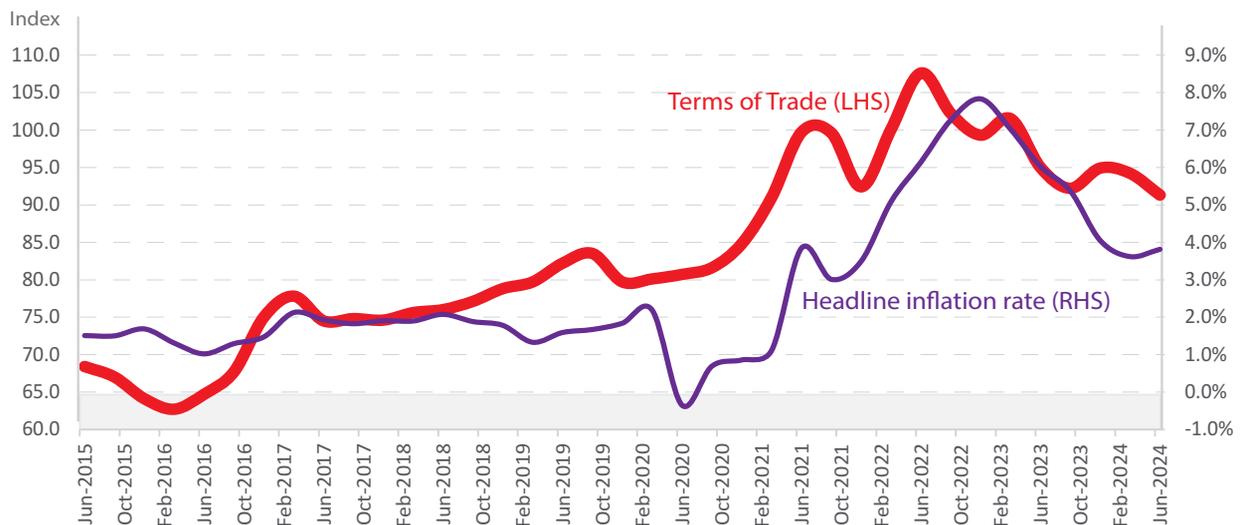


Price stability

Theoretically, a higher TOT can help to reduce inflationary pressure if it has been driven by a fall in the world price of imports. This is because Australian importers experience lower prices, which in the case of some consumer items, directly reduce the CPI, and in the case of capital and intermediate items, reduces the **costs of production** and leads to medium-term reductions in inflation (on the supply side). However, if the TOT has increased as a result of rising world prices of our exports (which was the case until 2022-23) this contributes to **inflationary pressure** as more goods/ services are offered in export markets, adding to capacity constraints for local production, thereby forcing domestic prices upwards. In addition, the higher national income (GDI) generated by higher export prices further adds to demand inflationary pressures in the economy.

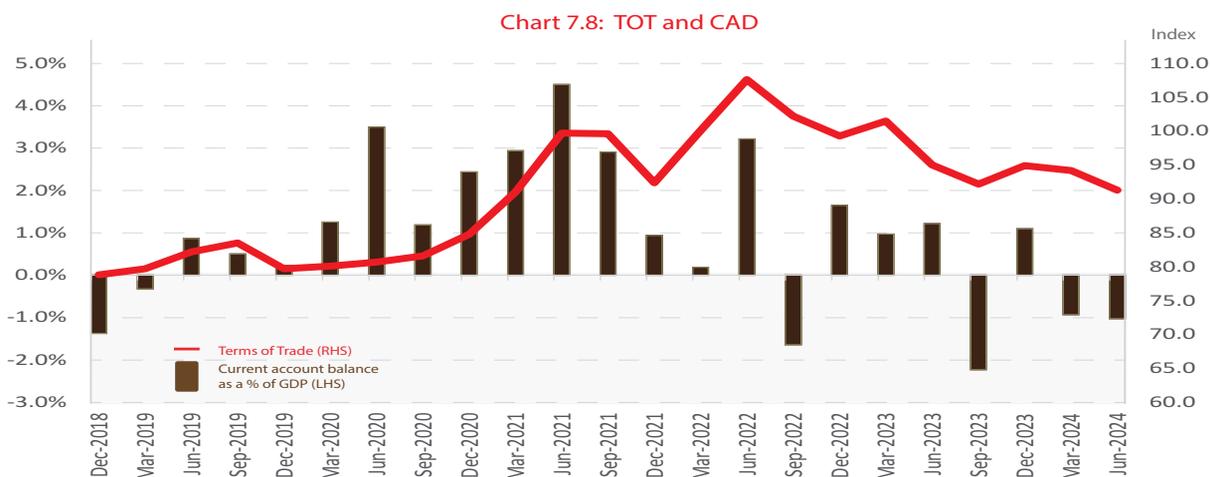
Chart 7.7 depicts the relationship between movements in the TOT and the rate of inflation since 2015. It highlights the correlation between the two, as evidenced by growth in the TOT between 2020 and 2022 contributing to the increase in inflation towards 8% and the reverse occurring since 2022.

Chart 7.7: TOT and inflation rate



Current account balance

A higher TOT should boost the value of net exports, increase the **Balance on Goods and Services (BOGS)** and improve the current account (CA) balance for two main reasons. First, assuming the TOT has risen as a result of higher export prices (which is typically the case), exporters will benefit because any given volume of output can be sold for a higher price, boosting export incomes and export credits in the balance of payments. Second, given that Australia's imports are largely capital and intermediate goods with a low price elasticity of demand, any reduction in the import prices will tend to have a relatively small impact on volumes, but a larger (beneficial) impact on import values. Chart 7.8 highlights the positive relationship between the TOT and the CA balance over recent years, with the rise in the terms of trade up until 2022 contributing to the improvement in the CA balance and return to surplus in 2019, and the fall in the TOT since 2022 contributing to a fall in the CA surplus and eventual return to deficit (i.e. CAD) over 2023-24.



Activity 7k: The 3 phases of a mining boom

When you hear the word 'boom', one normally thinks of good times, improved fortunes or rising wealth. This is because a boom in economics or finance is mostly used to describe a 'rapid increase' or 'explosion' in production or prices. Economic booms, for example, are the opposite of economic recessions or depressions, and involve rapid increases in economic growth and inflation. At a more micro economic level, we often hear about property market booms, a boom in the sharemarket or a commodities or resources boom. In all cases, we would see output and prices within these markets increase rapidly over a relatively short period of time.

The mining boom is an example of a commodities or resources boom that started in about 2003 following the massive economic growth in China and its thirst for Australian commodities (in particular iron ore and coal) that were needed to fuel the Chinese industrial expansion. This resulted in a large increase in the demand for iron ore and coal in global markets, which pushed up the prices of these commodities and caused Australia's terms of trade (TOT) to increase substantially in what also became known as the 'TOT boom Mark 1' (between 2003 and 2008) and 'the TOT boom Mark 2' (between 2009 and 2011). It was the boom in prices of these mining commodities up until 2011 that captured everyone's interest, helping to expand national income, create employment and boost Australia's trade balance. However, when prices started to fall from 2011, many thought it was the end of the mining boom and all the riches that flowed to Australians. However, it was really only the end of one phase of the mining boom - the '**prices phase**'.



Over the period of rising export prices, mining companies sought to take advantage of healthy prices by undertaking new investment projects designed to expand mining production capacity and, quite simply, sell lots more to the world (read China) while prices were high. This ignited what then became known as the '**investment phase**' of the mining boom, where mining sector investment (such as the building of new mines and the purchase of new mining equipment) made large contributions to the 'investment' component of AD, helping to stimulate real GDP and economic growth. It also was a major contributing factor behind the Investment/Savings imbalance and the associated current account deficits and growing net foreign liabilities. This mining sector investment peaked in 2012, but was still relatively high through 2013 before beginning to phase out from 2014. Just as the second phase of the mining boom was coming to an end, the third phase of the boom started to kick in. This was the '**production phase**' of the mining boom, characterised by large increases in mining output that followed the years of prolonged investment. For example, mining output increased significantly once the new mines and/or the mining equipment became operational. The large increases in mining volumes helped to boost mining export values despite the fall in prices that was occurring at the time. This third phase of the mining boom once more contributed to real GDP and also helped to reduce pressure on the CAD.

Between 2016 and 2022 commodity prices soared again, to record highs, fuelled by the growth in demand for traditional commodities iron ore and coal, but also growth in the demand for other resources such as liquefied natural gas (LNG) and more recently lithium. These very high prices seen up to the middle of 2022 once more started to accelerate mining sector investment, however its growth was tempered somewhat by the anticipated decline in Chinese growth and the lower commodity prices that we have experienced since 2022-23.

Questions/tasks

1. Define the term boom.
2. Outline one example of a boom (unrelated to mining) that has occurred over the past 10 years.
3. Distinguish the prices phase of a mining boom from a production phase.
4. Explain how a prices phase of the mining boom helps to improve a current account balance.
5. Distinguish the production phase of the mining boom from the investment phase and outline how the investment phase of the boom influences the current account balance and net foreign liabilities.
6. Explain how a production phase of the mining boom helps to improve a current account balance.

Review questions 7.5

1. Define terms of trade (TOT).
2. Outline two major factors that will cause the TOT to increase and explain why an increase in the TOT is usually considered to be advantageous for Australia. In your response refer to living standards.
3. Explain whether an increase in the export price index will always cause the TOT to increase.
4. Outline why the TOT increased significantly up until 2011 and then fell between 2011 and 2016.
5. Outline why the TOT increased significantly between 2016 and 2022 and then fell since then.
6. Explain why Australian businesses tend to benefit when import prices fall.
7. Explain how a higher TOT can potentially have negative consequences for Australia.
8. Describe how a higher TOT can impact on the achievement of strong economic growth and full employment.
9. Use Chart 7.6 to describe how the change in the TOT since 2022 may have influenced economic growth and the unemployment rate.
10. Use Chart 7.7 to describe how the change in the TOT since 2022 may have influenced the achievement of price stability.
11. Outline how a higher TOT can impact favourably on the current account balance.
12. Use Chart 7.8 to describe how the change in the TOT since 2022 influenced the current account balance.

7.6 The value of the exchange rate

Australia's **exchange rate** is usually measured by the value of AUD compared to the United States Dollar (USD) or the **Trade Weighted Index (TWI)**, where the TWI is the average value of the AUD compared to a weighted basket of foreign currencies of Australia's trading partners. For example, as at the 22nd of September 2022, the exchange rate was quoted as AUD/USD 0.66 or TWI of 62, which compares to a rate of AUD/USD 0.72 or TWI of 60.7 exactly one year earlier. This indicates that the exchange rate **depreciated** against USD, **appreciated** in terms of TWI over this time (see Activity 7I).

Since the **'floating'** of the currency in 1983, the value of the exchange rate is primarily determined by the **forces of demand and supply**. The demand ultimately comes from overseas residents seeking to pay Australians with AUD. This could be for the purchase of Australian exports or other assets (e.g. property). The supply primarily comes from Australians wishing to sell AUD on the foreign exchange market (e.g. for the purchase of imports or other foreign assets). Importantly, the demand and supply of the AUD (and all currencies) also comes from foreign currency speculators who profit from buying currencies at one price and selling at a higher price.

Demand for the Australian dollar

Australian dollars are demanded in the foreign exchange market (which can be anywhere in the world) whenever a person, business, government or other organisation wants to convert a foreign currency into Australian dollars. The foreign currency is supplied to the foreign exchange market in exchange for Australian dollars, which results in an increase in the demand for Australian dollars.

Demand for the Australian dollar will therefore occur whenever any of the following events takes place.

- When foreign currency needs to be converted into AUD in order to pay for Australian **exports**. For example, when tourists from other countries come for a holiday in Australia, they need to convert their currency into Australian dollars so that they can pay Australian businesses.
- Foreigners pay **primary income** to Australians who own assets overseas. This could occur when an Australian-owned company returns the **profits** back to Australia from mining operations, which they undertake in a country like America.
- When **money** is transferred from a foreign country to Australia in the form of **secondary income**. For example, when a relative from the UK sends money to a grandchild for their birthday.
- When foreigners engage in either **direct or portfolio investment** into Australia. For example, when Gap sets up an Australian store they need to convert their foreign currency to Australian dollars so that they can pay local contractors and employees.
- When **foreigners lend** money to Australians. This typically happens when interest rates in Australia rise relative to those overseas, and foreigners will choose to deposit money here so that they gain a higher rate of return. It can also occur when the government sell bonds to finance budget deficits.
- Australians sell **financial derivatives** to foreigners.

Each of these transactions have one thing in common. They are all recorded as a **credit** in the Balance of Payments. Therefore a credit transaction in the Balance of Payments will tend to increase the demand for the Australian dollar.

Supply of the Australian dollar

Australian dollars are supplied to the foreign exchange market whenever the Australian dollar is needed to purchase a foreign currency. Supply for the Australian dollar in the foreign exchange market will therefore increase whenever any of the following events takes place.

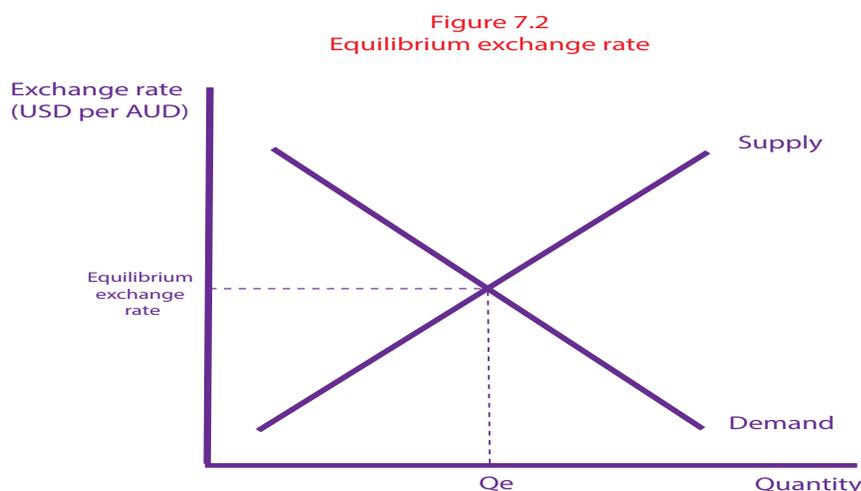
- When AUD needs to be converted into foreign currency in order to pay for **imports**. For example, when Australians travel to the Bali we need to exchange Australian dollars into Indonesian rupiah. Similarly, purchasing a product from an overseas website will ultimately require the conversion of Australian dollars into foreign currency.
- Australians pay **interest, dividends, profits or rent** on the assets that foreigners own in Australia. For example the accumulation of foreign debt means that Australian banks must service the debt with interest, which represents AUD that needs to be converted to foreign currency.
- Australians **invest overseas**. This might be directly through the establishment of businesses in foreign countries. When the business is set up they will need to pay locals for their labour input or other establishment fees.
- When **secondary income debits** are recorded. Australia, through government and not-for-profit organisations, frequently sends foreign aid to recipient countries. This would require the conversion of Australian dollars into the currency used in the country that receives the money.

Each of these transactions is recorded as **debts** in the Balance of Payments and require the conversion of Australian dollars into a foreign currency.

Determination of the exchange rate using demand and supply diagrams

In much the same way as the demand for goods and services is inversely related to price, the demand for the Australian dollar is assumed to be inversely related to how high the exchange rate is. The law of demand therefore applies to the **demand for Australian dollars** in the foreign exchange market. A lower dollar will encourage demand for the dollar because foreigners who are looking to purchase our exports will get more value when their currency is exchanged. For this reason, the demand curve for Australian dollars in the foreign exchange market is downward sloping. The **supply of the Australian dollar** in the foreign exchange market is seen to be positively correlated with its price. The law of supply would suggest that when the value of the dollar is high, the incentive to import will be greater so more AUD will be supplied, so that foreign currency can be attained to purchase the imports.

Putting this together, the exchange rate that is determined is simply the equilibrium where the demand for AUD is equal to the supply of AUD in the foreign exchange market. The diagram therefore has the exchange rate on the y-axis (which can be the value of the Australian dollar compared to any currency) and quantity of Australian Dollars on the x-axis.



The equilibrium exchange rate changes on a second-by-second basis, as millions of international transactions are undertaken each day. A range of factors can influence the exchange rate, and new economic information can result in a rapid appreciation or depreciation of the exchange rate. An **appreciation** of the exchange rate means that one Australian dollar can now purchase a greater amount of a foreign currency. A **depreciation** means that the Australian dollar can now purchase less of a foreign currency.

Activity 7I: The Trade Weighted Index

The exchange rate can also be measured in terms of its value against a weighted average of the currencies which are traded the most with Australia. The Trade Weighted Index (TWI) has a base of 100 that was set in 1970 but the weights are adjusted annually to take into account the changing nature of Australia's trading relationships. Movements in the TWI therefore indicate whether the Australian dollar has appreciated or depreciated against a basket of currencies, rather than against one currency such as the USD.

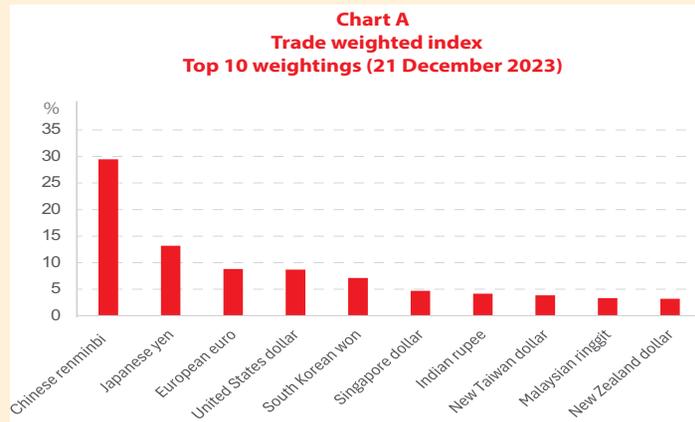
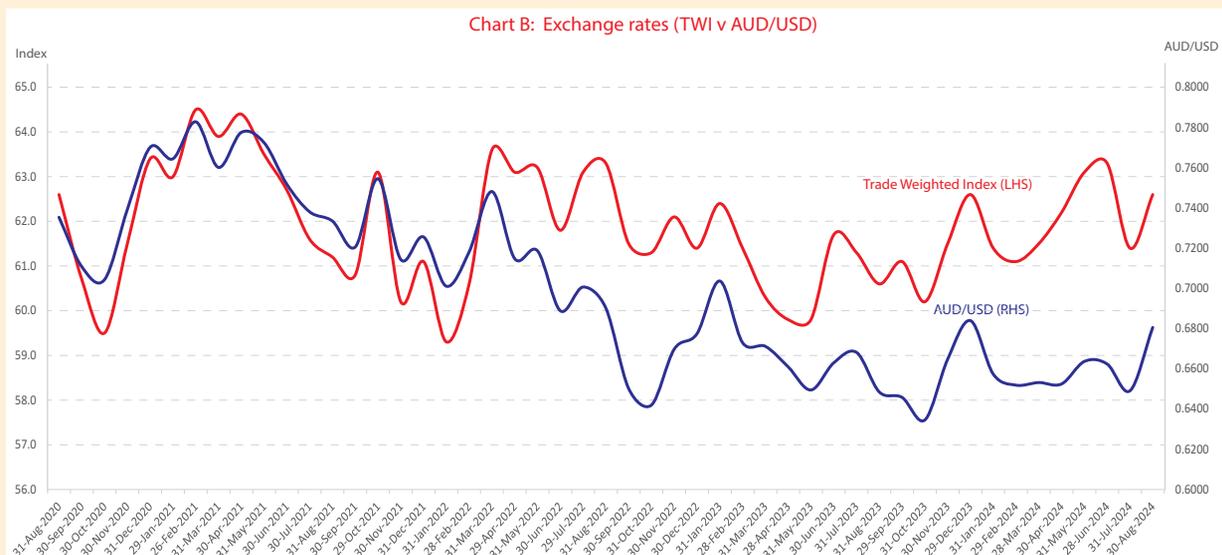


Chart A summarises the latest weightings, which are based on the composition of Australia's merchandise goods and services trade for the 2022-23 financial year. The weights indicate that the largest influence on the TWI is the Chinese Renminbi, with a weighting of 29.5% followed by the Japanese Yen (13.2%), the European Euro (8.8%) and the USD (8.7%). This makes sense given that these four countries (or in the case of the Euro, trading bloc), are Australia's largest trading partners. The chart therefore indicates that movements in the value of the AUD compared to the Chinese currency would therefore account for approximately 29.5% of the changes in the value of the Australian dollar as measured by the TWI.

Chart B highlights the close correlation between both measures of Australia's exchange rate over recent years. As one would expect, the fall in the TWI between 2018 and early 2020 was closely matched by the depreciation of the AUD/USD, as was the general rise in the value of the TWI between 2020 and 2022. However, since the middle of 2022 there has been a marked departure. The depreciation of Australia's exchange rate has been much more pronounced when measured against the USD. This highlights the fact that the Australian dollar has depreciated by less against other currencies than against the USD, due to a generally stronger USD against all currencies. This is largely a result of a more aggressive tightening of monetary policy in the US and the relatively higher US interest rates, causing capital outflow from Australia (See 'Relative interest rates and capital flows' in Section 7.7).



Questions/tasks

1. Define the trade weighted index (TWI).
2. Explain what the weightings in the TWI represent.
3. Referring to Chart A, outline how an appreciation of the Chinese renminbi in foreign currency markets is likely to impact on the TWI.
4. Explain whether a similar appreciation of the New Zealand dollar in foreign currency markets will have the same impact on the TWI as the appreciation of the Chinese renminbi.
5. In recent years, the weighting for the Chinese renminbi has fallen relative to the weighting for the Japanese Yen. Explain what this implies about Australia's recent trading relationships.
6. Referring to Chart B, describe the trend in both the TWI and the AUD/USD since 2020 and provide a possible explanation for the divergence in these two exchange rates in 2022.
7. Describe the trend in Australia's exchange rate against the USD since 2022 and examine the implications for price stability, economic growth and full employment.

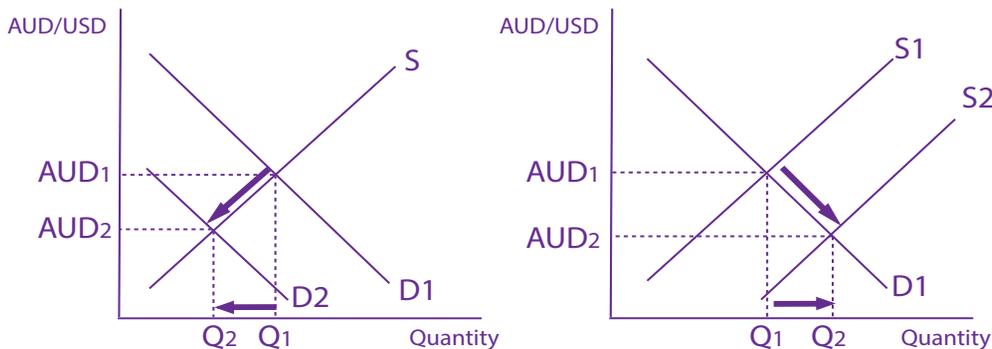
Movements in the exchange rate

Given that the exchange rate is essentially a price measure, an appreciation or depreciation of the exchange rate is the result of changing demand for, and/or supply of the AUD in foreign exchange markets.

A depreciating (falling) Australian dollar

A **depreciation** of Australia's exchange rate means that the Australian dollar now buys less of a given foreign currency. This can be caused by a **decrease in demand** for the AUD or an **increase in the supply** of the AUD. This is depicted in Figure 7.3 below.

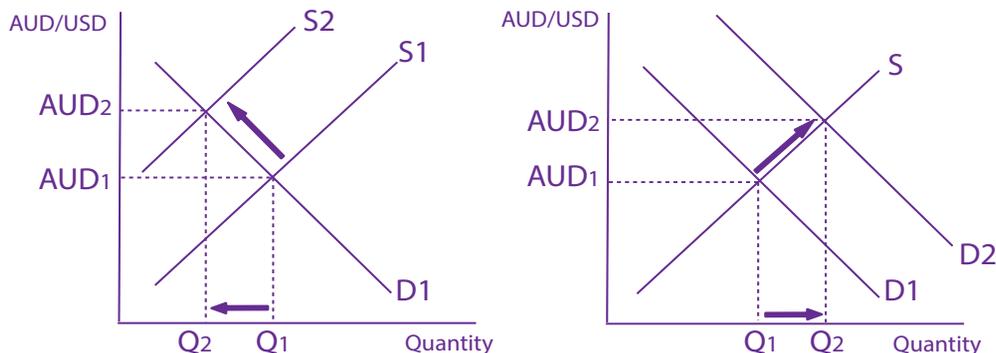
Figure 7.3: Depreciating exchange rate



An appreciating (rising) Australian dollar

An **appreciation** of Australia's exchange rate means that each AUD can purchase more units of foreign currency. This can be caused by an **increase in demand** for and/or a **decrease in supply** of the AUD. This is depicted in Figure 7.4 below.

Figure 7.4: Appreciating exchange rate



In summary, when the Australian exchange rate increases (appreciates) it can be caused by an increase in the demand for and/or a decrease in the supply of AUD in the foreign exchange market. When the exchange rate decreases (depreciates) it can be caused by a decrease in the demand for and/or an increase in the supply of AUD in the foreign exchange market. In the next section we will examine the various factors that affect the demand, supply and value of the AUD.

Review questions 7.6

1. Explain what is meant by the floating exchange rate.
2. If the news reported that the Australian dollar had appreciated what would this mean?
3. Describe five transactions that would decrease the demand for the Australian dollar.
4. Describe five transactions that would increase the supply of the Australian dollar.
5. Explain why the demand curve for the Australian dollar is downward sloping.
6. Explain why the supply curve for the Australian dollar is upward sloping.
7. Use a demand/supply diagram to illustrate how the exchange rate will change in the event that foreign currency speculators believe that the Australian dollar is undervalued.

7.7 Factors affecting the value of the exchange rate

Given that the value of Australia’s exchange rate is determined by the forces of demand and supply, it is important to look at the key factors that will influence the demand for and/or the supply of the Australian dollar over time.

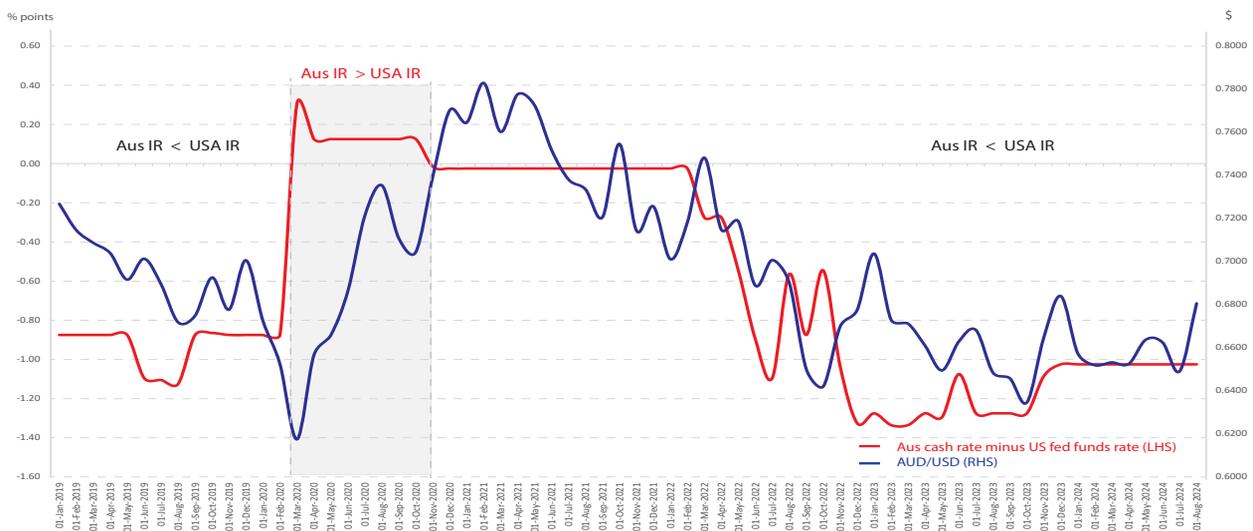
Relative interest rates and capital flows

The general level of interest rates in Australia compared to those applying overseas is often referred to as the **interest rate differential**. For example, when interest rates in Australia increase relative to the rates applying in the USA, it increases the interest rate differential and creates incentives for overseas investors (e.g. overseas lenders) to take advantage of the higher returns and invest in Australia (i.e. lend to Australians). Similarly, it creates disincentives for Australian investors to invest abroad. In simple terms, you can think in terms of overseas savers depositing their money (financial capital) in Australian banks or overseas investors purchasing Australian bonds, whose rates (or yields) will be relatively higher than those on offer in their home countries. This movement of money into Australia is commonly referred to as **capital inflow**. It results in a higher demand for the Australian dollar, as foreign funds need to be converted into Australian dollars, and contributes to a higher value of the Australian exchange rate. The reverse is true in the event that Australia’s interest rates are relatively low compared to overseas rates. In this case, Australian investors will be attracted by the higher rates on offer overseas, which results in **capital outflow** and an increased supply of Australian dollars on foreign currency markets as investors exchange Australian dollars for foreign currencies. This results in a lower value for the Australian dollar.



Chart 7.9 depicts the relationship between Australia’s exchange rate and the differential between the Australian and USA official interest rates since the start of 2019. When the differential was positive (i.e. Australian interest rates were higher than US interest rates) this is highlighted by the period shaded in the chart (i.e. most of 2020) and reflects that the Australian cash rate was above the US Federal funds rate. This contributed to capital inflow and was therefore a major contributing factor behind the appreciation of the Australian dollar from below USD 0.62 in early 2020 to more than USD 0.76 towards the end of 2020. However, between November 2020 and March 2022 there was little change in the interest rate differential which therefore means that the change in the value of the exchange rate during that time was due to other factors (primarily movements in the terms of trade). Since 2022, however, the interest rate differential fell significantly [due to the US central bank tightening monetary policy earlier and more aggressively than Australia in response to higher rates of inflation in the USA]. This caused the interest rate differential to become negative (i.e. US Federal funds rate rose by more than the Australian cash rate), which resulted in capital outflow from Australia and a depreciation of the Australian exchange rate from more than USD 0.76 to as low as USD 0.63 by late 2023.

Chart 7.9: Exchange rate and interest rate differential



Capital flows also include the inflow and outflow of equity in the form of either **portfolio investment** (e.g. the purchase/sale of Australian or foreign shares) or **net direct investment** (e.g. foreign businesses setting up in Australia or Australian businesses setting up overseas). Direct and portfolio investment will be, in part, determined by the risk and return trade-off that exists. If the rates of return on equity investments in Australia are relatively good, then we would expect

to see a greater inflow of investment (i.e. capital inflow) from abroad, which increases pressure on the value of the AUD. For example, foreign investors might consider that the returns on Australian shares are relatively good, which leads to an increase in foreign purchases of Australian shares and an increase in the demand for, and value of, the AUD. Alternatively, Australia might experience greater capital inflow purely on the basis that the riskiness associated with investment within Australia appears relatively low. For example, following the European debt crisis, capital flight occurred from debt ridden countries such as Greece and Portugal (i.e. money leaving these countries in search of a 'safe haven'), with some of these funds finding their way to Australia given that we were considered a safe investment destination. As a country with a high **credit rating**, where the risk of 'financial losses' is very low, Australia is often seen as a '**safe haven**' when global financial instability exists. This results in a higher demand for, and value of, the AUD.

The terms of trade (TOT)

As discussed earlier, changes in the exchange rate can influence the **terms of trade** (TOT). However, changes in the TOT is a major contributor to changes in the exchange rate. When the TOT increases, it means that the prices received for exports have increased relative to the prices paid for imports. This is typically good for Australia because it usually reflects strong growth in the prices of Australia's key commodities, such as iron ore and coal. As **commodity prices** rise, Australian exporters will be receiving more money or income for any given quantity of exports shipped to global markets. This higher level of income must ultimately be exchanged into Australian dollars, which increases the demand for the AUD and raises its value.

Chart 7.10 highlights the relationship between the TOT and the exchange rate since late 2011. The very high value of the dollar up until 2013, where the AUD was above parity with the USD, was caused primarily by the strong growth in the TOT at the time. However, the continuing fall of the TOT up to 2016 was the major factor behind the sustained depreciation of Australia's exchange rate, with the AUD falling from above parity with the USD in 2012 to USD 0.70 in late 2015. However, the rebound in the TOT helped to maintain upward pressure on the exchange rate, with the AUD climbing back up towards USD 0.80 by early 2018. Between 2018 and 2022 (with the exception of much of 2020-21), the rise in the TOT occurred alongside a depreciating exchange rate, which indicates that interest rate differentials (see previous page) and other factors were the key forces explaining the depreciation of the AUD during this time. Since 2022, the decline in the TOT has been a factor (along with relatively lower interest rates) contributing to the general depreciation of the AUD, from as high as USD 0.75 in early 2022 to as low as 0.66 USD by the middle of 2024.

Chart 7.10 Exchange rate and TOT



Currency speculation and credit ratings

The value of any given exchange rate can also be influenced by investors' perception of a currency's true or underlying value at any point in time compared to its actual value. **Foreign currency speculation** is a type of investment activity where the investor (speculator) will purchase a particular currency if they believe that it is undervalued and that the price of the currency will increase (appreciate) in the short to medium term. The speculator will therefore stand to gain a profit if they are accurate in their estimation and the currency does indeed increase. The reverse will occur in the event that an investor believes that a currency is overvalued, in which case they will sell the holdings of that particular currency. In acknowledgement of the potential influence that speculation can have on the value of Australia's exchange rate, the RBA openly admits that it will be prepared to intervene in the foreign exchange market (by buying or selling AUD in the market) if it believes that market sentiment and speculation has created volatile movements in the value of the AUD, causing its value to significantly overshoot or undershoot what it considers to be its underlying value. The last time the RBA made any meaningful intervention in the foreign exchange market to prop up the AUD was in 2008, when the global financial crisis caused panic selling of the AUD which drove its value down below USD 0.65.

Demand for and supply of Australian dollars on foreign currency markets will also be influenced by Australia's **credit rating**. This refers to the degree of risk associated with foreigners investing in Australian assets, including property, shares and debt. The higher a country's credit rating the more creditworthy (or financially secure) it is considered in the global economy, making it more attractive for foreigners to invest in that country's assets (or even in that country's currency). Australia currently has a very high credit rating of AAA as determined by the two best known independent credit ratings agencies, Standard and Poor's and Moody's. This high credit rating helps to reduce the cost of borrowing on global markets and improves the size of the Net Primary Income section of the current account. However, it also helps to reduce the cost of servicing government debt (which has implications for budgetary policy which is considered in Chapter 8) and appreciate the value of Australia's exchange rate as global investment is more likely to be attracted to countries with the highest credit ratings.

Relative rates of inflation

As was discussed in Chapter 5, inflation refers to a sustained increase in the general level of prices and it can negatively affect an economy via its impact on **international competitiveness**. If Australia's inflation rate is high by international standards then it will disadvantage Australia's **tradables sector** (exporters and import competing businesses). This is because export prices will be relatively high in global markets and import prices will be relatively low in domestic markets. Accordingly, a high relative rate of inflation is likely to contribute to a reduction in net export demand and lead to a fall in the demand for AUD on foreign currency markets (as fewer exports are sold), and an increase in the supply of AUD (as Australians purchase more imports). This ultimately results in a lower value of the AUD on the foreign exchange market. Of course the reverse is true if Australia's rate of inflation is low by international standards.

Demand for and supply of exports and imports more generally

In addition to changes in the terms of trade and relative rates of inflation, the demand for and supply of exports and imports (and therefore demand for and supply of the AUD) will depend upon a range of other factors, including the following:

Overseas rates of growth

Economic growth in the rest of the world (especially our **trading partners**) should increase the demand for exports. Economic growth requires inputs, such as commodities or raw materials, of which Australia has an ample supply. Higher growth is also associated with rising incomes, which means that foreigners may be more willing and able to purchase Australian exports. Therefore, rising global growth will generally lead to an increase in demand for the AUD as overseas buyers exchange more of their currency to buy more of our exports. The very high growth rates experienced in China over recent years has not only contributed to a higher AUD via the terms of trade effect referred to above, it has also resulted in an increased demand for a range of other 'non-commodity' goods and services, including tourism and education. Increasingly, the growing wealth in previously less developed economies, like China and India, has started to accelerate the growth in service exports in particular, which helps to increase the value of the Australian dollar.

Growth in national spending

During periods of strong growth in the economy we would normally expect the value of the AUD to be rising, particularly if the growth is being fuelled by strong net export demand, which was the case during the terms of trade boom in recent years. However, it is possible that national spending (e.g. **Gross National expenditure**) can be growing excessively relative to production/income (e.g. **Gross Domestic Product**) or the nation's productive capacity. This will necessarily result in the demand for imports increasing relative to the demand for exports, which increases the net supply of AUD on foreign currency markets and reduces its value.

Microeconomic demand/supply factors

Earlier in the text, we examined a range of microeconomic demand and supply factors that could influence prices and quantities in particular markets. On the supply side, these factors included technological change, productivity growth, climatic conditions and/or production costs more generally. Changes in these factors will necessarily impact on prices, which in turn affects the (international) competitiveness of the good or service in global markets. For example **advances in technology** or **productivity growth** within a manufacturing business exporting motor vehicle components to other countries will help to raise export demand and increase the demand for and value of the AUD. Similarly, improved **climatic conditions** will help to reduce production costs for agricultural exporters, which also helps to increase export demand and lift the value of the AUD.

On the demand side, factors included preferences and tastes, changes in disposable income, the prices of substitutes and complements, changes in population and consumer confidence. Changes in any one of these factors can result

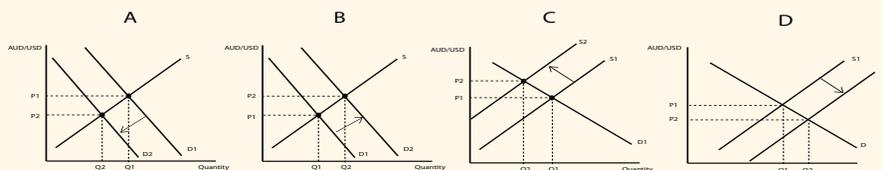
in an increase or decrease in the demand for imports which impacts on the value of the AUD. For example, cheaper imported substitutes might become available in Australia which results in an increase in the supply of AUD on foreign currency markets and a lower value of the AUD. Alternatively, changes in these factors might result in an increase or decrease in the demand for Australian exports. For example, changing overseas preferences and tastes towards Australian tourism will lead to an increase in demand for tourism exports and a rise in the value of the AUD.

Review questions 7.7

- Explain why the demand for the AUD is likely to increase following each of the following events:
 - Lower relative prices of Australian made goods and services
 - An increase in economic growth in the rest of the world
 - Higher world commodity prices
 - Higher interest rates in Australia
 - Increases in foreign equity investments into Australia
 - Foreign currency speculators believe that the AUD is undervalued
- Explain why the supply of the AUD is likely to rise following each of the following events:
 - Lower relative prices of imports
 - Excessive rates of national spending in Australia
 - Payment of interest to foreign lenders
 - Payment of dividends to foreign shareholders
 - Higher relative interest rates overseas
 - Foreign currency speculators believe that the AUD is overvalued
- Examine Chart 7.9 and explain how the movement in the interest rate differential has influenced Australia's exchange rate since 2022.
- Examine Chart 7.10 and explain how movements in the TOT influenced Australia's exchange rate over recent years.
- Explain how it is possible for the terms of trade to increase at the same time that the exchange rate is appreciating (such as that which occurred during the period 2018-22).
- Describe two separate microeconomic demand side factors that could cause the AUD to rise.
- Describe two separate microeconomic supply side factors that could cause the AUD to rise.
- Explain how a strong rate of economic growth in China might influence Australia's exchange rate.
- Explain why excessive growth in national spending in Australia might contribute to an exchange rate depreciation.

Activity 7m: Factors affecting the exchange rate

For each of the following situations (1- 20), choose one (or even two) of the responses (A, B, C or D) that most accurately reflects what is likely to happen in the market for the AUD. The first one is done for you.



1	2	3	4
Holden Australia sells parts to an Indonesian manufacturer	BHP pays dividends to German shareholders	Australian farmers sell Wheat to Japan	SPC imports 10 robots from Germany
B			
5	6	7	8
The Australian government receives interest from overseas	ALDI buys canned tomatoes from Germany	Coles pays a dividend to overseas shareholders	Paul and Ako send money to relatives in Japan
9	10	11	12
Australia pays money to Canadian shipping company for transporting Australian goods	Rajiv comes to Australia from India to work in Australian schools and brings 1m rupees	Ted Roberts travels to NZ and spends money on hotels and tours	Jenny receives dividends from a Japanese company in which she owns shares
13	14	15	16
Foreign currency speculators lose faith in the AUD	John Hawkes sells sheep to an Indonesian abattoir	The USA credit rating falls	Fewer tourists are coming to Australia
17	18	19	20
There is a fall in the TOT caused by a fall in the price of iron ore	Efficiency falls in Australia's manufacturing sector	The Sheridan resort in Fiji offers amazing deals	There is an influx of overseas students to Australia

7.8 The effects of changes in the exchange rate

Exchange rate changes over time are one of the key economic factors influencing the achievement of Australia's **macroeconomic goals** and **living standards**. Since the floating of the exchange rate in 1983, the value of our currency has acted much like an 'automatic stabiliser' in the economy. It will tend to appreciate during times of strong economic activity, particularly when economic activity is fuelled by growth in net exports (such as the appreciation that occurred up to 2013 in response to the mining boom). The appreciation will be caused by the strong net demand for the AUD on foreign currency markets and will then help to 'stabilise' economic activity because a higher AUD reduces the international competitiveness of Australia's tradables sector, constraining growth in exports, stimulating growth in imports and therefore reducing growth in both AD and real GDP. In contrast, when the economy is weak and net export growth is low, the exchange rate will depreciate as the net demand for the AUD will fall. The depreciation will then 'automatically' help to stabilise the economy by increasing competitiveness and stimulating net export demand, AD and real GDP.



In Chapter 5, the exchange rate was considered amongst a host of other demand and supply factors affecting the key macroeconomic variables of economic growth, inflation and the unemployment rate. In the following paragraphs, we will (re)examine how the exchange rate can impact on the macroeconomic goals of strong and sustainable **economic growth, full employment** and **price stability**. In addition, we will pay some attention to how exchange rate changes will influence the **current account balance**. It is important to remember that changes to the exchange rate will have both demand and supply side effects on the economy, with the demand side effects tending to dominate and boost economic activity and living standards when a depreciation occurs, while an appreciation will have the reverse effect.

Strong and sustainable economic growth, full employment and living standards

If the value of the Aussie dollar (AUD) decreases, the **demand side** effects on economic growth are positive. There are three main reasons for this:

Firstly, those exporters in Australia that are '**price takers**' (or simply rely on the world USD price of their goods when selling on world markets) will receive more income for any given volume of exports. This is because each USD they receive for their product is now worth more than before. For example, assume a farmer in 2023 produces a crop of 1,000 tonnes of wheat with the world price sitting at USD300 per ton. His income would be USD300,000. If the Aussie dollar was worth USD1.00, then he would receive the same amount of Australian dollars when exchanging his USD into AUD (i.e. the income generated from the wheat would be AUD300,000). Now, assume that in 2024 he produces an identical crop (1,000 tonnes), but the value of the Aussie dollar falls by 50% (A\$1.00 = US\$0.50). The farmer will now receive double the income he received in 2023 because USD300,000 will now be converted into AUD600,000 because each USD is now worth twice as much as before. This rise in export income (or value) causes AD and economic activity to increase, even though the volume of exports has remained unchanged. While it is important to note that this only applies if prices for exports are denominated in foreign currencies, for example as 'world prices', the reality is that this is the case for many of the products that Australia exports, especially commodities.



Secondly, those exporters that are not price takers (such as producers of niche products or the tourism industry) will find that the price competitiveness of their good or service in international markets (i.e. **international competitiveness**) will increase when the value of the AUD falls. For example, if the AUD fell dramatically against all currencies (including the NZD), then Australia would become a much more attractive tourism destination for foreigners, compared to New Zealand, because they will receive relatively more AUD for any given exchange of foreign currency. This means that it becomes cheaper to holiday in Australia, causing a rise in tourism exports and less tourism imports as fewer Australians venture overseas for a holiday, preferring instead to holiday domestically. Again, net exports (exports minus imports) increase, AD rises and economic growth is positively affected.

Thirdly, **import-competing businesses** in Australia (including tourism businesses referred to above) will now be relatively more price competitive against imports as the lower AUD forces importers to pay more for imports, thereby raising the price of imports. This causes some consumers to substitute away from imports and towards locally made goods, causing net exports and AD to rise once more, contributing to a stronger rate of economic growth.

Study tip

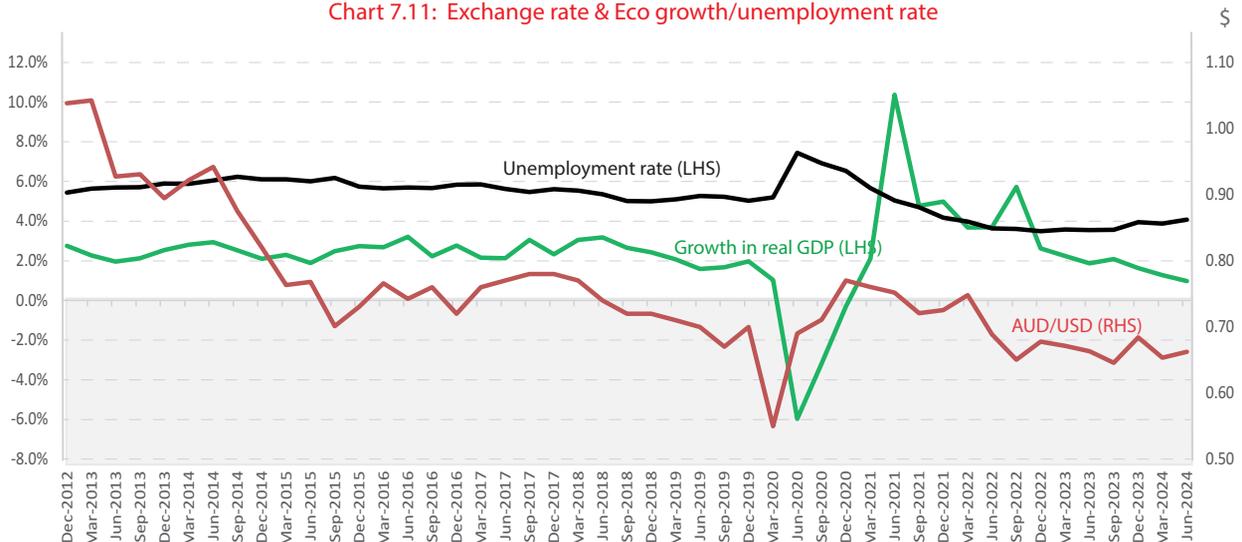
It is important not to confuse the causes and effects of a change in the value of the AUD. A higher Australian dollar will often reflect (i.e. was an effect or consequence of) stronger net export growth, which adds to inflationary pressure. However, the higher dollar itself will then cause a reduction in inflationary pressure.

These demand side impacts are mitigated somewhat by the negative **supply side** impact as the lower value for the Australian currency will result in relatively more expensive **intermediate imports** (e.g. inputs such as textiles for clothing or engine parts for trucks) and **capital imports** (e.g. robotics and machinery). Given that Australia has a heavy reliance on intermediate and capital imports to fuel our industries, this tends to increase both the costs of production and prices, therefore negatively impacting on AD and economic growth. Overall, however, the demand side impact on economic growth outweighs the supply side impact such that a higher AUD tends to restrain economic growth and material living standards (as measured by real GDP per capita), while a depreciating AUD should stimulate economic growth and boost living standards. RBA research reveals that a 10 percent depreciation of the Australian dollar is expected to increase national output by one-half to one percent over a period of one to two years or so. This highlights the benefits that a lower exchange rate can have on production, incomes, employment and living standards of Australians.

Chart 7.11 highlights the relationship between the value of the AUD and changes in real GDP and the unemployment rate. As discussed earlier, the relatively high exchange rate between 2012 and 2014 tended to be a consequence of the ‘relatively’ strong rate of economic growth that was fuelled by the mining sector. This high dollar, however, created real problems for trade exposed industries (such as manufacturing, tourism and education) which experienced a rise in the relative prices of their goods and services and a resulting fall in the demand for those products. Accordingly, the higher dollar became a factor constraining economic growth and increasing pressure on the unemployment rate. However, since 2013-14, the depreciation of the exchange rate helped to maintain upward pressure on economic growth and downward pressure on the unemployment rate, with real GDP growth eventually rising above 3% over 2017-18 and the unemployment rate falling towards 5%. The further fall in the value of the AUD between 2018 and 2020 helped to ‘re-balance’ growth back towards the non-mining ‘trade exposed’ sectors of the economy and was one of the major contributing factors behind the strong growth in net export demand (and return of the current account to surplus). It is unquestionable that economic growth would have been lower, and unemployment higher, had the value of the AUD not fallen during this time. The rebound in the exchange rate to USD 0.75 in June 2021 had the reverse effects on economic growth and employment, while the depreciation of the exchange rate over 2021-22 stimulated economic growth and further reduced the unemployment rate. The continuing low dollar over 2023-24 has partly been a consequence of a lower TOT, which reflects the lower rate of economic growth during this time. To the extent that the dollar remains low (or declines further) it should help to stimulate economic growth and exert further downward pressure on the unemployment rate over 2024-25.



Chart 7.11: Exchange rate & Eco growth/unemployment rate

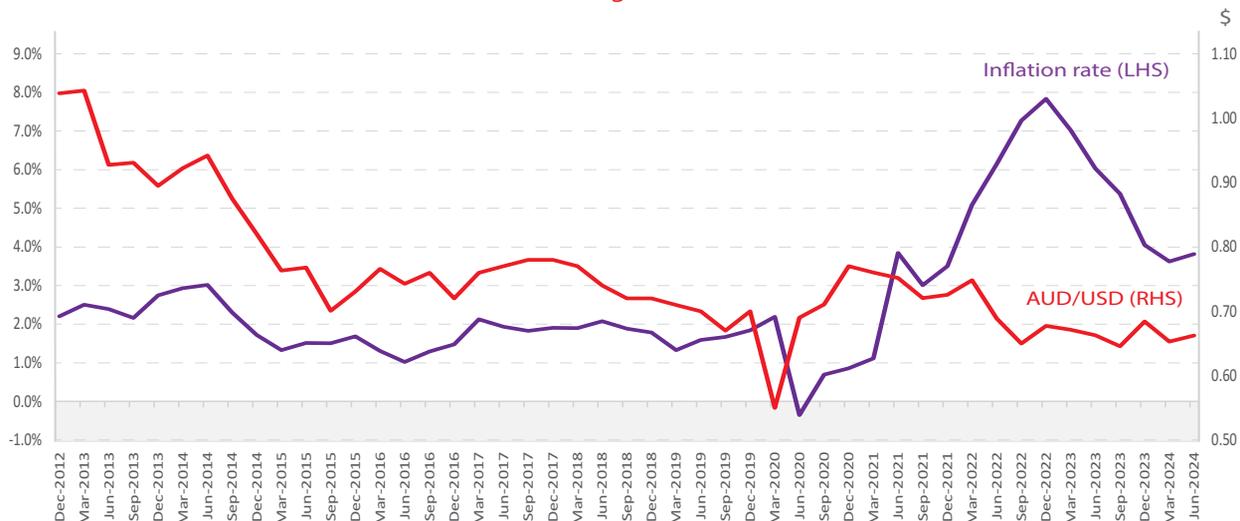


Price stability (low inflation)

As discussed in Chapter 6, when the value of the Australian dollar changes it will have both demand and supply side impacts on inflation that work in the same direction. On the **demand side**, a higher dollar reduces AD (via lower net exports) and this decreases demand inflationary pressure. Further, the lower incomes that result from weaker net export growth will flow on to have disinflationary effects. On the **supply side**, a higher AUD causes the costs of production for Australian producers to fall on average as the costs of imported capital equipment and other intermediate imports are now lower. In addition, the lower cost of finished consumer items will directly reduce the inflation rate as measured by the CPI. Of course, the reverse applies when the dollar falls, with a depreciation resulting in an increase in both demand and cost inflationary pressures.

Chart 7.12 shows the relationship between the exchange rate and inflation rate since 2012. The depreciation between 2014 and 2016 was certainly a factor that contributed to a slightly higher rate of inflation over 2016-17 (from 1% to 2%). Similarly, the depreciating exchange rate between 2018 and 2020 (just prior to the 2020 recession) was a factor behind inflation increasing into the bottom end of the RBA's target range (2 - 3%). During the economic downturn of 2020-21, inflation was not a problem, particularly as deflation was recorded in 2020. However, the lower exchange rate in early 2020 certainly helped to increase inflationary pressures before the rebound in the exchange rate to USD 0.75 in June 2021 had the reverse effects, keeping the rate of inflation at levels considered too low. The depreciation of the exchange rate since was a factor (along with the cost inflationary pressures stemming from the war in Ukraine and lingering COVID-19 global supply constraints) that contributed to the rise in inflation to 7.8% by December 2022. Despite disinflation over 2023-24 (caused largely by the easing in cost inflationary pressures), the relatively low dollar continues to exert upward pressure on the rate of inflation during 2024. [The extent to which the exchange rate forms one of the key transmission channels by which monetary policy helps to control inflationary pressures will be explored in Chapter 9.]

Chart 7.12 Exchange rate and inflation rate



Current Account balance

Earlier, we discussed the various ways that a change in the value of the AUD will impact on economic growth. You should recall that economic growth was affected by changes that took place in the **external sector**. In particular, if the value of the exchange rate increases, it will negatively affect **net exports** in the following ways:

- exporters in Australia that are **'price takers'** (or simply rely on the world USD price of their goods when selling on world markets) will receive less income for any given volume of exports;
- exporters that are not price takers (such as the tourism and education industries) experience a decrease in **international competitiveness** as the price of their goods or services will be relatively higher for foreign purchasers; and
- import values should increase as they are now relatively cheaper in AUD terms.

These demand side impacts should result in a lower net export demand, a smaller Balance on Goods and Services (BOGS) surplus (or possibly a deficit) and a larger current account deficit (CAD). Conversely, a declining value of the dollar should help to improve the BOGS and reduce the CAD.

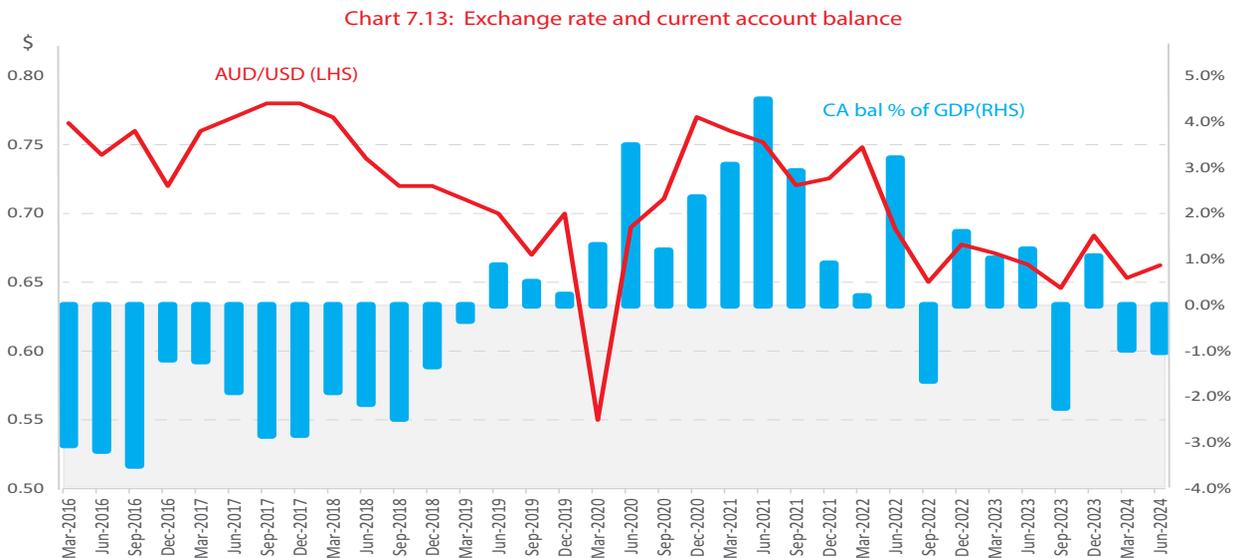
In addition to the beneficial effects that a lower exchange rate will have for the BOGS, a depreciation ‘can’ also help to improve the Net Primary Income Section of Australia’s current account. Given that Australia has a relatively large stockpile of net foreign liabilities, changes in the exchange rate will have implications for the servicing of these liabilities (e.g. interest and dividend payments) which in turn will influence the net primary income flows within the current account. Currently, the vast majority of Australia’s liabilities (e.g. foreign debt) are effectively denominated in Australian currency. This means that any change in the exchange rate will have little or no effect on the value of interest (or dividend) payments required to service these liabilities. In contrast, more than half of Australia’s stock of foreign assets (e.g. Australian owned shares in foreign companies or foreign bonds) is denominated in foreign currency. This means that the value of these assets rise when the AUD falls (i.e. when the value of the USD or other currencies rise) which results in a higher value of income credits in the NPI section when Australia receives dividends or interest in foreign currency. Of course, the reverse is true when the AUD rises, leading to a negative valuation effect in the NPI section.

Study tip

The effect of a change in the exchange rate and the impact on the CAD described here is one that focuses on the medium to longer term impact that is driven by the change in relative prices and the effect on quantities purchased. For example, a depreciation causes consumers to purchase fewer imports (i.e. substitute out of imports) and foreigners to purchase more exports (substitute into Australian exports). However, for simplicity, we have ignored the short-term negative ‘price effect’ which can reduce net export values. This occurs because the higher price of imports initially causes import values to climb, and the lower price of exports causes export values to fall. Accordingly, the value of net exports (or the BOGS) can fall following a depreciation because of the ‘price effect’ before it eventually rises due to the ‘substitution effect’. This effect on net export values is often referred to as the ‘J-curve’ effect which is beyond the scope of the VCE Economics course.

Chart 7.13 compares changes in the value of the AUD to the size of the current account balance since 2016. The depreciation of the AUD between 2017 and 2020 is one of several factors that helped to reduce the size of the CAD and return it to surplus (in 2019) for the first time in more than 50 years. Indeed, the healthy current account surpluses recorded over much of 2020-21 were assisted by the heavy depreciation of the exchange rate to USD 0.55 in early 2020. While the appreciation of the exchange rate in the second half of 2020 exerted downward pressure on the current account balance, the general decline in the value of the AUD from USD 0.77 in December 2020 to USD 0.66 in June 2024 helped to boost competitiveness and contributed to the high current account surpluses for most of the period since then.

Of course, the movement in the TOT was a major factor driving both changes in the current account balance and changes in the exchange rate. So while the higher TOT up to 2022 helped to deliver current account surpluses, it also contributed to an exchange rate appreciation which then had a negative impact on the current account balance. Similarly, the lower TOT over 2023-24 has contributed to a return of the current account to deficit, as well as causing the exchange rate to depreciate, which should then have a positive impact on the current account balance going forward.



The relationship can also apply in the other direction. Namely, an increase in the CAD to high levels (e.g. over 2015) is partly responsible for the decline in the value of the dollar. This is precisely what to expect when a country has a freely floating exchange rate because high CADs will reflect a higher risk that is associated with a higher stock of net foreign liabilities that will occur to fund the CADs. In addition, it can signal that the tradables sector (exporters and import competing businesses) is relatively uncompetitive and/or that the exchange rate is overvalued. These factors are likely to reduce demand for the AUD and increase the supply, causing its value to fall. The reverse is also true when the current account records a high surplus, such as during 2020-21. In this case, it is reasonable to expect this to exert upward pressure on the exchange rate, which is exactly what happened during the latter part of 2020.

So while it is true that a higher AUD will tend to reduce competitiveness and result in negative pressure on the current account balance, it is useful to remember that a higher AUD might actually occur alongside a higher CA surplus. For example, this will occur when strong export demand is the driving force behind the changes to the balance of payments and the value of the AUD. As export demand increases (e.g. due to a strong TOT) this will cause the BOGS to improve, the current account surplus (CAS) to increase (or CAD to fall) and the value of the AUD to climb (as there is growing demand for the currency to purchase exports).

Review questions 7.8

1. Explain how a floating exchange rate can act much like an automatic stabiliser in the economy.
2. Describe three separate reasons that help to explain why a depreciation of the exchange rate will tend to stimulate aggregate demand and economic growth.
3. Explain why a depreciation of the exchange rate can have negative supply-side impacts on the economy.
4. Explain why a lower exchange rate is expected to create jobs and reduce unemployment.
5. Using Chart 7.11, explain how the movement of the exchange rate since late 2020 may have impacted on economic growth and the rate of unemployment.
6. Explain whether a higher or lower exchange rate will assist with the achievement of price stability. In your answer, refer to both the demand and supply side effects.
7. Using Chart 7.12, explain how the change in the exchange rate since the end of 2020 may have influenced the achievement of price stability.
8. Explain why a lower exchange rate might help to reduce the size of the current account deficit.
9. Using Chart 7.13, explain how the change in the exchange rate between 2017 and 2020 influenced the current account balance and outline how a higher AUD can occur alongside a lower CAD.

Activity 7n: Winners and Losers from a changing exchange rate

Australia's exchange rate appreciated to greater than parity with the USD between 2011 and 2013, largely in response to the growth in the terms of trade. At the time, many commentators suggested that we simply needed to adjust to having a high Australian dollar (AUD) and accept that a high AUD brings with it some costs and benefits. While the AUD has fallen significantly since then, there have been periods where many commentators argued that the AUD is still too high, particularly when it approaches USD 0.80 (such as 2018 and 2020). However, the fall in the AUD to 0.55USD in March 2020 prompted many commentators to argue that the AUD was too low. This reflects that there are winners and losers when the AUD changes. ...



Winners: Most consumers will appreciate the benefits associated with the high Australian dollar. Imported goods that can be found in local retail outlets and from international online outlets are now significantly cheaper than they were in the past. Overseas holidays are also more accessible since fewer Australian dollars are now needed to obtain a unit of foreign currency such as the American dollar or Euros. Therefore the living standards of the average Australian may have actually increased because they can purchase more goods and services with the same income. Similarly, firms who sell imports may be able to generate more sales because customers will be enticed to buy more from them if they are willing to pass on the savings to their customers. Finally, firms who use imported components in the production process will notice a decrease in their costs of production. This might increase their willingness to supply and this too can help to generate extra sales. The high dollar has a positive effect on the inflation rate too. The high dollar keeps the cost of production down for firms who use imported components and helps to slow down any excessive demand inflationary pressures (which would create shortages and therefore rising prices). This is because Australian households and businesses might substitute towards imports, thereby lowering the demand for Australian goods, and the demand for exports might fall. Ultimately this might help indebted households because the RBA is less likely to increase interest rates.

Losers: While the mining companies have benefited from rising world prices for their products as well as surging demand, exporters in other markets have not been so lucky. The high dollar makes it more difficult for them to compete. In fact, all businesses that compete with overseas suppliers will be at a distinct disadvantage from a high(er) exchange rate. When the AUD was at (or close to) parity with the USD, there were many media reports highlighting the challenging conditions facing our traditional retailers. When customers log on to foreign online shopping sites and do the necessary currency conversion, they realised there is little point in purchasing from a traditional retailer. Some customers were cheeky enough to try clothes on in an Australian store and then go home and buy the same thing online. The retail sector therefore suffered a decrease in sales, and there was some evidence this even affected the sellers of imports negatively. Similarly, Australian manufacturers struggled to maintain export and domestic sales. The price for foreign and local purchasers was higher and sales decreased. Tourists contemplating a holiday are less likely to look at Australia as a favourable destination. Many would like to visit the country for its great attractions and hospitality, but a higher dollar makes it prohibitively expensive. Finally, the education industry, a huge export market for Australia, also suffered because of the high dollar, because foreign students would need more of their own currency than before in order to study exactly the same courses as previously.

Activity - Other People's Views: Break the class up into small groups and conduct a forum discussing the impacts of a high dollar from the perspective of each group represented.

Groups to choose from

1. JB HiFi shareholders
2. The (former) workers at Ford Australia
3. The managing director of Rio Tinto, an Australian diversified mining company
4. An average Australian family
5. The Australian government
6. Lecturers at a private international college
7. Airline companies
8. Australian fast food restaurants

7.9 Factors affecting Australia's international competitiveness

International competitiveness measures a country's ability to compete in global markets for goods and services, where this competition can be based on price or non-price factors (such as service or quality). An improvement in Australia's international competitiveness means that Australian firms or industries are producing goods and services at lower prices or higher quality compared to competitors overseas. As noted earlier in Section 7.3 when examining the potential causes of a structural current account deficit, Australia's international competitiveness, as measured by the **Global Competitiveness Report**, has been consistently poor over many years, with our low rate of productivity growth and relatively low levels of entrepreneurship being cited as major issues for Australia. Improvements in these areas will help to boost Australia's international competitiveness over time and assist with the achievement of our macroeconomic goals and living standards.

We will now examine some of the key influences on our international competitiveness, including productivity, production costs, availability of natural resources, exchange rates and relative rates of inflation, before exploring the effects of these factors on the achievement of our macroeconomic goals and living standards.

Productivity

As discussed in earlier chapters, productivity is defined as output over inputs (output/inputs) or total output per unit of input. It describes how efficiently our resources are being used to produce goods and services. Generally, improvements in **productivity** should increase international competitiveness as average **production costs** should fall, allowing businesses to reduce prices or improve quality. However, increases in productivity will only result in an improvement in competitiveness if suppliers actually pass on the productivity gains (or lower costs) in the form of lower prices (or higher quality). This result is most likely to occur in more **competitive markets** compared to those markets that are highly concentrated, such as monopolistic or oligopolistic markets (see Chapter 3). However, if firms decide to absorb the increased productivity in the form of higher profits, then the competitiveness of these firms will not improve in the short term. Instead, the increased profitability should enable them to accumulate financial resources such that they are in a better position to more aggressively pursue market share some time in the future.



Ultimately, this is why Australian governments have been keen to expose Australian industries or markets to a greater degree of domestic and international competition. An increase in competition actually forces businesses to seek productivity or efficiency gains and then to pass those gains onto the ultimate consumer in order to improve their competitiveness and retain or boost market share. Overall, productivity improvements are likely to increase international competitiveness.

Production costs

While productivity growth is clearly a major influence on production costs, there are many other factors that will influence production costs, and therefore prices and competitiveness, apart from productivity. This includes the three major costs of production for most businesses: **labour costs** (e.g. wages), **capital costs** (e.g. machinery) and **raw material costs** (e.g. the cost of energy such as electricity). When any, or all, of these costs increase, we will expect prices to rise, and Australia's international competitiveness to decline.

Over recent years, the **cost of labour** in Australia has fallen in response to weaker labour markets. Demand for full-time labour has been relatively slow, while the supply of labour has increased in line with a higher participation rate (partly fuelled by strong growth in immigration up until 2020 and an enhanced ability for individuals to offer their labour services in the growing digital economy) as well as a more open 'global' labour market (e.g. an increased willingness and ability for firms to contract out their labour requirements to low labour cost countries such as India and the Philippines). This has helped to exert downward pressure on production costs in many industries, which in turn has resulted in disinflationary pressures that have pushed inflation to very low levels (and contributed to deflation over 2020). Other things being equal, these relatively lower labour costs have helped to increase Australia's international competitiveness.

Capital costs globally have fallen due largely to rapid advances in technology. This of course improves **capital productivity** of all firms relying on the use of capital and therefore reduces the real cost of employing capital. To the extent that Australia is more **capital intensive** relative to some of our competitors in the global market place who have a greater

reliance on labour (i.e. greater **labour intensity**), advances in technology have helped to reduce the average costs of production and improve Australia's international competitiveness relative to those countries who have a lower capital intensity.

In relation to raw material costs, the **cost of energy** (such as electricity) have risen over recent years. This is largely been attributable to the large-scale investment within the electricity sector and includes the upgrading supply networks (e.g. repair and maintenance of electricity infrastructure such as power poles) as well as investment to expand the size of the network following years of underinvestment. In addition, government policy initiatives that are designed to reallocate resources towards renewable energy options (e.g. the effective pricing of carbon) have resulted in higher prices for traditional forms of energy (e.g. coal-fired electricity). This impacts negatively on the international competitiveness of those businesses relying the most of these sources of energy.

Availability of natural resources

The availability of natural resources ultimately depends on a country's **resource endowments**, such as the amount of land available for cultivation, the natural resources found beneath the ground as well as the climate. The availability of resources will also partly depend on the size and nature of investment that has taken place, including the amount of funds spent on minerals exploration, as well as changes to the climate that impact on the overall productivity of our land. All of these factors will determine a country's **comparative advantages** (See Extension Activity 7p) and overall international competitiveness.

Australia's comparative advantages are largely derived from our abundant natural resources, primarily those in agriculture and mining. This allows Australia to produce mining and agricultural goods at a relatively cheaper price compared to most countries in the world. This competitive or comparative advantage will eventually be eroded in the long run once the resources near depletion, unless concerted efforts are made to produce these sustainably into the long run. Importantly, the impact that **climate change** is expected to have on the incidence of natural disasters, including the length and intensity of droughts, will have major implications for the availability of natural resources in Australia and therefore our international competitiveness.

Exchange rates

In Section 7.7, we examined a number of factors that influenced the value of the exchange rate, which ultimately depended on the relative **demand and supply** for Australian dollars on foreign currency markets. We noted that a lower demand for the dollar would result from factors that made Australia's tradables sector relatively less competitive, which includes those factors listed here in Section 7.9, such as relatively low rates of productivity and growth in production costs. A reduction in productivity and/or growth in production costs will add to inflation and directly reduce Australia's competitiveness. However, this will ultimately reduce the value of the exchange rate over time because the net demand for Australian dollars on foreign currency markets is likely to fall. It is this depreciation of the exchange rate which, to some extent, helps to automatically restore our international competitiveness.



As mentioned earlier, a **floating exchange rate** will therefore help to buffer or stabilise the economy. This is because the exchange rate will automatically fall in response to an economy's goods and services becoming less competitive in global markets, which then helps to increase competitiveness. In contrast, a very efficient and therefore competitive economy is likely to see its exchange rate appreciate, which then works to decrease competitiveness.

Clearly, Australia's exchange rate will also depend on factors determined overseas. For example, the increased competitiveness of the Chinese economy as a result of rising productivity should result in the Chinese currency rising relative to all other currencies, including Australia's, given that the demand for the Yuan/Renminbi (the Chinese currency) would be higher. This appreciation of the Chinese currency would then help to improve Australia's international competitiveness by virtue of a lower exchange rate relative to the Yuan/Renminbi. However, this would only apply in a world where exchange rates were fully floating. China's exchange rate is heavily managed by the Government (sometimes called a **'dirty float'**) and it has, at certain times, prevented the currency from rising (by purchasing foreign currencies on foreign exchange markets). This, of course, helps to promote the international competitiveness of the Chinese tradables sector.

The ability for governments to manipulate their exchange rates in order to influence their countries relative competitiveness is well-known. There will often be a temptation to keep one's currency undervalued in order to promote growth in production, employment and incomes. Even in Australia, there have been times when the RBA has intervened in the foreign currency market, by buying and/or selling foreign currencies, in order to manipulate the value of the AUD. However, exchange rate intervention in Australia is primarily done to reassure markets by removing excess volatility in the value of the AUD. [This will be considered further in Chapter 9.]

Relative inflation rates

All of the factors considered above will determine the rate of growth in prices and therefore the rate of inflation in Australia. Australia's inflation rate relative to the rest of the world is the overriding factor that ultimately determines Australia's international competitiveness. This relative inflation rate will be influenced by those factors listed above: productivity, production costs the availability of natural resources and the exchange rate, as well as the inflation rates experienced by Australia's trading partners.



One of the main reasons for Australia enshrining a low inflation goal in legislation is because of its impact on international competitiveness and living standards.

As discussed in Section 7.7, a low inflation rate by international standards will assist Australia's tradables sector because export prices will be relatively lower in global markets and import prices relatively higher in domestic markets. Accordingly, a low relative rate of inflation is likely to result in an increase in net export demand, boosting aggregate demand, economic growth and living standards.

International competitiveness and macroeconomic goals

If the improvement in international competitiveness has occurred because of lower prices in Australia, then it will have clear benefits for the Government's economic goal of **price stability**. The reduction in prices will, by definition, mean that the rate of inflation is lower and the goal of low and stable inflation is more likely to be achieved. To the extent that there has been a reduction in prices (or improvement in quality), relative to overseas goods, this will enable Australian businesses to gain a bigger share of the global market, which expands AD and achieves a **stronger rate of economic growth**.

To the extent that any improvement international competitiveness has been achieved by higher productivity and/or an increase in the availability of natural resources, this can help to expand **productive capacity**. The economy will then able to achieve a higher rate of economic growth alongside lower inflation. This is sometimes referred to as '**low inflationary growth**' and enables higher rates of economic growth to occur for a longer period. This is because the downward pressure on prices tends to increase AD, via greater C, I and net exports, which then leads to an increase in real GDP (or economic growth). In this economic environment, growth becomes more sustainable as it occurs without inflationary pressure, unlike growth that is stimulated from the 'demand side' (such as growth in confidence or lower interest rates) which tend to create inflationary pressure, particularly when the economy is operating near full capacity.

With higher levels for AD and real GDP, we should expect to see an increase in the (derived) demand for labour, boosting employment and reducing the **rate of unemployment** over time towards the full employment rate (approximately 4.25%). This unemployment effect is mitigated somewhat by the possibility of higher participation rates over time combined with the possibility of some '**jobless growth**' – where the increase in economic growth requires no additional labour owing to advances in productivity or efficiency (see Chapter 5).

The means by which we achieve an improvement in international competitiveness (e.g. structural or microeconomic reforms that increase efficiency) can tend to have a negative effect on unemployment in the short term. This is because industries will often make workers redundant when they are going through a major re-structure of their organisations. This can increase **structural unemployment** in the short term (which typically adds to the pool of long term unemployment) but is expected to reduce unemployment in the longer term as the more efficient economy manages to generate even higher output levels and a higher demand for labour.

Overall, an increase in international competitiveness should benefit average **living standards** for Australians despite the possible short term negative impact resulting from productivity enhancing reforms in the economy. Average incomes across the economy should increase and **real GDP per capita** should expand, providing Australians with a greater ability to purchase goods and services.

Activity 7o: International competitiveness

In the table below, or in your notebooks/laptop, identify whether international competitiveness is likely to increase or decrease for each hypothetical scenario. In the final column you are required to provide an explanation that supports your decision.

Transaction	↑	↓	Explanation
A prolonged drought affects agricultural producers			
Reduction in national productivity			
Repeal of a carbon tax			
Productivity growth in the USA exceeds the rates experienced in Australia			
The Chinese government removes tariffs on Australian goods			
The trade weighted index falls to very low levels			
Cost inflation caused by inefficient business practices			
There is a large fall in the labour force participation rate			
Rapid advances in technological uptake in Australia			
Much higher inflation rates in China and the USA compared to Australia			

Extension Activity 7p: Trade and comparative advantage

Nations trade ultimately because of the advantages associated with international specialisation, where some countries are more efficient at producing certain goods and services relative to other countries. The reasons for differences in relative efficiency often come down to differences in resource endowments, which are due to factors such as:

- Natural resources (e.g. vast quantities of quality land or mineral deposits)
- Climatic conditions
- Quality of labour resources
- Global position in relation to world markets (e.g. is the country isolated?)
- Size of continent and infrastructure required to trade (e.g. access to ports)
- Access to capital equipment (although this normally comes with increasing degrees of economic development)



Overall, we trade to import goods and services that we either can't produce at all (or produce cheaply enough) and to export goods and services that can't be produced overseas (or that we produce more efficiently).

The theory of absolute and comparative advantage

The theory of comparative advantage says that a country should specialise in the production of only those goods and services in which it has a lower 'opportunity cost' of production (compared to other countries). It may seem peculiar, but a country can be more efficient than another country in producing all products (i.e. it has an absolute advantage across the board), but it can be in that country's interest to specialise only in the production of some products, and import its remaining requirements. For example, assume that there are two countries, country A and country B, who produce only 2 goods, cars and trucks. If both countries were to use all available resources and specialise in the production of just one of these goods, the following production would occur:

	Cars	Trucks
Country A	400	100
Country B	150	50

Country A has an absolute advantage in the production of both goods. It can make either 400 cars OR 100 trucks, compared to country B which can make either 150 cars OR 50 trucks. However, it only has a comparative advantage in the production of cars. This is because for every car produced, 1/4 of a truck must be foregone. Whereas, for country B, every car produced results in 1/3 of a truck being sacrificed. Alternatively, for country A, a sacrifice in the production of 1 truck will result in the production of 4 cars. However, for country B, a sacrifice in the production of 1 truck will result in the production of only 3 cars. Accordingly, country B experiences a higher 'opportunity cost' when it produces cars compared to country A. On the other hand, country B has a comparative advantage in the production of trucks because for every truck it produces, 3 cars have to be foregone. Whereas, country A must give up 4 cars to produce 1 truck – its opportunity cost is higher.

So each country can decide not to specialise and use their resources to produce both goods, in which case total world production would be:

Cars	200 + 75 = 275
Trucks	50 + 25 = 75

However, if country A specialised in car production and B specialised in truck production, it makes sense for A to buy trucks from B and B to buy cars from A. World output would then be:

Cars	400
Trucks	50

This is significantly more than the production levels that would exist if each country decided not to specialise, therefore providing a powerful theoretical (albeit simplistic) argument in support of free trade or trade liberalisation.

Application questions

1. Explain why an abundance of natural resources and climatic conditions for Australia make us a relatively efficient international producer in some markets.
2. Explain what is meant by the theory of absolute advantage.
3. Explain what is meant by the theory of comparative advantage.
4. Assume two countries could produce the combinations of goods as described below

	Computer	or	Chairs
Country A	30		20
Country B	10		10

- a. Determine which country has the comparative advantage in the production of computers and chairs. In your answer, refer to the opportunity cost involved in the production of each good.
- b. Determine the volume of goods that would be produced if (i) neither country traded and (ii) each country specialised in the production of that good in which they enjoyed a comparative advantage.

Review questions 7.9

1. Define international competitiveness.
2. Define productivity and explain how growth in productivity impacts on international competitiveness.
3. Explain how higher costs of capital will affect international competitiveness.
4. Explain how changes in labour costs over recent years have impacted on Australia’s international competitiveness.
5. Explain how changes in energy costs over recent years have impacted on Australia’s international competitiveness.
6. Explain how Australia’s resources endowments have impacted on Australia’s international competitiveness in the market for agricultural and mining goods.
7. Discuss how climate change might impact on Australia’s international competitiveness.
8. Explain why a lower exchange rate will tend to increase Australia’s international competitiveness.
9. Explain why a high rate of inflation in Australia can damage international competitiveness.
10. Outline why an improvement in international competitiveness will tend to boost economic growth, reduce unemployment and boost living standards.
11. Explain how an improvement in international competitiveness might be associated with an increase in unemployment (particularly in the short run).

Multiple choice review questions

1. **Which of the following does not represent a credit entry in Australia’s balance of payments?**
 - a) The payment of dividends from an American company to Australian shareholders
 - b) Australian mining companies receiving money from export sales
 - c) Australian educational institutions receiving fees from overseas students
 - d) Foreign investors receiving interest from Australian banks

2. **Which of the following transactions is most likely to create future financial obligations for Australians?**
 - a) The receipt of interest from overseas
 - b) The receipt of dividends from overseas
 - c) The receipt of loans from overseas
 - d) The receipt of rent from overseas

3. **Which of the following statements about Australia’s balance of payments is incorrect?**
 - a) A Current Account deficit will be exactly offset by a Capital Account surplus
 - b) The net income deficit is the largest component of the current account
 - c) The sale of Australian shares to overseas investors is recorded in the Financial Account
 - d) The Balance on Goods and Services (BOGS) is made up of both the Balance on Merchandise Trade (BOMT) and Net Services

- 4. Which of the following statements is most accurate in relation to economies of scale?**
- Costs of production will fall as output increases
 - Costs of production will rise as output increases
 - Average costs of production will rise as output increases
 - Average costs of production will fall as output increases
- 5. Which of the following statements about Australia's balance of payments is correct?**
- The purchase of more than 10% of the shares in an Australian company by overseas investors is considered 'Direct Investment'
 - The BOMT is always a surplus for Australia
 - Australia will always have a current account deficit and a CAFA surplus
 - The Capital Account is a major part of the balance of payments
- 6. In relation to Australia's net foreign liabilities (NFL), which of the following statements is incorrect?**
- NFLs are made up of net foreign debt (NFD) and net foreign equity (NFE)
 - Growth in NFL should equate to growth in the CAD
 - NFD makes up the bulk of Australia's NFL
 - Growth in NFE will increase net interest payments to overseas investors
- 7. Which of the following factors will not contribute to growth in Australia terms of trade?**
- Lower price of tourism imports
 - Disruptions to the supply of iron ore and coal in other countries
 - Higher prices received for exports of natural gas
 - A fall in Chinese demand for iron ore
- 8. In relation to Australia's exchange rate:**
- It's usually measured by the value of AUD compared to the Indian rupee
 - Its value is likely to increase when the CAD is high
 - Its value is likely to fall when interest rates overseas start to decrease
 - Its value is likely to increase if prices for capital imports start to fall
- 9. Which of the following provides the better definition of the Terms of Trade:**
- The price of imports divided by the price of exports
 - The value of imports divided by the value of exports
 - The price of exports divided by the price of imports
 - The value of exports divided by the value of imports
- 10. Which of the following is most likely to result in a higher Terms of Trade?**
- Higher demand for consumer imports from China
 - An increase in the global supply of commodities like iron ore and coal
 - An increase in the global demand for commodities like iron ore and coal
 - An appreciation of the exchange rate
- 11. An increase in the Terms of Trade is unlikely to result in which of the following?**
- An increase in Gross Domestic Income
 - An increase in Gross Domestic Product
 - A higher Balance on Merchandise Trade
 - A lower Trade Weighted Index
- 12. Which of the following is likely to lead to a higher value of the AUD?**
- Foreign currency speculators believing that the AUD is undervalued
 - Lower Australian interest rates
 - A higher rate of inflation in Australia
 - Lower rates of productivity in Australia
- 13. A higher Australian trade weighted index is most likely to result from which of the following?**
- A lower Terms of Trade
 - An increase in Australia's international competitiveness
 - Growth in the demand for imports
 - Higher interest rates in the USA relative to Australian interest rates

- 14. The current account returned to deficit in 2024 because:**
- a) The exchange rate depreciated towards USD 0.50
 - b) The terms of trade fell
 - c) Savings rose relative to Investment
 - d) Australia's rate of productivity growth increased
- 15. Which of the following is likely to improve Australia's international competitiveness?**
- a) A fall in the Trade Weighted Index
 - b) A fall in the Consumer Confidence Index
 - c) A fall in the Balance on Merchandise Trade
 - d) A rise in the Wage Price Index
- 16. Which of the following is likely to cause a decrease in the current account surplus?**
- a) A decrease in disposable incomes
 - b) An increase in the household savings ratio
 - c) An increase in the exchange rate
 - d) An increase in the terms of trade
- 17. In relation to factors affecting the current account balance, which of the following statements is most correct?**
- a) A fall in interest rates will most likely increase a CAD
 - b) A fall in interest rates will most likely decrease a CAD
 - c) A fall in interest rates will have no impact on a CAD
 - d) A fall in interest rates will have both a positive and negative impact on a CAD
- 18. Which of the following is most likely to cause the level of net foreign liabilities to fall?**
- a) A fall in labour costs
 - b) A fall in the rate of productivity growth
 - c) A fall in overseas rates of economic growth
 - d) A fall in the terms of trade
- 19. An increase in the exchange rate is likely to:**
- a) Reduce inflation, decrease the rate of economic growth and increase the CAD
 - b) Increase inflation, decrease the rate of economic growth and increase the CAD
 - c) Reduce inflation, increase the rate of economic growth and increase the CAD
 - d) Reduce inflation, increase the rate of economic growth and decrease the CAD
- 20. The cyclical component of the CAD is best described as:**
- a) The part of the CAD that rises during periods of weak economic growth and falls during periods of strong economic growth
 - b) The part of the CAD that rises and falls during periods of weak economic growth
 - c) The part of the CAD that falls during periods of weak economic growth and rises during periods of strong economic growth
 - d) The part of the CAD that rises and falls during periods of strong economic growth

Chapter Summary

1. Australia engages in international transactions with the rest of the world because trade in goods and services (including financial capital) ultimately improves our economic prosperity and living standards.
2. International trade allows businesses in the world to sell to a larger market, which means that they can benefit from economies of scale.
3. Australia, as a country with a traditionally low savings rate, relied on the savings of those countries with high savings rates to finance investment.
4. The proliferation of trade agreements (or globalisation more generally) has also seen an increase in the freedom for people to work in other countries, which is commonly referred to as global movement in human capital.
5. International transactions can lead to financial obligations between Australia and the rest of the world. This means that Australia, and other countries, will be contractually required to perform some act into the future.
6. The balance of payments (BOP) provides a record of financial transactions between residents of Australia and residents of the rest of the world.
7. The BOP comprises two major sets of accounts: the Current Account (CA) and the Capital and Financial Account (CAFA). At the end of any particular period, any CA deficit (CAD) must be exactly offset by a CAFA surplus.
8. The CA records all receipts and payments of a 'current' nature, as opposed to transactions of a 'capital' nature which are

- recorded in the CAFA.
9. A deficit on the Current Account means that payments to foreigners (debits) exceed receipts from foreigners (credits) and the reverse is true when Australia records a surplus on the current account.
 10. Overall, the Current Account is made up of four separate parts: The Balance on Merchandise Trade, Net services, Net Primary Income and Net Secondary Income.
 11. The CAD or CAS as a percentage of GDP is the most common statistic referred to when discussing movements in the current account.
 12. The Capital Account is a relatively insignificant account in the CAFA and is generally ignored when analysing the balance of payments.
 13. The Financial Account is the more important account in the CAFA as it effectively records how Australia finances its CADs.
 14. Australia's savings/investment imbalance was a structural cause of CADs up until 2019.
 15. Another potential structural cause of a current account deficit is Australia's relatively low level of international competitiveness.
 16. The movement in the current account balance that is tied to changes in the economic cycle is referred to as the cyclical component of the current account.
 17. Australia's Net International Investment Position represents the value of Australia's net international financial obligations to the rest of the world. It is made up of Australia's stock of net foreign liabilities (NFLs).
 18. NFLs represent the net value of financial obligations that Australia has to the rest of the world and includes net foreign debt (NFD) and net foreign equity (NFE).
 19. The largest contributor to NFD is the private sector (households and businesses), with the remaining part held by the public sector (i.e. governments).
 20. The Terms of Trade (TOT) is a ratio of the average prices received for Australian exports relative to the average prices paid for our imports.
 21. Movements in the TOT are dependent on the changes that have taken place to the prices received for exports and the prices paid for imports.
 22. When the TOT increases it is a good outcome because it means that we have experienced an increase in our purchasing power, reflected by a higher level for real Gross Domestic Income (GDI).
 23. When the TOT increases for Australia it is lauded as a great result because exporters will typically benefit because any given volume of output can be sold for a higher price, boosting export incomes. In addition, if the prices paid for capital imports fell, this would benefit Australian industries because they can acquire their capital at a lower overall cost.
 24. Given the growth in national income that stems from a higher TOT, we would expect that a higher TOT will help to achieve the domestic goals of strong rates of economic growth and full employment.
 25. Theoretically, a higher TOT can help to reduce inflationary pressure if it has been driven by a fall in the world price of imports. However, if the TOT has increased as a result of rising world prices of our exports, this contributes to inflationary pressure.
 26. A higher TOT should boost net export demand, increase the Balance on Goods and Services (BOGS) and reduce the CAD.
 27. Australia's exchange rate is usually measured by the value of AUD compared to the USD or the Trade Weighted Index (TWI).
 28. Since the 'floating' of the currency in 1983, the value of the exchange rate is primarily determined by the forces of demand and supply.
 29. Australian dollars are demanded in the foreign exchange market (which can be anywhere in the world) whenever a person, business, government or other organisation wants to convert a foreign currency into Australian dollars.
 30. Australian dollars are supplied to the foreign exchange market whenever the Australian dollar is needed to purchase a foreign currency.
 31. Putting this together, the exchange rate that is determined is simply the equilibrium where the demand for AUD is equal to the supply of AUD in the foreign exchange market.
 32. A depreciation of Australia's exchange rate means that the Australian dollar now buys less of a given foreign currency.
 33. An appreciation of Australia's exchange rate means that each AUD can purchase more units of foreign currency.
 34. When interest rates in Australia increase relative to the rates applying in the USA, it increases the interest rate differential and creates incentives for overseas investors to take advantage of the higher returns and invest in Australia. It results in a higher demand for the Australian dollar, as foreign funds need to be converted into Australian dollars, and contributes to a higher value of the Australian exchange rate.
 35. An increase in the terms of trade will typically result in a higher value of the Australian dollar.
 36. A higher relative rate of inflation in Australia is likely to cause a depreciation of the exchange rate.
 37. An increase in the rate of economic growth experienced by Australia's trading partners is likely to contribute to an increase in the value of the AUD.
 38. Growth in national spending (or GNE) will tend to reduce the value of the AUD.
 39. The value of any given exchange rate can also be influenced by investors' perception of a currency's true or underlying value at any point in time compared to its actual value.
 40. A lower exchange rate will help to increase AD and real GDP, therefore making it easier to achieve the goals of strong (and sustainable) rates of economic growth and full employment.
 41. A lower exchange rate will therefore help to increase living standards.
 42. A lower exchange rate will tend to increase inflationary pressures and make it more difficult to achieve the goal of low inflation.
 43. A lower exchange rate will tend to boost the BOMT and reduce the CAD.
 44. International competitiveness measures a country's ability to compete in global markets for goods and services, where this competition can be based on price or non-price factors (such as service or quality).
 45. Improvements in productivity, lower production costs, lower exchange rates, and increased availability of natural resources and lower relative rates of inflation will all help to boost Australia's international competitiveness.

Activity Centre: Unit 3 Outcome 3

This activity centre contains a sample of practice SAC and exam questions relating only to those key knowledge dot points covered in Area of Study 3 (Unit 3) of the VCE Economics Study Design (2023-2027). It also contains a crossword puzzle to help students familiarise themselves with some of the key definitions or concepts relating to this area of study. The answers to all of the questions and crossword can be found at the CPAP website at www.commpap.com.

Practice SAC questions

Question 1

- Explain how each of the following events is likely to influence Australia's Net Primary Income balance.
 - more profitable mining companies repatriating profits to foreign shareholders
 - a decrease in global interest rates (4 marks)
- Define the terms of trade (TOT) and explain how the higher TOT over the past two years contributed to:
 - the improvement in the current account balance
 - the higher exchange rate (6 marks)
- Outline how an appreciation of the exchange rate influences the achievement of price stability. (3 marks)
- Explain how a fall in the Balance on Goods and Services (BOGS) surplus over the December quarter 2021 is likely to have influenced aggregate demand and economic growth. (3 marks)
- Describe one structural factor that may have contributed to the improvement in the current account balance over the past two years. (2 marks)
- Outline one implication that stems from Australia's Net Foreign Liabilities falling. (3 marks)
- Describe how the discovery of more mineral resources in Australia is likely to influence both the Balance on Goods and Services and living standards. (3 marks)
- Discuss two separate ways that a move towards 'free trade' can boost Australian living standards (4 marks)

Question 2

- Explain a the fall in the exchange rate since is likely to influence the current account balance and living standards. (4 marks)
- Outline how lower oil prices are likely to have impacted on the Balance on Merchandise Trade (BOMT). (2 marks)
- Explain how slower global economic growth rates impact on Australia's international financial obligations. (3 marks)
- Define net foreign debt (NFD) (2 marks)
- Explain how higher NFD levels in Australia influences the current account balance. (3 marks)
- Explain how decreases in the terms of trade and the exchange rate are likely to influence the current account balance. (4 marks)

Question 3

- Explain how lower company tax rates might impact on the current account deficit (3 marks)
- Explain how an appreciation of the AUD may have impacted on the rate of inflation. In your answer refer to demand and supply side effects (4 marks)
- Explain why the fall in the TOT impacts negatively on aggregate demand (AD) and the current account deficit. (4 marks)
- Outline how a subsidy for exporters can help to reduce pressure on the current account and NFD. (4 marks)

Question 4

- Discuss what is meant by a depreciation of the exchange rate. (2 marks)
- Explain why a depreciating exchange rate is likely to increase the rate of inflation. In your answer, distinguish the demand side impact from the supply side impact. (4 marks)
- Explain why a lower exchange rate and slower growth of labour costs may contribute to a lower current account deficit. (4 marks)
- Explain how a lower current account deficit can improve Australian living standards. (3 marks)

Question 5

- Distinguish the terms of trade (TOT) from the trade weighted index (TWI). (2 marks)
- Discuss why a higher terms of trade (TOT) should help to boost net exports. (3 marks)
- Explain why a higher exchange rate is likely to reduce both the consumer price index (CPI) and the balance on merchandise trade (BOMT). (4 marks)
- Outline how large scale floods can increase the current account deficit (CAD). (2 marks)
- Explain why businesses operating in Australian tourism markets benefit from a lower AUD. (2 marks)

Question 6

- Distinguish the terms of trade from the current account balance. (3 marks)
- Outline how a fall in the terms of trade is one of the factors that can contribute to the fall in the Trade Weighted Index (TWI). (2 marks)
- Apart from the benefits of a depreciating exchange rate, describe one other explanation for the increase in the volume of mining exports over recent years. (2 marks)
- Describe how a large depreciation of the Australian dollar (AUD) can help to achieve the goal of full employment and promote Australian living standards. (4 marks)

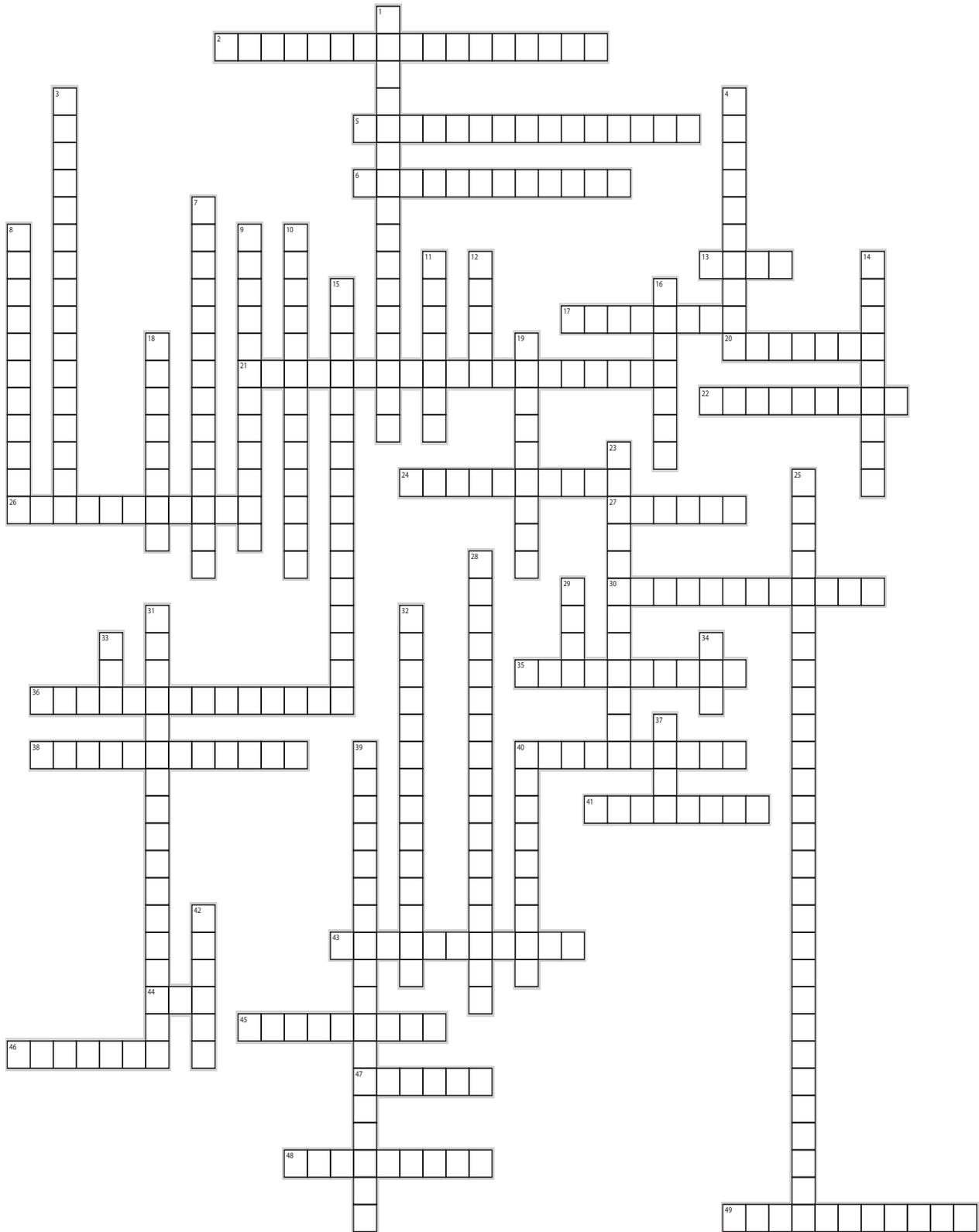
Giant Crossword Puzzle - AOS 3 Unit 3

Across

2. Where a country is more efficient than another country in producing all goods and services in the sense that it can produce more of every good or service using the same inputs as another country (2 words)
5. if this increases for Australia it will help to stimulate net exports and contribute to stronger rates of economic growth.
6. A ratio of the prices received for Australian exports over the prices paid for imports (3 words)
13. The acronym describing the part of the balance of payments taking in both the Balance on Merchandise Trade and Net Services
17. the major reason for the large net primary income deficit in the current account.
20. Australia's CAFA will always experience this outcome if the current account is in deficit.
21. The movement towards international trading relationships that are not subject to protectionist policies. Also defined as any government policy initiative that is designed to promote free trade, or reduce restrictions or barriers to free trade. (2 words)
22. a debit flow through the current account as a result of foreign ownership of Australian assets
24. Word used to describe efforts by governments to shield local import competing producers from the threat of imports. It is commonly implemented via tariffs, quotas and subsidies.
26. one of the factors driving exchange rate movements.
27. A form of 'protection' involving a tax on imports.
30. The value of the Australian dollar when compared to another currency, or a basket of currencies of our major trading partners (2 words)
35. A major Australian commodity export whose prices rose heavily over 2022 due to global supply constraints and the move away from coal fired electricity generation (2 words).
36. A sub-account in the CAFA of the BOP and a relatively insignificant account covering capital transfers, the acquisition/disposal of non-produced, non-financial assets, between residents and non-residents. Is rarely referred to when discussing the goal of external stability (2 words)
38. if this increases it will tend to boost international competitiveness and increase credits relative to debits in the BOMT.
40. Australia is one of these in international markets, being forced to accept the prices that are ultimately determined by global demand and supply pressures (2 words).
41. the Australian dollar is this type of currency (opposite to a fixed currency)
43. The net value of financial obligations that Australia has to the rest of the world. It includes net foreign debt (NFD) and net foreign equity (NFE) and is net foreign _____
44. An acronym to describe Australia's financial obligations that flows from our 'total borrowing' from overseas exceeding and our 'total lending' to overseas
45. This rate will be a factor determining the long run or fundamental value of the Australian dollar.
46. if this increases in 'national' terms it will help to reduce Australia's reliance on foreign funds and therefore help to reduce pressure on the CAD and NFD.
47. that type of foreign investment involving either the establishment of a physical presence (e.g. building a factory) or the control of more than 10% shares in an Australian company.
48. That sector of the economy that competes against foreign produced goods and services. It includes exporters and import competing businesses.
49. Part of the Current Account of the BOP that is made up of services export receipts, such as the money received for the provision of education to foreigners, minus services import payments, such as money spent overseas by Australian tourists (2 words)

Down

1. Financial obligations that stem from foreign ownership of Australian assets, such as property and shares, less Australian ownership of foreign assets. When it is negative (as has been the case since 2019) it is a good result as it signifies that Australia's has a net foreign asset position. (3 words)
3. this section within the balance of payments is the largest drain on income flows through Australia's current account (3 words)
4. Exports minus imports (2 words)
7. the achievement of this goal should help to increase the Balance on Goods and Services Surplus (2 words)
8. A term used to collectively describe raw materials such as minerals and agricultural products
9. an increase in this for Australia will often reflect a lower level of indebtedness to the rest of the world and it should result in cheaper borrowing costs for Australian institutions
10. Funds entering the country in the form of either debt or equity. It often refers to overseas parties being attracted to the relatively higher Australian interest rates and lending to Australians (2 words)
11. An account in the balance of payments and includes four sub accounts. Balance on Merchandise Trade, Net Services, Net Primary Income and Net Secondary Income
12. this country's exchange rate has the highest weight in the TWI.
14. The government providing local producers with financial or other forms of assistance. Often considered a form of 'protection'.
15. An item in the balance of payments. Involves setting up a production facility or controlling more than 10% of a company's shares in a foreign country (2 words)
16. a major Australian commodity export earner (2 words)
18. the 'part' of the current account that moves in line with changes in national spending.
19. The most important account within the CAFA as it effectively records how Australia finances its CADs.
23. this differential is a major reason, along with changes in the terms of trade, that cause fluctuations in the value of Australia's exchange rate
25. An increase in this often stem from an increase in productivity and it will help to increase the size of the current account surplus (2 words)
28. When Australia is able to meet its international financial obligations that result from transactions with the rest of the world, without jeopardising economic growth or other economic goals. Requires that the CAD and NFD (or NFE) are manageable and sustainable over time (2 words)
29. Part of the Current Account of the BOP that is made up of merchandise export receipts (credits) minus merchandise import payments (debits), such as the sale or purchase of manufactured goods (2 words)
31. A record of the financial transactions between residents of Australia and residents of the rest of the world (3 words)
32. the major component of Australia's net foreign liabilities that has major implications for Australia's credit rating (3 words)
33. The value of the Australian dollar when compared to a basket of currencies of our major trading partners (acronym)
34. When total payments in the Current Account of the BOP exceed total receipts (acronym)
37. The second of the two accounts in the BOP and made up of two sub-accounts (acronym)
39. The value of the Australian dollar when compared to a basket of currencies of our major trading partners (3 words)
40. This type of foreign investment involves less than 10% control in a company.
42. in the balance of payments, this term is used to denote and record the money coming into Australia



Chapter 8 The nature and operation of budgetary policy

8.1 A definition of budgetary policy

Budgetary policy is also referred to as **fiscal policy** and it refers to the government's use of its 'Budget' to achieve specified outcomes in the country, where the 'Budget' is the major fiscal document released annually (usually in May). It contains estimates or projections of all receipts (or revenue) and expenditure (or expenses) of the Federal Government into the future as well as the position of its financial obligations to other entities (e.g. net government debt). Budgetary policy is, therefore, the manipulation of the level and composition of Federal Government receipts and expenditure in order to assist in the achievement of its economic and social goals for Australia.

8.2 The objectives of budgetary policy

The longer term goals of budgetary policy

As with all policies, the overriding goal of budgetary policy is to improve the **welfare or living standards** of all Australians, or to achieve the most **efficient allocation of the nation's resources**. Importantly, it is used to reallocate the nation's resources to the production of goods and services or activities that maximise our collective material and/or non-material standards of living (see Chapter 4 on macroeconomics and Chapter 3 on market failures). However, our focus in this chapter will be on how the government uses the Budget to achieve the following domestic macroeconomic economic goals:

- Strong and sustainable economic growth
- Low inflation
- Full Employment

The achievement of these goals will clearly help to boost **economic prosperity and welfare** for all Australians – which is the overriding goal underpinning all government policies. This is clearly articulated in government legislation (the Charter of Budget Honesty Act 1998):

'The Government's fiscal policy is to be directed at maintaining the on-going economic prosperity and welfare of the people of Australia and is therefore to be set in a sustainable medium-term framework.'

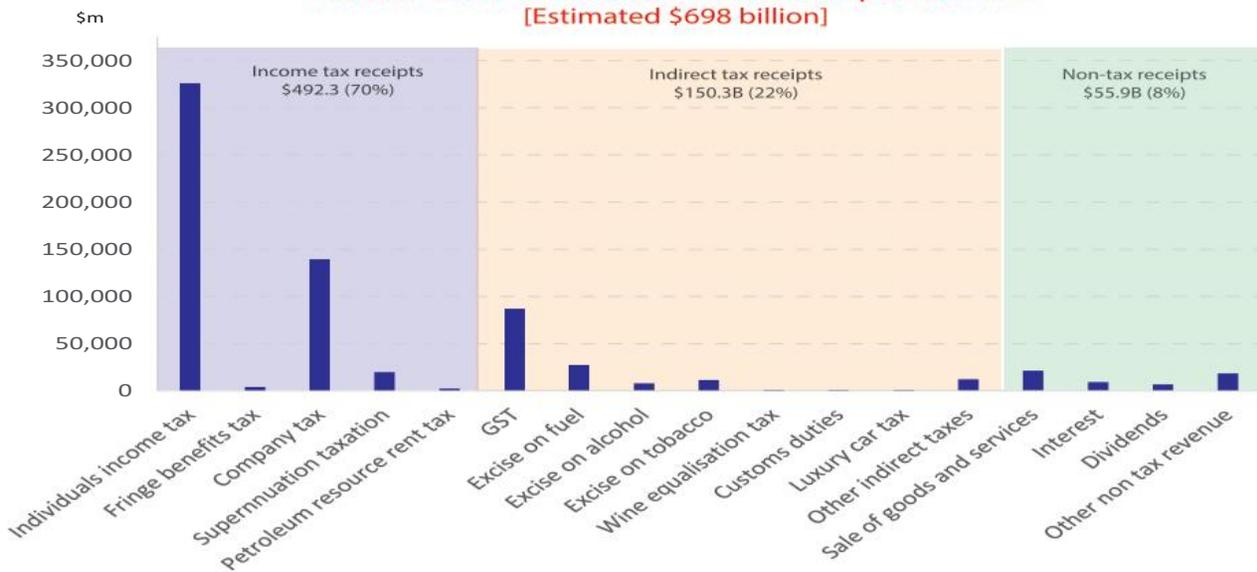
The fiscal strategy

The Charter of Budget Honesty also forces a government to detail its **fiscal strategy** in the Budget each May. The strategy can be different between budgets and involves the government laying out a plan for how it intends to meet its goal to promote the economic prosperity and welfare of Australians. Governments are therefore required to detail the motivations underpinning each budget and how this is 'sustainable' over time. However, more detailed consideration of the Government's fiscal strategy will be provided in Section 8.12, since first an understanding of the nature of budgetary policy is required.

8.3 The composition of receipts and expenditure

The May 2024 Budget revealed that the Federal Government collects approximately \$698 billion per annum from various sources. Chart 8.1 highlights that the largest source of the Federal Government's receipts comes in the form of **personal income tax** [also referred to as individuals income tax]. This accounts for 47% of total receipts and is a tax levied primarily on wage and salary income earners and forms the basis of Australia's progressive income tax system. The next largest source of receipts for the government is **company tax**, which accounts for 21% of all receipts. It is another type of income tax, in the form of a flat tax levied on company profits. This is followed by the Goods and Services Tax (GST), representing 13% of total receipts. Income taxes (primarily personal and company taxes) make up 70% of all receipts, while indirect taxes (primarily the GST and excise taxes) make up approximately 22% and a relatively small 8% is collected via non-tax receipts, which includes royalties from natural resources, the sale of goods and services and dividends from government-owned organisations, such as Australia Post and the Reserve Bank of Australia.

Chart 8.1
Federal Government estimated receipts 2024-25
[Estimated \$698 billion]



The nature of Australia’s taxes

Direct vs indirect taxes

As shown in Chart 8.1, the vast majority of Australia’s taxes are income taxes, which are examples of **direct taxes** levied against the income earned by economic agents. Direct taxes make up approximately 70% of total government receipts and they are direct in the sense that the income earner pays the tax directly to the government once the income is earned. The two largest examples of direct taxes in Australia are personal income taxes (also referred to as **individuals income tax**) and company taxes. In contrast, approximately 22% of total government receipts comes from **indirect taxes**. These are taxes that are not levied on the income earned but rather on the production or sale of goods and services. Given that businesses will typically pass on the tax in the form of higher prices, it means that income earners eventually pay the tax ‘indirectly’. The remaining 8% of government receipts are made up of receipts such as dividends from Government Business Enterprises (e.g. Australia Post), as well as interest earnings and the sale of goods and services.

The most common example of an indirect tax in Australia is the **goods and services tax (GST)** which requires businesses to collect 10% of the sale price of most goods and services and remit the funds to the Australian Taxation Office (ATO). Other notable examples of indirect taxes in Australia include the excise taxes that apply to fuel, alcohol and tobacco, which are taxed at varying rates. There are some notable differences between direct and indirect taxes. First, income taxes (at least in Australia) are progressive in nature while indirect taxes are mostly regressive (see below). Second, direct taxes cannot be shifted onto another party, unlike indirect taxes which are passed on to consumers via higher prices.

Progressive, proportional and regressive taxes

A reference to the **progressive, proportional** or **regressive** nature of taxes relates to how the taxes will ultimately affect income earners in terms of equity and fairness. Each of the taxes highlighted in Chart 8.1 will either be progressive proportional or regressive, with individuals (personal) income tax being the best example of a progressive tax.

Taxable income	Tax on this income
0 - \$18,200 (tax free threshold)	Nil
\$18,201 - \$45,000	16c for each \$1 over \$18,200
\$45,001 - \$135,000	\$4,288 plus 30c for each \$1 over \$45,000
\$135,001 - \$190,000	\$31,228 plus 37c for each \$1 over \$135,000
\$190,001 and over	\$51,638 plus 45c for each \$1 over \$190,000

The above rates do not include the Medicare levy of 2% Source: www.ato.gov.au

A **progressive tax** is one where higher income earners pay a higher percentage rate of tax compared to lower income earners. It is designed to tax higher income earners more heavily than low income earners, so that the overwhelming tax burden falls upon those with a greater capacity to pay. In Australia’s case, very low income earners (those earning less than \$18,200) will pay no tax at all, which means that their marginal rate of tax is zero. In contrast, a high income earner (one earning more than \$190,000) will be paying a marginal rate of tax of 45%. This type of tax system works effectively to redistribute incomes from high to low income earners and ensures that the burden of paying for the government’s spending programs falls

primarily on higher income earners. The progressivity of personal income taxes in Australia is shown in the table, where the (marginal) rate of tax increases as income earners move up through the various income thresholds.

Proportional taxes on income are those where the ‘rate of tax’ stays the same regardless of how much income is earned. This means that income earners will pay exactly the same proportion of their income in tax. The best example of a proportional income tax in Australia is the company tax in so far as it relates to large companies (those with turnover more than \$50m per year), where the rate is currently set at 30% of the income (profit) made by large companies. For those companies earning less than \$50 million per annum, a lower rate of 25% applies.

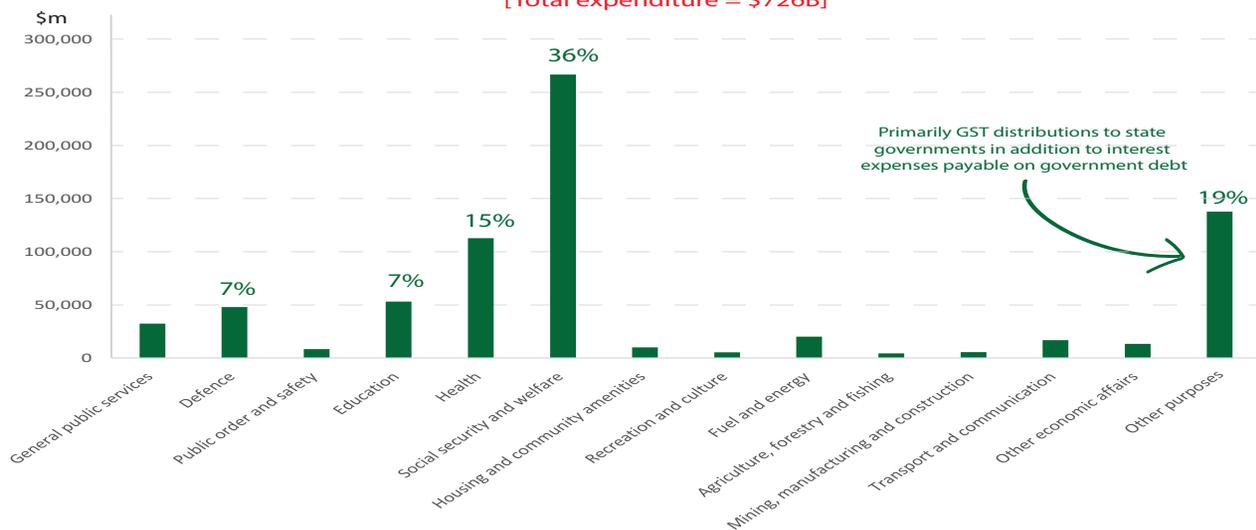
Regressive taxes are those that result in the proportion of income paid in tax rising as income falls (or the proportion paid in tax falling as income rises). Most indirect taxes are regressive in nature, with the most common example being the GST. It means that the tax burden of regressive taxes falls more heavily on those on lower incomes compared to the burden on those on higher incomes. The regressive effects of the GST are a result of it being imposed on the consumption of products purchased by households, rather than on the incomes of those purchasing the products. The exemption of basic goods from GST helps to reduce the overall tax burden for lower income earners compared to higher income earners. By allowing necessities like bread, milk, education, health and many pharmaceuticals to be purchased ‘GST free’, it reduces the regressive effect of the tax, since those basic necessities make up a large proportion of the income of many lower income earners.

While indirect taxes are typically regressive, there are examples of indirect taxes that have progressive effects. The **luxury car tax** (currently at 33%) is an example of an indirect tax imposed almost exclusively on higher income earners. Given that higher income earners are the ones most likely to purchase luxury cars, such as those costing more than \$80,567 (unless they are a fuel efficient car in which case the threshold increases to \$91,387), the tax burden falls almost exclusively on these income earners which helps to achieve a more equitable distribution of income.

Government expenditure

The May 2024 Budget also revealed that the Federal Government spends approximately \$726 billion which can be broken up into three types of expenditure. Government **consumption or current expenditure** (denoted G1) which is a component of AD and represents payments for goods and services that are consumed in the current budget period and which result in no ongoing benefits into the future. Payments to public servants and the purchase of all of the consumables within government (such as printing and cleaning services) are examples of government current expenditure. This contrasts with government **capital (or investment) expenditure** (denoted G2) which is also a component of AD. This expenditure involves the purchase of **capital assets** that will have ongoing benefits into the future, such as defence equipment (including aircraft, tanks and ships) and general government infrastructure assets (including bridges, ports and telecommunications equipment). The third component of government expenditure is referred to as **transfers**. This is not a component of AD, but instead represents a transfer to the private sector, primarily in the form of welfare payments, including pensions and JobSeeker allowance.

Chart 8.2
Federal Government expenditure 2024-25
 [Total expenditure = \$726B]



The major items of government expenditure are detailed in Chart 8.2 above. **Social security and welfare** is by far the largest item of spending, accounting for 36% of all expenses, and is made up of spending for job search allowances, pensions and family benefits. Health expenditure (e.g. spending on public hospitals) is the next largest ‘specific’ component (15%), followed by education expenditure (e.g. money spent on universities) and defence expenditure (e.g.

purchases of military equipment) which account for 7% and 7% of total expenses respectively. [The Other purposes category of spending is made up primarily of GST distributions to the states (approximately \$98 billion) and interest expenses paid on government debt (approximately \$24 billion).]

Within each of the spending categories highlighted in the chart, there will be elements of both current and capital expenditure. For example, within health spending, the payment for the building of a new ward, or the purchase of hospital equipment such as MRI and x-ray machines, would come under capital expenditure. However, the payment of wages for hospital personnel and the purchase of medical disposables, such as syringes, medicine cups and gloves will all be examples of current expenditure. Similarly, within education expenditure, the purchase of computer equipment or electronic whiteboards would be classified as capital expenditure, while the purchase of whiteboard markers and fuel for university vehicles would be classified as current expenditure. In the case of transfers, most of the government's transfer spending passes through the 'social security and welfare' expenditure category.

The government's expenditure is estimated to amount to approximately 26.6% of GDP for 2024-25. This remains above the pre-COVID-19 levels of around 25%, but significantly below the 27.7% and 31.6% recorded for 2019-20 and 2020-21 financial years, when the government delivered major stimulus to the economy via historically high budget deficits of \$85 billion and \$134 billion respectively. Given that the size of budget receipts and outlays as a percentage of GDP is relatively high (effectively one quarter the size of the economy), the manipulation of these government receipts and expenditure will tend to have a powerful influence on the level of economic activity and living standards in Australia. For example, without the very expansionary budget deficits that were delivered during the recent recession, there is no argument that economic growth would have fallen by significantly more than 6.3%, and unemployment would have climbed to well in excess of 10%, causing a larger fall in Australian living standards.

Overall, a properly functioning government will only change budget settings if it feels that national welfare or living standards will improve as a result. Section 8.13 will focus on how the government has recently used the budget to achieve its economic and social objectives. At this point, however, it is worthwhile providing a simplified illustration of how budgetary policy can be used, and the impact it can have on the economy and living standards. This is provided in Activity 8a.

Activity 8a: Policy proposal to increase expenditure on universities

To highlight the complexities involved in budgetary policy decision making, a hypothetical example could prove to be useful.

Assume that the Federal Government has a balanced budget, but it is concerned about national education standards and decides to spend \$2B to improve the quality of Australian universities. The money could be spent upgrading facilities, investing in new technology, researching into new teaching and learning strategies and so on. This will clearly lead to a short term (demand side) boost to the services (education) sector of the economy and other industries who supply the universities. In addition, it will help to create additional income, and perhaps employment, as well as add to any inflationary pressure that might exist in the economy. These shorter term effects are, however, only incidental to the ultimate objective of the policy – which is to deliver longer term (supply side) benefits in the form of better quality education, a more highly skilled workforce (and more enlightened population), higher productivity, a bigger productive capacity, improved international competitiveness and an overall better standard of living for Australians.



Before any of these outcomes take effect, the Government will have a slight problem. It will need to determine how it will effectively raise the \$2B to fund the additional education spending. Theoretically, it could decide to increase tax rates or introduce new taxes. This will be met by much opposition from those most affected, as it reduces disposable income, deters spending, dampens economic activity and impacts negatively on living standards. Alternatively, the Government could decide to reduce another form of government expenditure by \$2B, such as spending on welfare. This will then be met by opposition once more, from those groups exposed to the cutbacks, and it will also have further implications for economic activity, equity and living standards. Another option is for the Government to leave revenues alone, and allow the budget to move into deficit by \$2B. While this seems like the easiest option, and will be met by least resistance, it carries with it its own set of potential problems. The \$2B will need to be financed. If we assume that the Government is not prepared to sell any of its assets, then the funds must come from borrowing. If the Government borrows from the Australian financial system, it places upward pressure on interest rates, which then has negative effects on economic activity and living standards (see the discussion of 'crowding out' in Section 8.9). In addition, the interest and principal payments on the debt act as a strain on future budgets. So what seemed like a simple proposal to improve the quality of education carries with it a whole host of economic implications. It serves to highlight the importance of the budget, and budgetary policy decision-making more generally, as well as the important concept of 'opportunity cost' that was covered in Chapter 1.

Application questions

1. Discuss how an investment in education stimulates the economy. In your answer, distinguish the short term impact from the long term impact.
2. Explain how an investment in education can increase inflationary pressure in the short term, but reduce it in the long term.
3. Identify the ways that a \$2B investment in education can be paid for (or funded) by the Government.
4. Outline one disadvantage associated with each of the funding options you identified for Question 3.
5. Discuss how the proposal to invest \$2B in education is related to the concept of opportunity cost.

The table below summarises the differences between the hypothetical headline and underlying cash outcomes:

<i>Receipts</i>	\$120B
<i>Less Outlays</i>	\$100B
<i>Headline cash surplus</i>	\$ 20B
<i>Less net cash flows IFAPP</i>	\$ 15B
<i>Underlying cash surplus</i>	\$ 5B

Study tip

The government also reports two outcomes that are based on accrual accounting concepts (revenue earned less expenses incurred) as opposed to cash outcomes referred to above (cash received less expenses paid). These outcomes are the 'fiscal outcome and the net operating outcome', neither of which are required knowledge for students of VCE Economics.

Activity 8b: Current versus capital spending and bad versus good debt

A useful way to think about the importance of the distinction between the government's current and capital spending, or good versus bad debt, is to equate its finances to that of two hypothetical households over a given year. Assume that the disposable income of two households (A and B) each amounted to \$100,000, while the total expenditure of each household was different: Household A's total expenditure amounts to \$110,000 and Household B's amounts to \$140,000. The scenario is summarised in Table 1 below:

Household	Income (\$)	Expenditure (\$)	Cash outcome (\$)	
A	100,000	110,000	10,000	Deficit
B	100,000	140,000	40,000	Deficit

On the face of it, the financial stability of Household A appears to be superior to Household B because its cash deficit is smaller by \$30,000. Household B will need to have borrowed \$30,000 more than Household A to fund its cash deficit. [To keep it simple, let's ignore the possibility of selling assets to fund the deficit]. In other words, it looks as though Household B is spending well 'beyond its means' compared to Household A.

To fully appreciate the implications of any cash deficit for an entity, it is necessary to explore the nature of the expenditure undertaken over the course of the year. For any entity, whether it is a household, business or government, expenditure can be broken up into two broad types: current (or recurrent) expenditure and capital expenditure. For a household, **current expenditure** includes all items of spending that are necessary and mostly re-occur every year in order to keep the household running. This includes payments for gas, electricity, water, council rates/rent, food, entertainment, holidays, school fees, etc. These types of payments 'typically' provide benefits to the household in that year only – in other words, they are consumed within that year. In contrast, **capital expenditure** includes less regular payments for items or assets that continue to provide benefits for the household (or entity) into the future. For example, it includes the purchase of property, motor vehicles, whitegoods (e.g. a fridge or washing machine), furniture, electrical goods and/or computer equipment. It will even include the purchase of a (share in) small business, such as mum or dad buying a new car to provide Uber driving services.

Determining the split between current and capital spending for each household helps us to better understand the fuller implications of a cash deficit for each household. If we assume for simplicity that Household A spent nothing on capital items and Household B spent \$40,000 in capital expenditure, then it should be clear that Household B's financial position is not as bad as first thought. Provided the \$40,000 has been spent on genuinely useful capital items, that really do provide financial or social returns to the household in future periods, then it is possible (even likely) that household B is in a better position than Household A. For example, if Household B used \$40,000 to purchase a new motor vehicle to be used as an Uber vehicle, then Household B's cash deficit of \$40,000 will have led to an increase in 'good debt' (e.g. a \$40,000 loan) because it generates benefits for the household into the future (e.g. profits from the business come back into the household as additional income). In contrast, with no capital expenditure, Household A's cash deficit of \$10,000 will have led to an increase in 'bad debt' (e.g. a \$10,000 loan) because it is being used to finance recurrent spending.

Overall, Household A is spending beyond its means because it has a cash deficit of \$10,000 that results in (bad) debt. If the same income and spending patterns were to continue into the future, then Household A is likely to experience financial difficulty as it will struggle to service its growing debt. In contrast, despite having a cash deficit of \$40,000, Household B's financial position is actually better because it is less likely to be spending beyond its means over time because the capital expenditure will provide ongoing benefits for the household that are not enjoyed by Household A. In this hypothetical scenario, Household B will be better able to service its (higher) debt given that the capital expenditure is providing financial benefits in the form of higher income from the use of the motor vehicle in the passenger transport industry.

The same principle also applies to the Federal Government and highlights the importance of examining the 'make-up' or 'structure' of any given level of government expenditure, when determining the implications of any given budget outcome and the associated accumulation of (net) debt that flows from budget deficits.

Application questions/tasks

1. Distinguish current from capital expenditure, providing an example to illustrate.
2. Determine the borrowing requirement for each of the two households over the course of the year.
3. Explain why the debt incurred by Household A can be considered as 'bad debt' relative to the debt incurred by Household B.
4. Explain why the debt incurred by Household B can be considered as 'good debt'.
5. Comment on the sustainability of Household A's budget position in the event that its spending and income commitments remain unchanged into the future.
6. Provide a possible strategy for Household A to improve its budget position.
7. Describe the implications that this example has for any evaluation of Federal Government budgets over time.

8.5 Automatic and discretionary stabilisers

Any time the Federal Government decides to change the way it collects money, makes payments or adjust the level of its receipts/payments it will typically impact on the size of the budget outcome. For example, a decision to raise company tax rates will tend to increase the size of the budget surplus (or reduce the deficit), or a decision to increase the amount paid to pensioners will tend to reduce the surplus (or increase the deficit). These changes in the budget outcome reflect a deliberate policy decision to change the way the budget is used to influence the allocation of resources or assist with the achievement of its economic or social goals. In this respect, the actual **'structure'** of the budget is deliberately altered by the government. This represents the **structural component of the budget** and changes of this nature are often referred to as 'discretionary stabilisers.'

'Discretionary stabilisers are deliberate policy decisions designed to change receipts or outlays in an effort to influence economic activity.'

These structural changes (or **discretionary stabilisers**) will never account for all of the changes to budget outcomes. This is because budget receipts and outlays will change automatically in response to changes in the level of economic activity. Lower levels of economic activity should negatively impact on the budget outcome as receipts from taxation are likely to fall, and the payments for government services or transfer payments should increase. It is important to remember that this happens without any deliberate changes to the budget on the part of the government. In essence, the budget outcome will change in line with the economic cycle, with the surplus falling during downturns and increasing during upturns. This represents the **cyclical component of the budget** and is sometimes referred to as **'automatic stabilisers'**.

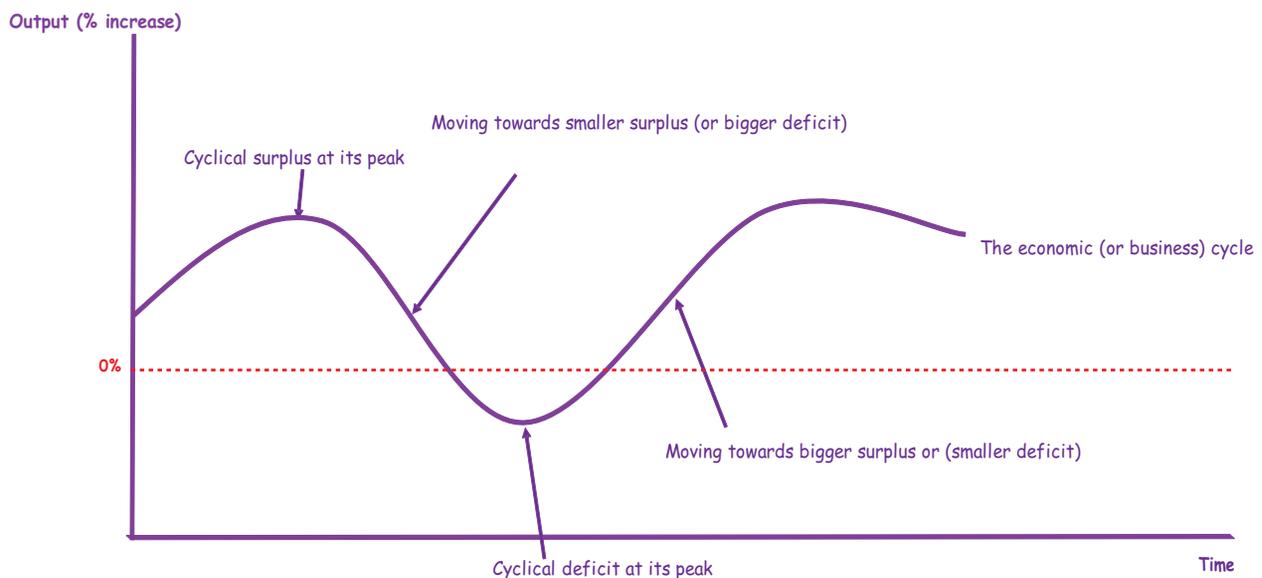
Study tip

Don't be confused by the different terminology used. Automatic stabilisers are simply the cyclical component of the budget and discretionary stabilisers are simply the structural component of the budget.

'Automatic stabilisers are changes to the budget that occur without deliberate government intervention and result from changes in the level of economic activity.'

Assuming that the government made no changes to the structural component of the budget over time, then the budget outcome will rise and fall with the economic cycle, as show in Figure 8.1 below:

Figure 8.1 The movement in the cyclical component of the budget outcome



It is important to recognise that governments rely on automatic stabilisers to swing into action in a counter-cyclical manner, helping to stimulate the economy when it experiences a downturn and restraining the economy when it expands. A slowdown in economic activity will result in greater welfare assistance (as more people become unemployed as the result of a reduction in AD, becoming eligible for government benefits), which helps to maintain spending at levels that would otherwise not occur in the absence of government support. Similarly, lower income levels across the economy tend to push income earners into lower tax brackets, thereby resulting in lower average tax rates paid, helping to slow the decline in disposable incomes. The opposite occurs during an economic expansion.

To further illustrate the difference between the cyclical and discretionary components of the budget, hypothetical figures will once more be used. Assume that our economy had the following headline budget outcome for year 1:

<u>Year 1</u>	
Receipts	\$120B
Less Outlays	\$100B
Headline cash surplus	\$ 20B

Now assume that between year 1 and 2, the economy plunged into recession (such as the Australian economy over 2020), with negative economic growth for more than six consecutive months. The government's budget receipts would fall, let's say from \$120B to \$110B, due to lower tax receipts and outlays would increase, let's say from \$100B to \$110B, due to higher welfare spending. This results in the budget outcome moving automatically to a balanced budget in year 2. It has occurred without any discretionary or policy decision made by the government.

<u>Year 2 (Cyclical effect)</u>	
Receipts	\$110B
Less Outlays	\$110B
Headline cash balance	\$ 0B

Of course, this is unrealistic when an economy is experiencing a recession. In this environment the government is keen to further stimulate the economy via expansionary measures such as increased spending on welfare and infrastructure and/or temporary tax cuts (or tax breaks). Assume that the government now decides to provide tax concessions to businesses, costing \$10B, and increased infrastructure spending also worth \$10B. This would result in the budget outcome moving from a balanced position to a deficit of \$20B. Overall, in this simplified example, the budget has moved from a \$20B surplus to a \$20B deficit, half of which occurred due to the effects of automatic stabilisers and the other half due to the effects of discretionary stabilisers.

<u>Year 2 (Cyclical & Structural effect)</u>	
Receipts	\$100B
Less Outlays	\$120B
Headline cash deficit	\$ 20B

Review questions 8.1 - 8.5

1. Define budgetary policy.
2. Identify the ultimate objective or goal of budgetary policy.
3. Explain what is meant by 'the fiscal strategy'.
4. List three major Federal Government revenue sources.
5. Distinguish direct from indirect taxes, using Australian examples.
6. Distinguish progressive, proportional and regressive taxes, using Australian examples.
7. Explain why the GST is regressive in nature while the luxury car tax is progressive in nature
8. List three major Federal Government expenses.
9. List and describe the three possible budget outcomes.
10. Distinguish a headline cash outcome from an underlying cash outcome.
11. Distinguish (re)current from capital expenditure.
12. Explain the difference between automatic and discretionary stabilisers and provide relevant examples.
13. Explain how the cyclical component of the budget helps to stabilise economic activity.

Activity 8c: Impact on budget outcome?

For each of the events below, identify whether each will impact on government receipts or expenditure and then determine if a **budget deficit** will increase or decrease as a consequence. The first one has been done for you.

Event	Rec	Exp	↑ Deficit	↓ Deficit
The government reduces income tax rates				
The economy enters a downturn with real GDP growth falling below 0%				
Australia Post decides not to pay dividends to the government for five years				
Excise on tobacco increases by a further 12.5%				
A carbon tax is re-introduced				
An ageing population causes large scale retirements from the labour force				
The GST rate is increased to 15%				
The Terms of Trade increase significantly				
Eastern Australia experiences several unanticipated natural disasters				
There is a large surge in luxury cars imported from Germany				
There is a large decrease in the consumption of alcohol and tobacco				

8.6 Fiscal drag or bracket creep

Fiscal drag is also referred to as **bracket creep** and occurs during times of inflation for countries with a progressive tax system. When inflation occurs it results in a decrease in **real wages** and workers seek to protect their 'real wage' by seeking increases in their **nominal wage**. As nominal wages increase, it pushes some workers into higher marginal tax brackets. This increases the 'average' rate of tax paid by these taxpayers, having two major effects.

- First, it increases the total personal income tax revenue received by the Federal Government, thereby increasing the surplus (or reducing the deficit). It is another cyclical component of the budget, but it does not rely on the growth rate in GDP to change the budget outcome automatically. Instead, it relies on the rate of inflation to change the budget outcome, with higher inflation rates working to increase the size of the surplus (or reduce the deficit).
- Second, some taxpayers will experience a decline in their **real disposable income** because they will be paying a higher average rate of tax on their 'nominal wage', which reduces the **purchasing power** of their 'after tax and after inflation wage'. This has the effect of slowing the rate of spending (or consumption) and reduces the incentives to work.



Federal Governments, both Labor and Liberal, have been fully aware of 'bracket creep' and have been happy to accept an 'automatic' rise in the tax burden over time. It therefore makes it easier for governments to deliver politically popular tax cuts, such as the reductions in income tax rates (both personal and company taxes) that occurred over the past few years.

8.7 Differences between actual and estimated budget outcomes

The Department of Treasury releases the 'actual' budget figures for the previous financial year in September of each year (that is, about 16 months after the release of the Budget itself). There will typically be a difference between the **estimated budget outcome** (released at the time of the budget speech) and the **actual budget outcome** for any given year, because the estimated outcome depends heavily on **forecasts** for economic growth (and other key statistics) that are never 100% accurate. This failure to accurately forecast economic activity has real implications for budgetary policy settings. To illustrate, assume that we are currently at the end of year 2 in time (as per the hypothetical example used in section 8.5 earlier). The figures are repeated below:

<i>Year 2</i>	
<i>Receipts</i>	<i>\$100B</i>
<i>Outlays</i>	<i>\$120B</i>
<i>Headline cash deficit</i>	<i>\$ 20B</i>

We have a budget deficit of \$20B for year 2 and we prepare the Budget for year 3, where it is assumed that a budget deficit of only \$3B is estimated. This \$3B estimated deficit is clearly dependent on the '**discretionary changes**' the government expects to make to the budget, as well any anticipated changes to the '**cyclical component**' of the budget. For simplicity, let's assume that the government decided to make no discretionary changes. Then it must be the case that the government expects the deficit to decrease by \$17B purely because it forecasts the economy to grow relatively strongly (e.g. it might estimate growth in GDP to be a healthy 4% for year 3). The relatively high rate of growth in GDP is therefore expected to boost tax collections (e.g. higher company tax receipts) and reduce expenditure (e.g. lower income support payments), leading to an estimated reduction in the deficit from \$20B to \$3B. However, what would happen to the 'actual' budget outcome for year 3 if the growth in GDP was much lower than forecast (e.g. 1% instead of the 4% estimated by the government)? Would the deficit be higher or lower than the estimated \$3B?

The actual deficit will be higher because the government overestimated tax receipts and underestimated outlays. This failure to correctly **forecast economic activity** has resulted in budgetary policy becoming less effective. If it correctly anticipated the low growth rate (e.g. 1% for year 3), it might have implemented additional discretionary measures to stimulate activity. While these discretionary measures may be introduced over the course of the year via mid-year announcements (or mini-budgets), the failure to forecast accurately caused a delayed policy response that might be detrimental to the economic recovery.

Not only will the budget forecasts for economic growth (and tax receipts) be inaccurate, but any additional ‘discretionary’ changes made to the budget after the handing down of the budget will further widen the difference between the estimated and actual budget outcomes. For example, after estimating a \$3B deficit at budget time, political and economic factors may force the government to spend money on ‘priority matters’ not anticipated at budget time (such as stimulus spending designed to offset the effects of a sudden economic downturn or spending for reconstruction efforts following a major natural disaster such as the recent floods on the east coast of Australia) – which further increases the actual deficit above the estimated \$3B.

To illustrate the differences that can occur between the ‘estimated’ and ‘actual’ budget outcomes, reference to the 2023-24 Budget is instructive. The budget outcome for 2023-24 was originally estimated to be a deficit of \$13.9 billion in May 2023 (when the budget was released), but it became a \$15.8 billion surplus once the actual figures were published in late 2024. This was a result of higher than expected receipts and lower than expected expenditure. For example, the government based its estimated company tax receipts on inaccurate forecasts, such as a forecast for the terms of trade to fall by 13% over 2023-24, when it actually fell by less than 4%. This resulted in company tax receipts being higher than forecast, contributing to a lower deficit and return to surplus. In addition, on the expenditure side, the government based its expenditure forecasts on estimates such as an unemployment rate of 4.25% when the unemployment rate was consistently below this over the whole of 2023-24. This reduced government spending and resulted in further improvements to the Budget outcome such that a surplus of \$15.8 billion was ultimately recorded. [See Activity 8d: The importance of Budget forecasts.]



Activity 8d: The importance of Budget forecasts

When the government prepares its annual budget, the income and expenditure values it estimates for the year ahead, as well as future years, rely heavily on economic forecasts for key variables such as GDP, inflation and unemployment. The adjacent table compares the original 2023-24 Budget forecasts for a selection of key economic statistics with the actual outcomes for these statistics. The Government’s estimated underlying budget outcome for 2023-24 was originally a deficit of \$13.9 billion, and this was heavily dependent on the accuracy of these (and many other) forecasts. This means that if the forecasts are inaccurate (as they were), the actual budget outcome for 2023-24 would be somewhat different to the \$13.9 billion estimated deficit. The same is true of the 2024-25 Budget as well as all past and future budgets. The actual Budget outcome for 2023-24 was released in late 2024 and it revealed an actual Budget surplus of \$15.8 billion, a marked improvement on the \$13.9 billion deficit that was originally expected.

Key economic statistics 2023-24	Forecast	Actual
Real GDP	1.5%	1.0%
Employment growth	1.0%	2.8%
Unemployment rate	4.25%	4.1%
Consumer Price Index (growth)	3.25%	3.8%
Wage price index (growth)	4.0%	3.9%
Nominal GDP	1.25%	4.4%

Source: Budget papers, ABS National Accounts/Labour Force Statistics

Application questions/tasks

1. Describe how the government can or did respond to the improvement to the budget outcome over 2023-24.
2. Describe how each of the statistics contained in the table influenced the actual budget outcome for 2023-24. In your answer, refer to government receipts and government expenditure.
3. Explain why nominal GDP has increased by more than real GDP over 2023-24.
4. Account for the difference between the expected and actual growth in nominal GDP over 2023-24.
5. Examine the implications for living standards stemming from the wage price index growth being below growth in the CPI.

8.8 Expansionary versus contractionary budgets

A balanced budget vs budget deficit vs budget surplus

If the government has a ‘balanced budget’ every year, then it is injecting back into the economy exactly the same amount of money than it is taking out. In simple terms, a balanced budget will neither expand the economy nor contract the economy. That is, in isolation, a balanced budget is neither **contractionary** nor **expansionary** in terms of its impact on the economy.

However, if the government delivered a ‘**budget deficit**’, it means that the Federal Government will be injecting more into the economy than it is taking out. This will tend to expand economic activity, particularly in the shorter term. Accordingly, a budget deficit is generally **expansionary** in terms of its impact on the economy. On the other hand, if the government delivered a ‘**budget surplus**’, it will be taking more from the economy than it is injecting. This will tend to contract economic activity, particularly in the shorter term. This means that a budget surplus is generally **contractionary** in terms of its impact on the economy. [The longer term impact of budget outcomes on the economy will also depend on how any deficits are financed or how any surpluses are invested, which is examined in Section 8.9.] This is summarised below:

In isolation (compared to if the government did nothing)	
Balanced budget	neither expansionary nor contractionary
Budget deficit	expansionary
Budget surplus	contractionary

Changes to the size of the deficit or surplus?

In simple terms, if the government delivers a **higher surplus** than the year before, then it is likely to be considered a more contractionary budgetary policy stance and a **lower surplus** is likely to be considered a less contractionary stance (or even expansionary). In contrast, a **larger deficit** is likely to be more expansionary and a **lower deficit** less expansionary (or even contractionary). This is summarised below:

Compared to previous budget	
Balanced budget maintained	neither expansionary nor contractionary
Smaller deficit	less expansionary (or contractionary)
Larger deficit	more expansionary
Smaller surplus	less contractionary (or expansionary)
Larger surplus	more contractionary

However, whether changes to the budget outcome will tend to ‘expand’ or ‘contract’ the economy from one period to the next will also depend on what caused the outcome to change. This means we need to separate the **cyclical** from the **structural** influences on the budget outcome to determine the budgetary policy stance or impact of any changes to the budget outcome from one year to the next.

How a larger budget surplus can be expansionary

Using a hypothetical example to illustrate, assume that the surplus in year 1 was \$10B, and between years 1 and 2, the economy was growing strongly, causing the surplus to automatically rise to \$20B in year 2. [Note that the government has done nothing to bring about this change - it is automatic.] This increase in the surplus will have occurred for cyclical reasons, without any changes to discretionary budgetary policy, and it would ordinarily ‘indicate’ that budgetary policy has become more contractionary (i.e. further restraining growth in AD and economic activity). However, let us now assume that, instead of allowing the budget surplus to increase, the government decided to reduce the surplus to \$15B in year 2 via new spending measures or tax cuts. In this scenario, the budget surplus has still increased from \$10B to \$15B, but the Budget would be an expansionary one because it delivered a **net stimulus** to AD and economic activity via the tax cuts and/or increased spending. In this respect, a larger surplus can actually be consistent with an expansionary stance. The same arguments can be reversed to highlight how a smaller surplus can be contractionary.

How a larger budget deficit can be contractionary

The same logic can be applied to analysing how a higher budget deficit could actually be consistent with a contractionary budget or a contractionary budgetary policy stance. Assume now that the government delivered a deficit in year 1 of \$10B, and between years 1 and 2, the economy entered a downturn, causing the deficit to automatically rise to \$20B in year 2. Again, this increase in the deficit will have occurred for cyclical reasons, and it would ordinarily indicate that budgetary policy has become more expansionary. Let's now assume that instead of allowing the budget deficit to increase, the government was concerned about government debt levels and decided to reduce this deficit to \$15B in year 2, via spending cuts or tax increases. In this scenario, the budget deficit has still increased from \$10B to \$15B, but the Budget would be considered a contractionary one because the government delivered a **net contraction** to AD and economic activity via the tax increases and/or reduced spending. The same arguments can be reversed to highlight how a smaller deficit can be expansionary.

Study tip

To highlight how a smaller budget deficit can be contractionary, the analogy of a household is useful. Imagine that your parents have provided you with \$100 per week pocket money for the first five years of your schooling. Then at the start of Year 12 they become concerned about their finances and decide to reduce their household deficit by decreasing your allowance from \$100 to \$40. While the \$40 per week is still better than nothing (and expansionary in that sense), the \$60 reduction in your income reduces your spending power and ability to enjoy the same standard of living as in previous years. In this respect, the reduced deficit is contractionary.

8.9 Financing a deficit or investing a surplus

Financing a deficit

When the budget is in deficit it means that the government needs to raise funds to finance the difference between receipts and outlays. The Department of Treasury (via its subsidiary the Australian Office of Financial Management) determines the amount of money required and issues Treasury bonds or Treasury notes (referred to as debt instruments) to raise money for the government. The purchasers of the bonds or notes effectively become lenders to the Federal Government and, in return, they receive interest on the bonds (or notes). Generally, there are three types of bond purchasers (i.e. lenders), and the extent to which a budget deficit 'expands' an economy will ultimately depend on who purchases the bonds (i.e. who lends to the government).

Selling bonds to Australian investors

Selling bonds to Australian investors (lenders) has been the most common form of budget financing over recent years and it is the least expansionary method of because domestic bond sales place upward pressure on interest rates as the demand for 'money' in financial markets increases, resulting in an increase in the price of money – the interest rate. These higher interest rates result in a **crowding out of the private sector** as consumers and businesses reduce Consumption and Investment. In addition, the higher interest rates may cause some local borrowers (such as corporations) to borrow from the relatively cheaper overseas lenders, resulting in capital inflow and a higher exchange rate. This contributes to **crowding out of the external sector**, where Australian exporters and import competing businesses lose market share. The effect of '**crowding out**' reduces growth in AD over time and somewhat negates the expansionary impact of any budget deficit.

Selling bonds to overseas investors

Selling bonds to overseas investors (lenders) is simply another way of saying that the Australian Government is borrowing from overseas to finance its budget deficit. The extent to which Treasury sells bonds in offshore markets depends on the state of financial markets and the confidence foreigners have in Australian 'sovereign debt'. Any foreign purchases of Australian Government bonds results in capital inflow, which then exerts upward pressure on the value of the AUD, which once again has the potential to **crowd out the external sector** as it negatively impacts on net export demand (and aggregate demand), which reduces the expansionary impact of a budget deficit. [The crowding out argument is considered later in Section 8.14 in the context of weaknesses associated with the use of budgetary policy.]

Study tip

The extent to which a budget deficit crowds out the private or external sector ultimately depends upon who purchases the government bonds that are used to finance the deficit. If some of the bond purchasers reside overseas, it will result in a higher demand for the AUD, appreciating the dollar and reducing net export demand. The greater the extent of debt financing from overseas investors, the larger is the crowding out effect on the external sector rather than the domestic private sector.

Selling bonds to the RBA

The government selling bonds to the RBA is the most expansionary, and most inflationary way to finance a deficit. This is because money that was previously not in the money supply (e.g. sitting in the RBA's vaults or not yet printed) is now released into circulation. This type of financing has become less a feature of budgetary policy since the late 1980s because the government and the RBA were keen to have a clear separation of monetary and budgetary policies. As a consequence, the RBA is unwilling to directly fund a budget deficit via the purchase of **Commonwealth/Australian Government Securities (CGS)** directly from the government. This was again reiterated by the RBA Governor in late 2020 as follows:

The Board also reaffirmed the importance of the longstanding principle of separating monetary policy from the financing of government. This principle has served Australia and other nations well. Australian governments are currently able to fund themselves at historically low interest rates and have retained ready access to capital markets. Monetary financing of budget deficits is not an option under consideration in Australia.

RBA Governor (August 2020 Statement on Monetary Policy)

Study tip

Over 2020-21, the RBA was intent on supporting fiscal stimulus measures via unconventional measures (see Chapter 9), one of which was the purchase of CGS on the second-hand market. The RBA was keen to highlight that this was not an example of the RBA financing the budget deficit. Rather it was a case of the RBA buying up CGS that had already been purchased from the government by private sector lenders.

Budget deficits and government (public) debt

As noted above, budget deficits will require funding, usually in the form of government (public) debt via the sale of government securities/bonds. This debt is recorded as a liability on the government's balance sheet and the stock of debt will continue to grow over time if budget deficits are handed down every year. Growing levels of government debt (particularly when measured as a percentage of GDP) can be problematic for a government as it requires the repayment of both interest and principal into the future and potentially makes the government less able to respond to economic shocks. However, just like any entity, the creation of debt as a result of cash deficits over time needn't be a concern if the entity, in this case the government, uses the debt wisely such that it both creates economic and social returns for the nation and can be adequately serviced over time [See Activity 8b, which considers 'good' versus 'bad' debt].

Despite this, growing levels of government debt will generally be a crude indicator of a deteriorating financial position of the government, heightening concerns about its risk of default (which is virtually zero for a country like Australia) and impacting negatively on the government's **credit rating**, which if downgraded (currently AAA) leads to higher borrowing costs and an even bigger deficit.

There are some economists who argue that that the government's capacity for borrowing is limitless and that history shows that we have a great capacity to sustain deficits and debt for many years, as was the case after the huge build-up of government debt following the post-World War II recovery efforts. Indeed, the same argument was put forward during 2020, with calls for the government to deliver even greater fiscal stimulus during the recession, despite government debt expected to climb above \$1 trillion (see Section 8.12). Notwithstanding these arguments, recent governments have certainly showed a real commitment to rein in deficits over time and reduce the level of government debt, which has been highlighted by recent fiscal strategies that focus on **fiscal consolidation** (see below).

To the extent that the government is concerned about the size of budget deficits and growing debt, its response will involve future restraint in the form of higher taxes and lower government spending (unless the next boom delivers these outcomes automatically), which then have negative consequences for economic and employment growth. Accordingly, to avoid future pain, governments need to achieve the right balance by delivering deficits that do just enough to achieve its short to medium term goals (e.g. to fill the void in the economy when a downturn occurs) without imposing too heavy a burden on taxpayers and the economy in the future.



Dealing with a budget surplus

Budget surpluses mean that the government can either invest the money in financial markets (e.g. putting money into an account held with the RBA), repay existing government debt or place money into funds it established for specific purposes (such as the *Future Fund*, the *Emergency Response Fund* or the soon to be established *Housing Australia Future Fund*).

While a deficit tends to contribute to **crowding out**, a surplus tends to do the opposite and contributes to **crowding in** of the private (and/or external) sector. A surplus means that the government becomes a net lender for that year (rather than a borrower) and this leads to less pressure for funds in financial markets. This should then lead to a reduction in interest rates (and/or exchange rates), which causes an increase in Consumption and Investment (and/or Net Exports). This will then tend to exert upward pressure on AD and real GDP over the longer term.

Fiscal consolidation and the rationale for delivering a budget surplus

Fiscal consolidation is a term commonly used to describe a government consolidating its finances by reducing expenditure and raising revenue in order to reduce the deficit or return the budget to surplus. The potential for a budget surplus to have expansionary effects was briefly discussed earlier in relation to the downward pressure a surplus places on interest rates and the stimulus (crowding in) this potentially provides to private sector and AD in the form of greater Investment and Net exports over time. In addition, if a surplus is consistent with a smaller government sector in the economy, then it also has the power to 'free up' resources and make conditions more conducive for private sector investment. Indeed, this is one of the underpinning arguments supporting the government's **fiscal strategy** to achieve improvements in the budget position and to reduce government debt over time (see Section 8.12). The current government notes that the strategy is important to ensure that it has 'fiscal buffers to withstand economic shocks and better manage the fiscal pressures from an ageing population and climate change'. The government therefore remains committed to achieving 'budget repair' and reducing the deficit over time. The arguments supporting fiscal consolidation and/or budget surpluses include the following points:

- It can help to buffer Australia against future economic decline as surplus funds can be saved and then spent when the economy requires fiscal stimulus.
- It helps to generate greater international investor confidence in Australian government finances thereby preserving Australia's excellent AAA credit rating and reducing the cost of future debt issues.
- It allows the cyclical component of the budget to do its job of automatically reducing the deficit as the economy recovers.
- It allows monetary policy to better manage the economy (particularly the rate of inflation) as the RBA can loosen policy with less fear about its inflationary effects.

Review questions 8.6 - 8.9

1. Define 'fiscal drag' and explain how it results in the government benefitting at the taxpayers' expense.
2. Explain why an 'actual' budget outcome will rarely be the same as the 'estimated' budget outcome for the same year.
3. Explain how a budget deficit is likely to affect economic activity in the short term.
4. Explain how a budget surplus is likely to affect economic activity in the short term.
5. Explain why a focus on the 'discretionary' component of the budget provides information about the stance or impact of budgetary policy.
6. Explain how a budget surplus might be consistent with an expansionary budgetary policy stance.
7. Explain how a budget deficit might be consistent with a contractionary budgetary policy stance.
8. Outline the options available to the government when deciding how to finance a budget deficit.
9. Compare and contrast 'crowding out' and 'crowding in.'
10. Explain why the exchange rate might increase when the budget deficit increases in size and examine how this could affect Net exports in Australia.
11. Apart from 'crowding out', describe how deficits can be harmful to longer term rates of economic growth.
12. Outline how a budget surplus might have a positive influence on future rates of economic growth.
13. Define fiscal consolidation and discuss one economic benefit linked to fiscal consolidation or budget repair.

8.10 How the budget is used to assist in the achievement of economic goals

All budgetary policy initiatives are designed to improve the way the nation's resources are allocated so that welfare or living standards are improved. In terms of Australia's specific domestic macroeconomic goals, budgetary policy has a key role to play in the achieving **stability in the level of domestic economic activity** (also referred to as **Internal Stability**), which occurs when the following goals are simultaneously achieved:

- Strong and sustainable economic growth
- Full employment
- Low inflation

Stabilising the business cycle

Historically, governments used budgets to **stabilise** the level of domestic economic activity. During a trough in the business cycle, growth is low (or negative) and unemployment is relatively high. In these circumstances, the government would typically use budgetary policy in a **counter-cyclical** way. It could seek to reduce the budget surplus or increase the deficit via the following means:

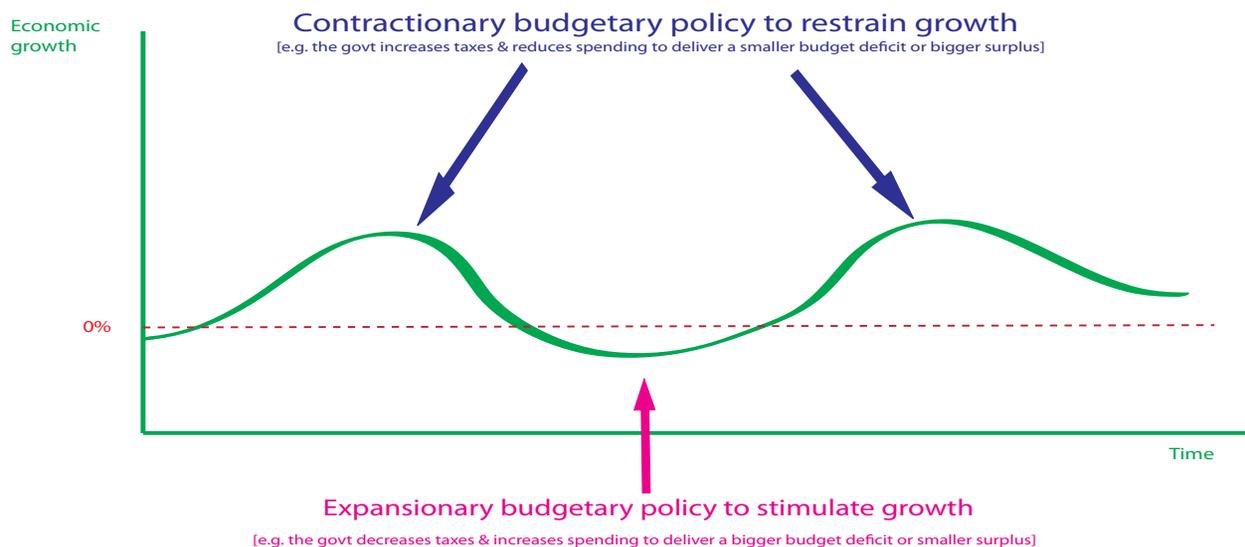
- allow automatic stabilisers to play their part; and/or
- implement a more 'expansionary' policy stance, by increasing spending and/or decreasing the tax burden, thereby reducing the surplus or increasing the deficit.

This is precisely what occurred in Australia (and around the world) when the economy entered a recession in 2020 and the government implemented a number of discretionary initiatives, such as the coronavirus supplement (the temporary doubling of the JobSeeker allowance) which was added to a host of welfare payments, in addition to the wage subsidy initiatives (e.g. JobKeeper and JobMaker). These measures were supported by cyclical stabilisers, as budget receipts automatically fell (e.g. lower personal income tax receipts) and budget payments automatically rose (e.g. higher spending on income support payments as more people qualified for the payments).

Similarly, during times of excessive economic activity, with high inflation, the government could use the budget to slow demand inflationary pressure. In this situation, the government could:

- allow automatic stabilisers to increase the size of the surplus and slow growth; and/or
- implement a more 'contractionary' policy stance by decreasing spending (and/or increasing taxes), increasing the surplus or reducing the deficit.

Macroeconomic stabilisation role of budgetary policy



Activity 8e: The changing role of Budgetary policy

During the period of the Howard Liberal Government in Australia (1996 – 2007), the **stabilisation role** of budgetary policy became increasingly irrelevant. Heavily influenced by Department of Treasury advice, the government preferred to leave the stabilisation role of policy to the RBA (i.e. monetary policy). While ‘automatic stabilisers’ were allowed to change the budget outcome over the economic cycle (e.g. accepting deficits during downturns) and budgets did include discretionary measures that could help to stimulate or restrain economic growth, the budget was not overtly used to manipulate the **business cycle**. Instead, its primary focus was to reallocate resources to areas of national best interest. This included hundreds of initiatives, such as additional funding for defence and counter terrorism, the provision of additional childcare places, hospital and public transport provision, prison funding, etc.



The role of budgetary policy has changed since 2007, with the stabilisation role of budgetary policy becoming much more evident during the **Global Financial Crisis (GFC)** of 2008, with the then government delivering expansionary budgetary policy which helped Australia to avoid a **technical recession**. Indeed, the government’s medium-term fiscal strategy to achieve budget surplus on average over the cycle accepts the stabilising role of deficits during downturns and surpluses during periods of strong growth. This was no more evident than in 2020, when the government used budgetary policy to help the economy to emerge from the deepest recession experienced since the 1930s.

The ways the government can use the Budget to assist with **internal stability** (simultaneous achievement of economic growth, full employment and low inflation) include a host of measures on both the income and expenditure sides of the Budget, such as reduction in income tax rates and structural increases in welfare expenditure. The most recent Budget papers also reveal the Government’s willingness to use budgetary policy in a way that supports monetary policy efforts to fight inflation via both the delivery of budget surpluses for 2022-23 and 2023-24, as well as targeted cost of living relief (e.g. energy rebates) provided in the 2024-25 Budget. The government can also employ supply side initiatives (covered in Chapter 10) that aim to boost the nation’s aggregate supply in an effort to lift economic growth, reduce inflation and create employment. For example, measures to boost participation, population and productivity fall into this category.

With respect to **equity in the distribution of income** the budget is used extensively to improve the initial distribution of income as well as the final distribution of income. For example, government expenditure on training and education is partly designed to improve the ability of low income groups (such as welfare recipients) to earn higher initial incomes. Similarly, the progressive tax system and welfare payments are designed to ‘redistribute’ incomes in a way that makes the ‘final’ distribution of income more ‘equitable.’ [Knowledge of how the government uses the Budget to achieve greater equity was dealt with in VCE Unit 2 Economics and is no longer part of Unit 3 or 4 Economics.]

It should always be remembered that every budgetary policy measure should be designed to improve Australian **living standards**.

Questions/tasks

1. What is meant by the stabilisation role of policy? In your answer refer to the business cycle.
2. Briefly outline the role played by budgetary policy prior to 2007.
3. Explain how and why the role of budgetary policy changed after 2007.
4. Define a technical recession and describe how the use of the budget may have helped Australia to avoid a technical recession during the GFC.
5. Explain why the wording of the government’s fiscal strategy implies that the Budget can be used to assist with economic stabilisation.
6. Define internal stability and describe how the Budget might be used to achieve internal stability. Refer to the 2024-25 Budget.
7. Explain whether the Budget has a role to play in redistributing income.

Budgetary policy and low inflation

The problem of high inflation is primarily tackled by the RBA. However, budgetary policy will generally be framed with some consideration given to the likely inflationary impact. Generally speaking, budgetary policy can assist the RBA in a number of ways:

- The government can decide to increase the size of the **structural surplus** or reduce the size of the **structural deficit** relative to the previous year in order to increase the ‘**contractionary**’ impact that the Budget is likely to have on AD. This should assist RBA efforts to minimise inflationary pressure.
- If inflation is largely demand-driven (i.e. excessive growth in AD), the government can implement specific policies that are designed to restrain growth in AD, such as **higher tax rates** or lower government spending. While the government is unlikely to increase tax rates for the sole purposes of reducing inflation (unless inflation is very high), it may ‘bring forward’ any future intention to raise tax rates in an attempt to assist the RBA. Alternatively, it may decide to end the provision of certain ‘tax concessions’ that had previously been put in place to stimulate the economy.

Study tip

It is easy to make the mistake of thinking that any factor causing an increase in AD will be ‘bad for inflation’ per se. While it is true that an increase in Investment or G2 will add to ‘demand inflationary pressure’ in the short term, this is likely to be reversed if and when the ‘investment’ results in an increase in ‘aggregate supply’ or ‘productive capacity’. For example, the decision to build new infrastructure (e.g. the Broadband network) will add to price pressures on several resources (e.g. raw material costs) used in the production of the new infrastructure. This immediately adds to the producer price index (a measure of inflation for businesses rather than consumers) and can ultimately lift the CPI. But once the new infrastructure is fully operational (i.e. broadband services are in place across the economy), it adds to productive capacity and can exert downward pressure on inflation in the longer term.

- For example, in the first half of 2024, the government was under pressure to resist the urge to continue with expansionary measures, including the (revised) legislated tax cuts that eventually came into force on 1 July 2024, which further added to the inflationary pressures in the economy. The RBA Governor commented at the time that its decisions in relation to any further change to monetary policy settings would partly hinge on budgetary policy actions, including the precise nature of the Stage 3 tax cuts as well as the make-up of the 2024-25 Budget. If the RBA considered that the Government was not offering some support to fighting inflation (e.g. if it felt that the Budget added further stimulus to the economy, accelerating inflation) then it is likely that an additional tightening of monetary policy would have occurred during 2024. [The relationship between budgets and monetary policy is considered further in Chapter 9.]
- If inflation is largely supply-driven (e.g. increases in labour costs or higher energy prices) the government could assist by introducing **supply side initiatives** designed to alleviate cost pressures. The cost of living relief measures introduced in the 2024-25 Budget (e.g. energy subsidies) were effectively delivered as producer subsidies, which immediately reduced the price of energy and decreased the headline rate of inflation in a relatively short period of time. Supply side measures might also include initiatives such as increasing the skilled migration intake or reducing the excise tax on petrol as it did for six months during 2022 (see Chapter 10). In addition, the government could boost Investment spending on infrastructure or capital works, to assist in boosting the nation's productive capacity and easing capacity constraints. Similarly, the government could provide private sector incentives to increase Investment (such as accelerated depreciation allowances or tax concessions for R&D expenditure) that can once more boost productive capacity and ease inflationary pressure in the medium to longer term.

Budgetary policy and strong and sustainable growth

Generally speaking, the delivery of a **budget deficit**, or an **expansionary budget**, is expected to assist in the achievement of economic growth because the government is injecting 'net' funds into the economy. This is the typical Keynesian approach used in the past to good effect as additional government spending (G1 and/or G2 or transfer payments), or tax cuts, stimulates AD beyond that which would otherwise occur without the expansionary budget deficit. With stronger AD and economic growth, incomes of economic agents increase (e.g. economic growth creates jobs and additional income to workers), which fuels further increases in AD and economic growth. The initial budget stimulus therefore has the potential to multiply its impact throughout the economy.

As was discussed in Activity 8e, the budget has become more active in terms of demand management over time, with governments increasingly prepared to make discretionary changes to the Budget in order to support the operation of automatic stabilisers and stimulate AD and economic growth. In addition, governments will use the Budget to help ensure that growth is sustainable over time. This includes budget measures that help to reduce inflationary pressures as well those measures covered in Chapter 3 relating to **market failures**, such as depletion of resources and pollution (i.e. **negative externalities**).

Specific initiatives that can also be introduced to stimulate AD and economic growth include measures such as those listed below (more detail on specific initiatives will be explored in Section 8.12):

- Increased transfer payments (e.g. increased pensions, unemployment benefits and family payments)
- Bonus 'one-off' stimulus payments to taxpayers or welfare recipients
- Personal tax cuts to increase disposable incomes and stimulate Consumption demand
- Business tax cuts such as a cut to company tax rates that is designed to stimulate business Investment
- Household rebates and/or tax concessions, such as temporary fuel excise relief provided during 2022 and the 'cost of living' relief (e.g. energy and rent assistance) provided during 2024
- Increases to G1 or G2 spending, such as an increase in infrastructure spending
- Accelerated depreciation allowances to encourage greater investment in capital equipment
- Assistance to industry such as grants to help smaller businesses access export markets
- Subsidy support to businesses or industries to overcome natural disasters (e.g. droughts/bushfires) or other events that (temporarily) impair business performance (e.g. the effects of COVID-19).

Budgetary policy and full employment

Budgetary policy is the primary policy weapon used to tackle the problem of **unemployment**. While monetary policy can help to create employment by stimulating AD and the economy more generally, budgetary policy has much more versatility. The government can use the budget to stimulate AD and create jobs at a macroeconomic level by delivering more **expansionary budget** outcomes that help to reduce **cyclical unemployment**. In addition, it can focus on particular sectors of the economy to assist in re-training labour, helping to reduce **structural unemployment**, and it can devote funds or resources to better matching job vacancies with the unemployed. Overall, budgetary policy has the flexibility to focus on particular unemployment concerns, whether it is structural, cyclical, long-term or youth unemployment.

Each of the budgetary policy measures canvassed in the dot points above (relating to economic growth) will tend to stimulate AD, accelerate growth in real GDP and provide more macroeconomic benefits to employment. With higher output levels, some businesses will eventually increase their **demand for labour**, resulting in higher employment levels and lower levels of unemployment. However, there are a number of other budgetary policy initiatives that could be introduced to directly increase employment or reduce the unemployment rate. These employ a more microeconomic focus and include measures like:



- Mutual obligation programs that require those receiving unemployment benefits to undertake certain programs
- Increased funding for better job placement
- Funding for the unemployed to start businesses
- Increased expenditure on training and education
- A general wage subsidy to ensure that businesses retain employees during a downturn
- Subsidies to businesses to take on particular types of job seekers, such as older Australians, the longer-term unemployed or younger Australians
- Welfare to work initiatives.

Many of the above measures can increase the demand for labour by improving the skills or employability of the unemployed, thereby helping to increase employment and reduce **structural** or **hard-core unemployment**. Once re-skilled, these individuals are a more attractive employment proposition, helping to increase the demand for labour, boosting employment and reducing the rate of unemployment.

However, budgets have also been used to boost participation rates (or the supply of labour) in order to tackle the problems associated with **skill shortages** or an **ageing population**. This is likely to have a positive impact on employment over time. With a larger labour supply, downward pressure is exerted on the price of labour (such as wages) and existing employees are likely to raise their work intensity in light of greater competition for jobs. With downward pressure on real unit labour costs, greater price discounting can occur, easing inflationary pressure and contributing to greater AD and real GDP.

Study tip

Don't be confused by the fact that budgetary policy is referred to as a 'macroeconomic demand management policy,' yet it includes measures that have a microeconomic focus, such as those above. This highlights a strength of budgetary policy in terms of its ability to assist with the achievement of government goals at both the micro and macro levels.

Accordingly, businesses are likely to increase their demand for labour, resulting in a higher level of employment and a lower level of unemployment over time. [These types of initiatives are supply side in nature and are covered more fully in Chapter 10.]

Activity 8f: Purpose of BP initiatives?

For each of the budgetary policy initiatives below, shade the appropriate box(es) to identify whether each is intended to stimulate eco growth, decrease inflation or reduce unemployment (U/E). The first one has been done for you.

Event	↑ Eco growth	↓ inflation	↓ U/E
The government reduces income tax rates			
A large increase in the discretionary budget deficit			
Increased expenditure on training and education			
Increased spending on telecommunications infrastructure			
Lower company tax rates			
Subsidies to farmers suffering from drought conditions			
Mutual obligation requirements for unemployment payments			
Reducing the rate of some business taxes			
An increase in the discretionary budget surplus			
Accelerated depreciation allowances on the purchase of machinery			

8.11 Budgetary policy and living standards

As noted at the beginning of this chapter, the overriding objective of budgetary policy is to improve the **welfare** or **living standards** of all Australians, or to achieve the most **efficient allocation of the nation's resources**. Every single budgetary policy initiative is designed with this express purpose, with the possible exception of initiatives that are subject to political pandering or 'vote buying,' where the government may alter the design of a particular initiative in order to appease particular interest groups or maintain its grip on political power.

The use of budgetary policy measures to assist in the achievement of the government's economic goals can really be considered **intermediate goals** or objectives. This is because the achievement of these goals should ultimately result in better living standards for Australians over the longer term. In this respect, a cut in tax rates to lift economic growth, an increase in training expenditure to reduce structural unemployment, or an increase in the low income tax offset to improve equity, are all initiated because governments believe they will enhance average living standards for Australians.

There are also a whole host of budgetary policy measures that are not specifically targeted at one of the economic goals we examined in Unit 3. Instead, they are more directly seeking to cause a **reallocation of our resources** to areas of national best interest, which by definition, is designed to improve national living standards. In Chapter 3, market failures and government intervention were explored in some detail. Many instruments that are used to rectify these market failures are delivered through the budget and therefore form a key component of budgetary policy. They include the following:

- funding for the provision of public goods like defence and prisons
- funding for a range of other services that would be underprovided in a free market, including those related to aged care, disability support, or funding to address the housing affordability problem
- the provision (or support) of goods with positive externalities in consumption (such as education and health services)
- the provision (or support) of goods with positive externalities in production (such as tax concessions for R&D expenditure and subsidies for businesses investing in renewable energy)
- taxes on goods with negative externalities in consumption (such as excise on tobacco or alcohol)
- taxes on goods with negative externalities in production (such as a carbon tax or permits)
- the establishment of a public sector monopoly such as Australia Post
- funding for bodies like the Australian Consumer and Competition Commission and the Australian Securities and Investments Commission.

Every one of these measures will result in the nation's resources moving around from one activity to another so that our living standards (material and/or non-material) are ultimately enhanced.

Activity 8g: Group activity [Budgetary policy and living standards]

Australia's living standards are enhanced by the use of budgetary policy. This includes budget measures to protect or increase the purchasing power of households (e.g. income support) which helps to increase our collective standard of living in material terms. In addition, there a host of government budget measures that help to boost our standard of living that cannot be measured in material terms. This includes funding that helps to preserve the natural environment or funding to help make the nation feel more secure in a world where there is an increased threat of terrorism.

Work in groups of two or three. Each group is required to write a brief report discussing how five of the measures listed below are likely to improve Australian living standards. Ensure that all of the measures numbered 1 - 15 are covered by the class, if possible.

1. The re-introduction of a carbon tax (tax on carbon pollution)
2. The introduction of a gambling tax
3. An increase in the tax on tobacco
4. An increase in expenditure provided for national parks
5. An increase in government expenditure to tackle mental illness
6. Subsidies for the installation of solar energy products in households
7. The introduction of a tax on 'ready to drink alcoholic beverages' (alcopops tax)
8. Increased spending on defence and national security
9. Funding to establish National Disability Insurance Scheme (NDIS)
10. Funding to tackle indigenous disadvantage
11. The introduction of a tax on sugary softdrinks similar to the 'sugar tax' introduced in England during 2016
12. Increased funding for foreign aid
13. The introduction of a wealth tax to tackle inequality in wealth distribution
14. The provision of \$500m to secure the future of the Great Barrier Reef
15. Refocusing Work for the Dole activities towards disadvantaged job seekers



Review questions 8.10 - 8.11

1. Describe how the budget is used to stabilise the business cycle over time.
2. Describe how the government can alter its taxes and expenditure in an effort to reduce inflation.
3. Describe how the government can alter its taxes and expenditure in an effort to boost economic growth.
4. Describe how the government can alter its taxes and expenditure in an effort to reduce the rate of unemployment.
5. Apart from initiatives referred to in the previous questions, describe how the government can alter its taxes and expenditure in an effort to lift Australian living standards.

8.12 Recent budget figures and fiscal strategy

As discussed earlier in this chapter, when Australia experiences economic problems, such as high inflation and unemployment, it will ultimately be reflected by a fall in average living standards. Government intervention will then be needed to repair the problems and prevent living standards from falling further. In addition, the government will always be keen to find ways of improving national living standards over time. The use of the government's macroeconomic budgetary and monetary policies are important 'weapons' available to the government to achieve this end.

In this section we will focus on how budgetary policy has been used in Australia over recent years, with a particular emphasis on how recent budgets have targeted or impacted on the achievement of the government's key macroeconomic goals of strong and sustainable growth, full employment and price stability (low inflation).

The current government's fiscal strategy

The government is legally required to outline its fiscal strategy when the Budget is delivered each year. The **fiscal strategy** is a statement that outlines the financial goals of the Federal Government within which the most recent budget is framed. It essentially determines the contents of each Budget, which helps to ensure that the government manages its finances in a fiscally responsible, accountable and sustainable manner. A fiscal strategy will also help to ensure that the government of the day delivers budgets that can adequately meet the government's current and future spending commitments without placing undue pressure on current or future taxpayers.



The current fiscal strategy involves a short-term focus on assisting monetary policy to contain inflationary pressures and then, once price stability is achieved, to focus on achieving budget repair and improving the budget position over time (i.e. reducing the size of the budget deficit over time). The longer term fiscal strategy is framed around the objective to reduce gross government debt as a percentage of GDP over time. The government notes that these objectives will be achieved via sound investment that lifts economic growth and expands productive capacity, combined with budget discipline that restrains spending growth and enhances the quality of that spending. The Budget Papers note that the current economic and fiscal strategy is focused on:

'the objectives of strong, inclusive and sustainable economic growth, full employment, growing real wages, ensuring women's economic participation and equality, and improving living standards for all Australians. The Government will improve the budget position in a measured way, consistent with the overarching goal of reducing gross debt as a share of the economy over time. This approach enables fiscal policy to respond to changes in economic conditions to support macroeconomic stability, including in times of high inflation. ... Putting the budget on a more sustainable footing will ensure the Government has the fiscal buffers to withstand economic shocks and better manage the fiscal pressures from an ageing population and climate change'

Source: Budget Paper No.1 (2024-25) Statement 3, page 79

The government highlighted that its strategy is underpinned by the following elements:

- Allowing tax receipts and income support to respond in line with changes in the economy and directing the majority of improvements in tax receipts to budget repair.
- Limiting growth in spending until gross debt as a share of GDP is on a downwards trajectory, while growth prospects are sound and unemployment is low.
- Improving the efficiency, quality and sustainability of spending.
- Focusing new spending on investments and reforms that build the capability of our people, expand the productive capacity of our economy, and support action on climate change.
- Delivering a tax system that funds government services in an efficient, fair and sustainable way.

The latest Budget figures released in May 2024

The estimated/projected figures from the May 2024-25 Budget papers are summarised in Table 8.2 below.

Budget aggregates	2022-23	2023-24	2024-25	2025-26	2026-27
	(Actual)	(Actual)	(Estimate)	(Projections)	(Projections)
Cash outcomes	\$b	\$b	\$b	\$b	\$b
Cash receipts	649.5	688.6	698.4	719.4	760.0
less cash payments	627.4	672.8	726.7	762.2	786.7
Underlying cash balance	22.1	15.8	-28.3	-42.8	-26.7
<i>as a % of GDP</i>	<i>0.9</i>	<i>0.60</i>	<i>-1.00</i>	<i>-1.50</i>	<i>-0.90</i>
Net cash flows from IFAPP*	-7.962	-1.8	-18.9	-20.9	-20.1
Headline cash balance	14.1	14.0	-47.2	-63.7	-46.8
<i>as a % of GDP</i>	<i>0.6</i>	<i>0.5</i>	<i>-1.7</i>	<i>-2.2</i>	<i>-2.4</i>

* Investments in financial assets for policy purposes. A negative number denotes a net cash outflow (e.g. expenditure on student loans or further investment in the NBN outweighing receipts from loan repayments or dividends from the NBN).

The figures from Table 8.2 reveal that the **underlying budget outcome** is estimated to deteriorate from a \$15.8 billion surplus in 2023-24 (representing 0.6% of GDP) to a \$28.3 billion deficit in 2024-25 (-1.0% of GDP) and the deficit is projected to remain into the future.

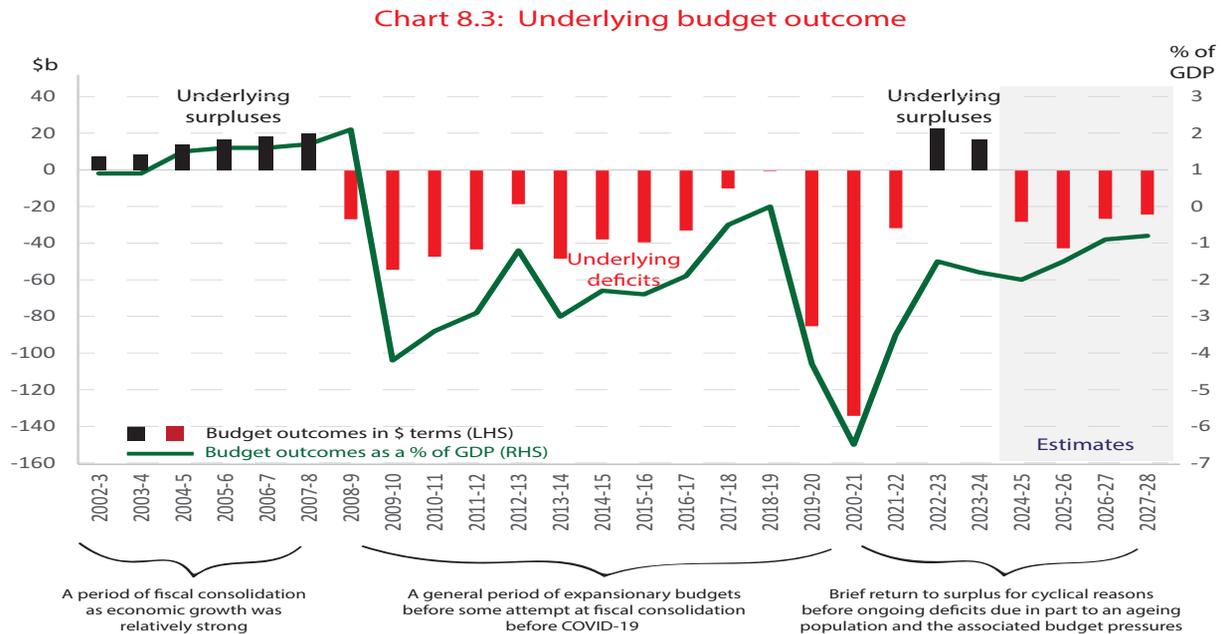
As discussed earlier, the **headline cash balance** is simply the total cash received by the government less the total cash paid. For 2024-25 this is estimated to be a deficit of \$47.2 billion (or 1.7% of GDP). The **underlying cash balance** is the headline cash balance, but excluding net asset purchases (technically referred to as cash flows from investment in financial assets for policy purposes) which are estimated to be \$18.9 billion for 2024-25. To reconcile the headline and underlying cash balances, it is useful to think in the following terms. The estimated headline deficit of \$47.2 billion would have been \$18.9 billion smaller were it not for the expected net outflow of cash used to purchase non-financial assets, such as the government's continuing investment in the National Broadband Network (NBN) Company and the provision of student loans.

As discussed in Section 8.4, these types of transactions are removed from the headline outcome because their overall effect on the headline budget outcome over time is zero and their inclusion would distort the true position of government finances and provide misleading information about the government's fiscal stance. Accordingly, any net asset purchases (such as investment in the NBN) make the budget outcome look worse than it is in 'underlying' terms. In contrast, any proceeds from asset sales in the future (e.g. once the NBN Company is sold to the private sector or a possible sale of Australia Post) will make any future budget outcome look better than it really is in 'underlying' terms.



Changes to the budget outcome and stance of policy over time - a brief history

The current fiscal strategy (to achieve budget repair and improve the budget position over time) allows both automatic and discretionary stabilisers to push the budget towards surplus in the event that the economy enters a period of prolonged economic expansion. Similarly, it will allow the budget to move into deficit when the economy experiences another downturn or recession. This is exactly what occurred during 2019-20 and 2020-21, which followed a period where the budget deficit continued to fall towards zero, which was consistent with the budget strategy at the time to achieve budget surplus on average over the economic cycle. Chart 8.3 highlights the movement of the budget outcome since 2002-3.



The movement in the budget outcome over time largely reflects the cyclical nature of the budget, with a strong surplus when the economy is going well (e.g. up to 2007-8) being replaced by deficits when the economy enters a downturn (e.g. after 2007-8 when the economy was feeling the effects of the **Global Financial Crisis**) and then returning 'towards' a surplus (e.g. between 2015-16 and 2018-19) as the economy strengthened during that time. These **cyclical** changes in the budget outcome are typically supported by **structural** changes to the budget (i.e. the implementation of **discretionary stabilisers**) that further help to stabilise the economy and assist with the achievement of the government's macroeconomic goals. This is no more evident than over 2019-20 and 2020-21, as the economy experienced a recession and the government implemented the most **expansive budgetary policy stance** since the Second World War. The (underlying) budget deficit peaked at \$134 billion in 2020-21 and then fell to \$32 billion in 2021-22 as the economy entered a period of economic recovery and enjoyed the windfall gains from the highest terms of trade on record.

Study tip

The Study Design requires students to know about the effects of the budgetary policy stance 'over the past two years'. The history provided in this section is served to put some context around the stance of policy and is not required knowledge for the purposes of VCE Economics.

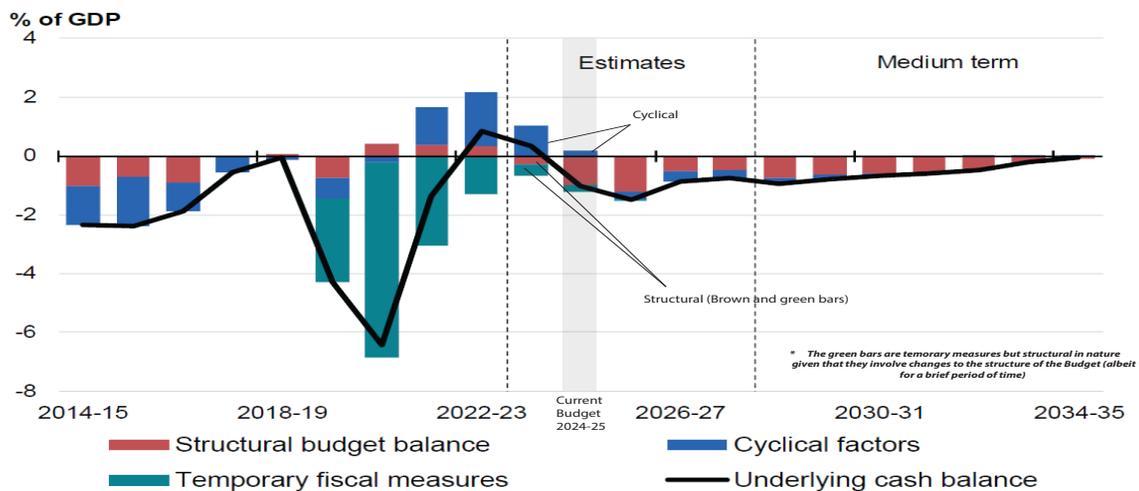
The government at the time was prepared to remain committed to the maintenance of an expansionary stance as part of its COVID-19 Economic Recovery Plan until such time as the unemployment rate fell below 6%, which wasn't forecast to occur until 2023-24. However, with the economy recovering much faster than anticipated over 2021 and 2022, (thanks in part to the ongoing effects of expansionary budgetary and monetary policies, as well as the record growth in commodity prices), the budget position improved significantly for cyclical reasons. The budget then returned to surplus for two years (2022-23 and 2023-24) on the back of the resurgent terms of trade, that despite falling from late 2022, reached record highs and remained elevated over these years. This combined with very strong population growth, high inflation (and the effects of fiscal drag) and continuing low rates of unemployment to lift receipts above expenditure during this time. These automatic increases in tax revenue (e.g. due to the growth in mining company profits) combined with automatic decreases in government expenditure (e.g. reductions in JobSeeker payments as the unemployment rate fell to as low as 3.4%) to result in a large improvement in the **cyclical component of the budget**. However, instead of allowing the windfall gains to flow through to the bottom line (i.e. allow the budget surplus to rise even further), the government decided to deliver additional discretionary stabilisers and therefore spent much of the windfall gains. This resulted in the 2022-23 and 2023-24 budgets being expansionary because much of the cyclical improvements to

the budget bottom line (i.e. the rise in the cyclical surplus) was negated by the structural increase in spending. This is another way of saying that the ‘budgetary policy stance’ for these budgets was expansionary, despite the delivery of budget surpluses.

In the most recent 2024-25 budget, the government adopted an expansionary stance as the outcome moved from a surplus of \$15.8 billion for 2023-24 to an estimated deficit of \$28.3 billion. This reflects the government’s determination to support households and businesses during 2024 via a net injection of funds into the economy.

The influence of **cyclical** and **structural** factors on the budget outcome can be seen in the Chart 8.4 that has been reproduced (and edited) from the May 2024-25 Budget Papers. It highlights the changes in the budget outcomes over time that are due to structural and cyclical factors. The cyclical changes are represented by the blue bars and the structural changes are represented by the combination of the green bars (temporary fiscal measures) and the brown bars. The temporary fiscal measures include the stimulus measures that helped the economy to emerge from the 2020 recession (e.g. JobKeeper) as well as other more recent measures (e.g. fuel excise relief in 2023 and the energy rebates in 2024). These do not contribute to ongoing pressure on the budget, as they are only temporary measures, which is why the government has excluded them from the structural budget balance (i.e. why they are not included with the brown/red bars). However, they are structural in nature given that they were deliberate changes to the structure of the budget. Which is the same as saying that the influence these had on the budget outcome was not cyclical in nature (i.e. they did not involve a change to the cyclical component of the budget).

Chart 8.4
Cyclical and structural effects on Budget outcomes



Taken together, the size of the brown/red and green bars in the chart show that structural changes to the budget have exerted downward pressure on the budget outcome over the entire period. It therefore highlights that the return to budget surplus for 2022-23 and 2023-24 occurred purely for cyclical reasons (primarily the growth in commodity prices/terms of trade), which is evidenced by the positive size of the blue bars in the chart for these years.

The ongoing size of ‘**structural deficits**’ over the forward estimates highlights the growing strain on government finances, owing to factors such as an ageing population, which impacts negatively on revenue growth (as the size of the working population falls), as well as growth in health care expenditure (including greater funding for aged and disability care). In addition, pressure on government expenditure will stem from the transition towards renewable energy as well as the need to shore up Australia’s defence budget during a period of growing geopolitical tensions.

As noted earlier, the current government has committed to achieving a sustainable budget position over time such that the growth in the structural budget deficit is contained and **budget repair** is achieved. It has therefore committed to ‘banking’ some/most of any future windfall gains that come from cyclical improvements to the budget outcome, which could see the budget return towards surplus in the event that the pace of economic recovery in the period ahead is faster and more pronounced than expected. If this occurs, the government might further consolidate the budget (**fiscal consolidation**) and focus on reducing (growth in) public debt.

It is also important to remember that the expansionary or contractionary nature of any particular budget will also depend on how the state governments are likely to respond to particular Commonwealth budget measures. For example, if the government implements budget cuts relating to health and education spending it may result in the need for greater state government spending on health and education. To prevent a deterioration in their respective budget positions, the

state governments might decide to raise state taxes, such as payroll tax. In this respect, the overall economic impact of Commonwealth budget measures cannot be determined in isolation. Note that increased pressure on state government budgets has raised the possibility of an increase in the GST in the future. While the GST is enacted by Commonwealth government legislation, it is regarded as a 'states tax' as all of the GST proceeds are returned to state governments.

A focus on automatic stabilisers and discretionary stabilisers over recent years

We learned above that the budget outcome moves over time in response to the operation of both **automatic** and **discretionary stabilisers**. This is another way of saying that the budget outcome will change for both cyclical and structural reasons. For example, we know that the Australian economy experienced a recession in 2020, which caused a cyclical increase in the budget deficit as government revenues/receipts (e.g. income tax revenue) automatically fell and government expenses/payments (e.g. income support payments) automatically increased. In this respect, it is an example of the way that 'the economy' impacts on the budget. However, it also reflects the way that the budget is specifically designed to assist with economic stabilisation over time. For example, the automatic reduction in income tax receipts and increased income support payments during this time actually assisted in economic recovery for two important reasons:

- Workers automatically moved into lower tax brackets as their incomes fell, which reduced their tax burden (because their after-tax/disposable income fell by less than their pre-tax/gross income) and helped to support household spending.
- Those who experienced either a substantial drop in income as a consequence of becoming unemployed, or (in some cases) underemployed, automatically became eligible for income support payments (e.g. unemployment benefits) which further helped to support household spending.

As noted in Section 8.5, when determining the size of the structural component of the budget over recent years, the government excluded the cost of the temporary COVID-19 stimulus measures that were introduced at the time. This means that the temporary stimulus measures, such as **JobKeeper** and the one-off cash bonuses to welfare recipients, were not considered part of the structural component of the budget, despite the fact that they involved discretionary changes to receipts and outlays. In other words, the government decided to isolate the following three major factors influencing the budget outcome over these years:



- Cyclical factors (e.g. the influence of changes in commodity prices)
- Temporary factors (e.g. JobKeeper wage subsidy)
- Structural factors (e.g. additional spending on aged care)

This allowed the government to highlight that the relatively high budget deficits over these years were financially responsible and that there was a generally favourable movement in the **structural budget balance** over that time. However, if we add the temporary factors to the structural factors (as described earlier), it highlights that the 'budgetary policy stance' has been expansionary over recent years, despite the existence of budget surpluses over 2022-23 and 2023-24.

In Section 8.13 later in this chapter, we will focus on some of the specific measures that will influence the achievement of the government's macroeconomic goals. In Chapter 10, we will further explore the budgetary policy supply side initiatives.

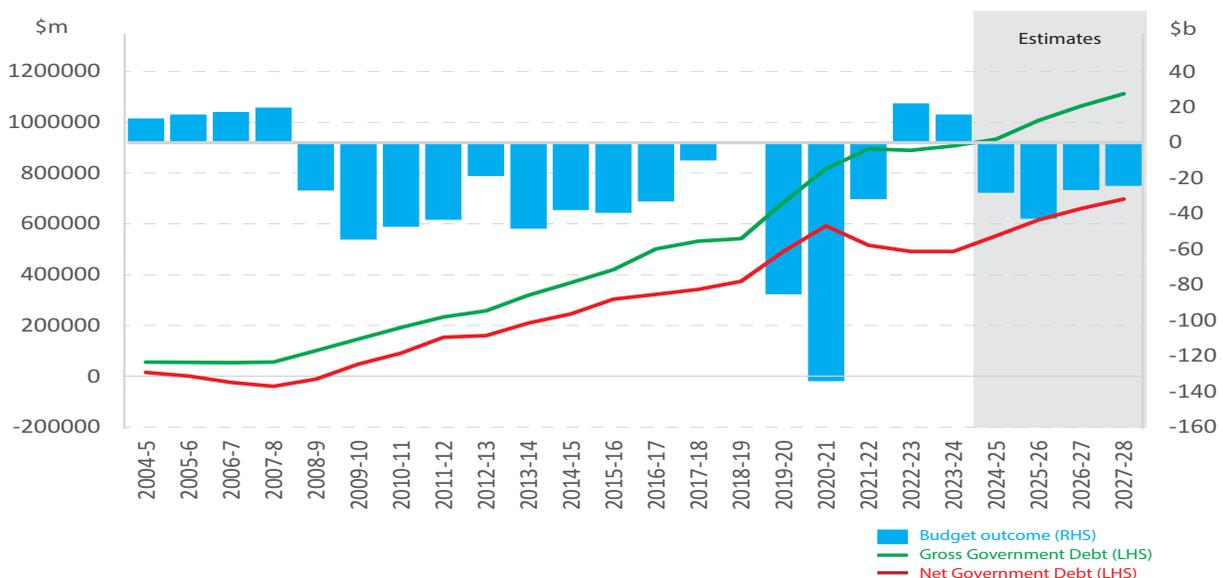
The budget deficit and Commonwealth Government debt over recent years

As discussed in Section 8.9, budget deficits need to be financed. In Australia, budget deficits are financed primarily through the sale of **Australian Government Securities (AGS)**, which are also known as **Commonwealth Government Securities (CGS)**. These AGS are typically made up of financial instruments referred to as Treasury bonds/notes (or government bonds), where the purchasers of the bonds/notes (referred to as bondholders or noteholders) become lenders to the government. An increase in the total volume of AGS or bonds on issue means that **gross government debt** levels will be higher.

The most recent budget papers reveal that the total value of AGS on issue (i.e. gross government debt) was \$907 billion as at 30 June 2024. Given the continuing budget deficits that are expected into the future, it is estimated that gross government debt will increase to more than \$1.1 trillion by the middle of 2028. However, once we take away the government’s holding of financial assets (e.g. loans provided by the government or the government’s ‘ownership’ of bonds or securities), the estimated Net Government Debt (NGD) is somewhat lower – at \$491 billion as at the middle of 2024 and an estimated \$697 billion by the middle of 2028.

Chart 8.5 highlights the relationship between budget deficits and government debt. Of particular note, is the healthy financial position that Australia’s government experienced just prior to the Global Financial Crisis (GFC) of 2008, where a period of successive budget surpluses resulted in NGD falling below zero (i.e. the government was a net lender during this time). However, the GFC triggered an economic downturn that resulted in a period of budget deficits that resulted in higher levels of public debt (both gross and net debt). While the deficit was getting progressively smaller in the five or so years leading into COVID-19 (which was consistent with the government’s determination to achieve fiscal consolidation at the time) it still added to the size of government debt, with NGD climbing to approximately \$374 billion by the middle of 2019. Towards the end of 2019, the government was originally anticipating a return to surplus (of \$6.1 billion) for the 2019-20 year, which would have ultimately resulted in the size of NGD falling into the future. However, the 2020 recession resulted in very large budget deficits between 2019-20 and 2020-21 that resulted in government debt climbing significantly in both gross and net terms.

Chart 8.5
Budget outcome and Government debt



It is important to note that a high debt level needn’t be a problem. As we learned earlier, whether it is household debt, business debt, or government debt, debt only becomes a problem for an entity if the funds that have been borrowed have not been put to ‘good’ use. Provided that government expenditure has been productively employed in the economy (e.g. invested in infrastructure that helps to boost the nation’s productive capacity or been used, as it was during the COVID-19 crisis, to reduce the potential for long-term damage to the economy of a prolonged recession), then high debt levels needn’t be a problem so long as the government is able to adequately service (i.e. repay) the debt without placing excessive strain on future taxpayers. Indeed, some of the government debt has effectively been invested in a number of key government assets that will help to deliver benefits into the future. This includes the government’s investment in the NBN and the Clean Energy Finance Corporation as well as funds established for specific purposes, such as:

- the **Asset Recycling Fund** (which provides state governments with incentives to invest in infrastructure)
- the **Future Fund** (to help fund the government’s superannuation liabilities into the future)
- the **Housing Australia Future Fund** (to address the ‘housing affordability crisis’)
- the **Household Energy Upgrades Fund** (to fast track homeowners’ transition to renewable energy)
- the **Future Drought Fund** (to provide for drought resilience initiatives and prepare for the impacts of drought)

Even before the obvious need for economic stimulus during the recession of 2020, the value of deficits and debt have been considered by RBA Governors in the past. They noted the capacity for the government to use budget deficits in the event that the economy required a stimulus to aggregate demand. Highlighting the importance of government ‘investment’ or ‘capital’ spending to the economy during times of need and noting that an increase in public debt will

only be problematic if it has been used to finance ‘recurrent’ (i.e. consumption) spending as opposed to ‘capital’ (i.e. investment) spending. They also highlighted the need for fiscal policy to do more of the ‘heavy lifting’ given that the use of conventional monetary policy became more limited in terms of its ability to support the economy (see Chapter 9).

Even before COVID-19, the former RBA Governor was encouraging the then-government to take advantage of low interest rates by borrowing in financial markets to fund investment in large-scale infrastructure projects. Of course, the arrival of COVID-19, and the recession, obviated the need for the government to borrow heavily in order to support the economy. The government became less concerned about debt and more concerned about repairing the damage to the economy. A key idea behind this thinking was that the longer a recession was allowed to persist, the deeper the damage to the economy through ‘scarring’ of the labour market via persistent, high unemployment. The adoption of a very expansionary monetary policy stance by the RBA up until the middle of 2022 resulted in the lowest interest rates ever recorded. This meant that the government could afford to borrow more heavily (as interest repayments were negligible) without any real concern that budget deficits would ‘crowd out’ private sector investment.

The slowdown experienced in Australia over 2024, as evidenced by the negative growth in real GDP per capita (or the ‘per capita recession’ as described by many) has once again caused the Government to switch its attention away, somewhat, from the need to achieve fiscal consolidation and towards the need support the economy. The growth in deficits and debt into the near future is not only a reflection of an ageing population and the growing health budget, it is also a response to the relatively short term support that is being delivered to Australian households (and businesses) during a period of cost of living pressures and very low rates of economic growth.

Activity 8h: Deficits and debt

The adjacent table contains the most recent figures (actual and forecast) for the underlying budget outcome and public debt (both gross and net). Carefully analyse the table and answer the following questions.

Application questions/tasks

1. Distinguish gross government debt from net government debt
2. Describe and account for the movement in gross government debt since 2022-23
3. Explain why the reduction in the estimated budget deficit from 2025-26 has not led to a reduction in gross government debt.
4. Explain how government debt levels can fall into the future. In your answer, refer to the role of automatic and discretionary stabilisers.

Year	Budget outcome (\$ billion)	Gross Govt Debt (\$ billion)	Net Govt Debt (\$ billion)
2022-23	22.1*	889.8*	491.0*
2023-24	15.8*	906.9	491.4
2024-25	-28.3	934.0	552.5
2025-26	-42.8	1,007.0	615.5
2026-27	-26.7	1,064.0	660.0
2027-28	-24.3	1,112.0	697.5

** denotes actual figure, otherwise estimates [Source: BP No. 1 Statement 11]*

Review questions 8.12

1. Explain what is meant by the fiscal strategy.
2. Explain whether the current fiscal strategy is consistent with the economic stabilisation role of fiscal policy.
3. Identify the budget outcomes for 2024-25 in both headline and underlying terms and account for the difference between these two outcomes.
4. Explain why the underlying cash balance is mostly used by economic commentators when reporting budget figures.
5. Referring to Chart 8.3, describe the movement in the estimated/projected budget outcome since 2020-21.
6. Explain how the budgetary policy stances for 2022-23 and 2023-24 can be considered expansionary despite the budget surpluses delivered at the time.
7. Provide evidence to support the assertion that the 2024-25 Budget was expansionary.
8. Explain the difference between ‘Gross Government Debt’ and ‘Net Government Debt’.
9. Refer to Chart 8.5 and describe the trend movement in Net Government Debt since 2006-7.
10. Describe the relationship between a budget deficit and government debt.
11. Explain why Net Government Debt fell below zero in 2007-8.
12. Discuss whether an increase in Government Debt (or public debt) is problematic for Australia. In your answer, refer to both current and capital spending as well as very low rates of interest around the world.
13. Explain why a decrease in the size of the budget deficit will not lead to a decrease in the value of government debt.
14. Explain why the budget moved from close to budget balance in 2018-19 to a large deficit in 2019-20. In your response, refer to automatic and discretionary stabilisers.

8.13 Specific budgetary policy initiatives over the past two years and the impact on macroeconomic goals

This section will now focus on a selection of budgetary policy initiatives that have been announced over the past two years and highlight how each of these initiatives might impact on the key variables underpinning the achievement of the government's domestic macroeconomic goals of strong and sustainable growth, full employment and low inflation.

Stage 3 tax cuts

In past budgets, the government eased the personal tax burden for some income earners by implementing the '**Personal Income Tax Plan**'. The Plan involved significant reductions in individual income tax rates in a number of stages, with the third and final stage implemented on the 1st of July 2024. The government at the time claimed that it represented an attempt to make the tax system simpler and fairer, and one which 'rewards working Australians' and protect Australians from **bracket creep**. The changes resulted in a lower overall income tax burden for individuals, delivered via a combination of lower tax rates and higher income thresholds. The most recent Stage 3 of these tax cuts came into force on the 1st of July 2024. However, they were modified by the Government due to widespread concern about the generosity of these cuts for higher income earners relative to lower income earners. [Stages 1 and 2 of the cuts favoured lower to middle earners.] In addition, there was concern about the expected inflationary impact of the **Stage 3 tax cuts** during a time when households were facing what became known in Australia as a '**cost of living crisis**'. The eventual change to the structure of individual income tax rates/scales are described in Table 8.3 below. [See Activity 8k which examines the viability of the Stage 3 tax cuts and the connection to weaknesses of budgetary policy.]

Thresholds in 2023–24 (\$)	Rates in 2023–24 (%)	Thresholds in 2024–25 (\$)	Rates in 2024–25 (%)
0 – 18,200	Tax free	0 – 18,200	Tax free
18,201 – 45,000	19	18,201 – 45,000	16
45,001 – 120,000	32.5	45,001 – 135,000	30
120,001 – 180,000	37	135,001 – 190,000	37
Over 180,000	45	Over 190,000	45

The changes mean that a person receiving the full time average weekly earnings of \$1,925 (or \$100,000 per year) will have received a tax cut of \$2,179 and their average rate of tax fell from 23% to 20.8%. This tax saving for the average Australian wage and salary earner has been calculated as shown in Table 8.4.

OLD	\$100,000	Income		NEW	\$100,000	Income	
	Income	marginal rate	tax payable		Income	marginal rate	tax payable
First	\$18,200	0.00	\$-	First	\$18,200	0.00	\$-
Next	\$26,800	0.19	\$5,092	Next	\$26,800	0.16	\$4,288
Next	\$55,000	0.33	\$17,875	Next	\$55,000	0.30	\$16,500
Total	\$100,000		\$22,967	Total	\$100,000		\$20,788
Average rate of tax			23%	Average rate of tax			20.8%
				Tax saving			\$2,179

This ultimately means that following personal tax cuts, disposable incomes rise, helping to stimulate Consumption, and AD, which in turn increases real GDP and the rate of economic growth. Higher rates of growth will in turn help to increase the derived demand for labour, contributing to employment growth and reducing the rate of unemployment towards the full employment level (of approximately 4.25%). Under normal circumstances, personal tax cuts will typically contribute to inflationary pressures and make it more difficult for the RBA to achieve the low inflation goal (of 2-3% growth in the CPI on average over time). This was one of the arguments for delaying, revising or even repealing the Stage 3 tax cuts as they increase inflationary pressures during a period when inflation remained above the top end of the RBA's target range. There is, however, the possibility that personal tax deliver supply side benefits to the economy,

via the impact on incentives and productivity, which help to reduce inflationary pressures over time. [This is explored further in Chapter 10.]

Cost of living relief measures

In addition to the benefits provided by the Stage 3 tax cuts, the 2023-24 and 2024-25 Budgets included a number of initiatives designed to provide further relief to households (and businesses) who were struggling to keep up with the high cost of living brought on by excessive inflation rates since 2022 and the resulting decline in real wages [as growth in nominal wages failed to keep pace with inflation]. A number of initiatives were introduced, with the most obvious being:

- the \$300 energy bill relief provided to all households and eligible small businesses
- increasing Commonwealth Rent Assistance by more than 25% over two years, benefiting up to one million low income households
- increasing the Medicare levy low-income thresholds ensuring that many low-income earners continue to be exempt from this 2% levy
- increasing the base rate of payments by \$40 per fortnight for those in receipt of income support payments such as JobSeeker
- a \$1.3 billion Household Energy Upgrades Fund to create low-interest loans and fund upgrades to social housing in order to fast track the transition to renewable energy
- Increased funding for emergency and food relief and financial support services.



The way these types of measures influence prices and inflation depends on how the assistance is provided. In the case of energy bill relief and rent assistance, the Government was keen to ensure that this relief was provided via a reduction in energy and rent prices. Accordingly, it provided the relief in the form of ‘effective producer subsidies’, which resulted in producers/suppliers directly reducing energy bills/rents by the designated amounts. This is equivalent to shifting the supply curves to the right for these services, resulting in lower prices and a downward impact on the rate of (headline) inflation, which can assist with the achievement of price stability. This was reflected in the ABS’ monthly indicator of inflation [which is less meaningful than the quarterly measure] falling to 2.7% in August 2024. In contrast, the underlying rate remained relatively high at 3.4%, as the effects of these ‘one-off’ price reductions was removed from the trimmed mean measure of inflation. Of course, these initiatives also have the potential to stimulate aggregate demand and real GDP, as the discretionary income of households rise, contributing to economic growth and employment growth. In this respect, the beneficial impact on the achievement of price stability is muted over time.

Investing in a Future Made in Australia and other Investment incentives

The Government introduced a package of measures designed to boost investment into renewable energy, boost innovation and productivity, as well as promote further ‘value adding’ and support for Australian businesses. The initiatives include a combination of subsidies and tax concessions designed to stimulate private sector investment and include the following:

- \$6.7 billion production tax incentive for the production of renewable hydrogen
- \$1.7 billion to promote net zero innovation, including for green metals and low-carbon fuels
- \$1.5 billion to strengthen battery and solar panel supply chains through production incentives
- \$1.1 billion to reform higher education and deliver our skilled workforce
- \$519 million from the Future Drought Fund for farmers and rural communities
- \$290 million to extend the \$20,000 instant asset write-off for small businesses (which is an accelerated depreciation allowance to incentivize small businesses to invest in new capital and equipment).

These initiatives were on top of the initiatives announced in the previous 2023-24 Budget that were also designed to stimulate investment. This included:

- Committing \$15 billion to the National Reconstruction Fund to support regions and help create secure, well-paying jobs, as well as build future prosperity.

- Introducing the Small Business Energy Incentive to help small and medium businesses electrify and save on their energy bills. This incentive provided \$310 million in tax relief and support up to 3.8 million businesses to make investments like electrifying their heating and cooling systems, installing batteries and upgrading to high-efficiency electrical goods

These initiatives, and a number of others announced in recent budgets, can largely be considered examples of aggregate supply policy initiatives and will be re-visited somewhat in Chapter 10. However, while they have the potential to stimulate productive capacity over time, the initial effect is an increase in the private Investment component of aggregate demand and as a result they will stimulate real GDP. These measures will therefore contribute to a stronger rate of economic growth, boosting the demand for labour and employment, as well as lead to an increase in inflationary pressures in the short to medium term. Of course, once these measures deliver an increase in the supply potential of the economy (i.e. boost aggregate supply or productive capacity), they have the potential to contribute to disinflation.

Government (infrastructure) Investment

In recent budgets, the government has committed to deliver greater **infrastructure investment** to support economic growth and improve the long-term productive capacity of the economy. It has committed to investing in infrastructure by providing funding for projects that improve productivity, liveability, and sustainability. These investments are alongside a focus on ensuring the deliverability of the over \$120 billion, ten-year infrastructure investment pipeline that was developed in previous budgets. The Government has already committed \$96.5 billion towards 'nation building projects' over the 10-years from 2024-25, with approximately \$20 billion of this committed to Victoria.



Specific national infrastructure projects in the planning or commencement phase include:

- investing \$466.4 million to partner with PsiQuantum and the Queensland Government to build the world's first commercial-scale quantum computer, and deliver skills, education, research, and industry commitments.
- \$3.3 billion committed for the North East link
- \$437,000,000 to upgrade suburban roads in southeastern and northeast Melbourne
- Investing \$2.6 billion in road and rail projects in regional Australia, including \$541.7 million for upgrades to critical roads in Northern Australia and an additional \$290.1 million for the Gippsland Rail Line Upgrade.
- \$720 million for the construction of the Inland Freight Route in Queensland, providing an alternative to the Bruce Highway and improved connectivity between the NSW border and Charters Towers.
- investing \$540.0 million to improve the reliability of the Australian Rail Track Corporation's interstate freight rail network, including \$150.0 million to upgrade the Maroona to Portland Line.
- Investing \$101.9 million to improve safety and accessibility at regional airports, including funding to upgrade remote airstrips recognising their importance in delivering healthcare and other services to remote communities
- Further investment in Western Sydney International Airport via the provision of an additional \$302.6 million to enable increased operations at the airport, including for border agencies to progress design, fit out and commissioning of facilities.

As was the case with government investment initiatives discussed earlier, infrastructure investment will also be considered in Chapter 10. The long term benefits to aggregate supply will be supported by the shorter term benefits that stem from growth in Government Investment demand (i.e. the G2 component of AD) as well as private sector Investment given that some of the infrastructure projects are delivered through public/private partnerships. A higher level of G2 (and I) will stimulate AD, **economic growth** and help to reduce the rate of **unemployment** as workers are required to work on the infrastructure projects. However, the investment will indeed contribute to **inflation** (in the short term), but this should be reversed over time as the supply side benefits (e.g. a larger productive capacity) result in a longer term reduction in inflation and the associated boost to economic growth and employment (see Chapter 10).

Activity 8i: Housing affordability and government responses

Despite house prices falling during 2022, Australia remains in what many economic commentators refer to as a ‘housing affordability crisis’. As highlighted in the chart below, prices of residential dwellings have, on average, almost doubled since 2011, from an average of \$491,000 to an average of \$973,000.



The rising housing prices are considered to represent a ‘crisis’ because it has negative implications for first home buyers and renters and has the potential to cement in place real intergenerational disadvantage over time. While the causes of the crisis are hotly debated, it is suggested that past government policies have been a major contributor. For example, government intervention(s) to promote investment in housing in years gone by (e.g. negative gearing and capital gains tax concessions), along with onerous zoning restrictions and other policies (such as loose monetary policy and accommodating foreign investment laws), have combined to trigger the housing price boom which has caused the current ‘crisis’.

The federal (and state) government(s) have introduced measures designed to improve housing affordability across the housing spectrum by introducing measures such as:

- supporting first home buyers to save a deposit
- providing first homeowners grants
- an increase in Commonwealth Rent Assistance
- new tax incentives for private investors in affordable housing
- allowing access to superannuation for the purposes of a home deposit
- greater government investment in social housing

The Federal Government also introduced further initiatives designed to support more Australians into the housing market. This included the further development of a Home Guarantee Scheme, where eligible buyer’s (e.g. younger Australians without a home) would benefit from a government guarantee of their home loan with financial institutions in order to enter the property market sooner with a smaller deposit. The government also strengthened its First Home Super Saver Scheme (FHSSS) which enables Australians to use a portion of their superannuation savings (to a maximum of \$50,000) as a deposit for a house. The government also committed a further \$2 billion in financing (through the National Housing Finance and Investment Corporation) to support the provision of social and affordable homes for vulnerable Australians.

The government also committed to increasing the supply of housing via the implementation of a ‘Housing Accord’ between the federal and state governments, where the construction of one million new homes is targeted over five years from mid-2024. The government also established a \$10 billion Housing Australia Future Fund to support the delivery of 20,000 new social homes and 10,000 new affordable homes across Australia over this 5 year period.

In the 2024-25 Budget, the Government also announced the establishment of the Help to Buy shared equity scheme, where the government would lend relatively low income applicants part of the purchase price of a new home (up to 40%), resulting in the government owing part of the home until it is repaid later, or upon sale. However, in September 2024, the passage of the Bill was blocked in the Senate and the Government has signalled its intention to revise the Bill and re-introduce it (in the House of Representatives) later in 2024. This highlights a potential weakness or strength of budgetary policy, which will be explored later in Section 8.14.

Budgetary policy initiatives designed to address the housing affordability crisis provides an illustration of how budgetary policy is used to do more than simply target the achievement of the domestic macroeconomic goals. In this case, the initiatives are implemented with a view to addressing what many consider to be a market failure (see Chapter 3), with the ultimate objective being to advance the living standards of Australians as a whole.

Questions/tasks

1. Explain what is meant by a ‘housing affordability crisis’ and describe two possible causes of the ‘crisis’.
2. Explain how unaffordable housing can affect the security and stability of families.
3. Generally, what are the main ways of reducing pressure on housing prices? In your response, refer to demand and supply.
4. Describe two government initiatives that might help to reduce pressure on housing affordability.
5. Explain how measures to boost housing affordability might be less effective if they focus on demand measures (e.g. first home owners’ grants) rather than supply measures (e.g. an increase in housing supply).
6. Explain how the stalling in the Senate of the Help to Buy shared equity scheme might represent a strength or a weakness of budgetary policy.

8.14 Strengths and weaknesses of Budgetary Policy

Providing an overview of some of the major factors that make policies relatively powerful or weak will help identify the right policy combinations to employ when seeking to achieve economic goals. Strengths of a policy are those factors that make a policy particularly potent, while weaknesses are those factors that constrain or limit the ability of the policy to make a meaningful contribution to the achievement of particular economic goals.

Strengths of budgetary policy

- The government can use the Budget to **target particular sectors** or industries of the economy, unlike monetary policy. For example, during the recent terms of trade boom, mining and related industries were enjoying the benefits of higher mineral prices but other industries (e.g. manufacturing and tourism) were suffering under the weight of the stronger exchange rate. The government can use the Budget to target particular industries in need of support, unlike monetary policy stimulus (see Chapter 9) which benefits all industries, including the mining industry that clearly was in no need of support. In this respect, budgetary policy is relatively more effective at promoting sustainable economic growth and full employment.
- The Budget's ability to target sectors is related to a key strength which is its **flexibility** to focus on specific economic factors or events that are afflicting the economy, unlike monetary policy. For example, the government can use the budget to reduce structural unemployment, unlike monetary policy which only has the potential to reduce cyclical unemployment. Similarly, the Budget is flexible enough to respond to economic shocks and events directly, focusing on the problem closer to its source, unlike monetary policy which is blunt and impacts on the whole economy. For example, during 2024, the energy rebates enabled the government to reduce cost of living pressures at the source (i.e. high electricity prices). Similarly, during 2022, with petrol prices skyrocketing, the halving of the fuel excise enabled the government, once again, to reduce cost of living pressures at the source. These examples of targeted support cannot be achieved by monetary policy.
- Budgetary policy is able to **target a greater range of economic goals** better than monetary policy. For example, the government can use the Budget to directly assist with the achievement of all economic goals, including a more equitable distribution of income (covered in Unit 2) and initiatives to ensure that Australia's current account deficit and/or net foreign liabilities (see Chapter 7) are sustainable. Once again, monetary policy is only effective at contributing to the achievement of price stability, strong and sustainable rates of economic growth and full employment.
- The **impact lag** (the time it takes for the policy to influence economic activity) is relatively short compared to monetary policy. In particular, it has a greater ability to stimulate growth from very low levels given its direct control over taxation (a leakage from the circular flow of income) and government spending (an injection into the circular flow of income). This was particularly the case over recent years when the government delivered additional one-off cash payments to welfare recipients within weeks of the announcement of the COVID-19 lockdown.
- The Budget will **swing into action automatically** via the operation of automatic (or cyclical) stabilisers, where a higher budget deficit (or lower surplus) will automatically help to cushion the magnitude of any economic downturn and a lower deficit (higher surplus) will automatically help to 'take the heat' out of any economic boom.
- The Budget process includes many parliamentary **'checks and balances'** in place to help reject any policy measures that are 'ill-designed' (i.e. the budget bill must pass through both houses of Federal Parliament). These 'checks and balances' can also act as a constraint on the effective delivery of budgetary policies (i.e. they can represent a weakness). For example, the Help to Buy shared equity scheme introduced in the 2024-25 Budget was stalled and rejected in the Senate, forcing the Government to revise the scheme. This would be indicative of a strength of budgetary policy if the revisions are in the national interest.
- The 'Budget' is open to significant **public scrutiny**, helping to make policy makers more accountable and transparent, making it 'less likely' (but not impossible) that bad policy decisions are made.
- Budgetary policy can be very **responsive to the needs of the electorate**, which is a feature of our democratic system of government. For example, the increase in fuel prices during 2022-23 and energy prices over 2023-4 accelerated cost of living pressures and the government responded to calls from the electorate for relief by introducing a temporary six month halving of the fuel excise, as well as energy rebates, which reduced fuel and energy prices and supported households. Monetary policy cannot respond to the electorate in the same way.
- It can be relatively more **effective in stimulating AD** during a downturn because it can directly increase aggregate demand via government spending as well as provide consumers with immediate 'tax bonuses' or increases in transfer payments. In contrast, monetary policy's potency is muted by factors such as the prevailing level of household debt, where high debt levels (such as those in existence today) mean that lower interest rates might



simply result in households using the additional discretionary income to repay the debts more quickly rather than increase Consumption spending.

Weaknesses of budgetary policy

- The budget process can be subject to **political hurdles** that prevent policies from being implemented. For example, parts of the budget bill may be blocked in the Senate, for political reasons. For example, the Help to Buy shared equity scheme in the 2024-25 Budget was blocked in the Senate and the Government was forced to re-consider or revise the Bill before re-introducing it in the House of Representatives later in 2024. To the extent that this Senate obstruction occurred for political reasons (e.g. to tempt the Government into calling a double dissolution of parliament), rather than what was in the best interests of the nation, it would represent a constraint on the ability of budgetary policy to achieve its goals.
- It is prone to **political bias**, particularly around election time, where bad policy decisions can be made in the process of trying to 'buy' votes and/or succumb to the vested interests of certain 'lobby groups'. A recent example relates to the 2022 May election where the government delivered a pre-election budget (March 2022) that contained specific initiatives that were arguably designed to win votes in marginal electorates. In addition, the government delivered a larger 'structural' budget deficit (e.g. spending the windfall gains from a higher expected terms of trade) that ultimately expanded the economy, delivering a more expansionary budget during a time when the economic recovery was already well under way, which contributed to the inflationary pressures that beset the economy during the latter part of 2022. The decision not to repeal the Stage 3 tax cuts can also be viewed as a potential weakness of budgetary policy (See Activity 8j on the next page).
- The **implementation lag** for discretionary policy decisions can be long, given that the budget bills must pass through both houses of parliament, and sometimes require the co-operation of state governments. This is because state governments have sole or joint control in a number of areas, such as infrastructure, health and education.
- Budgetary policy is less effective at **restricting AD during a boom** (compared to monetary policy) as the government is less able to immediately restrict disposable or discretionary income of consumers. It takes time for these measures to be introduced through parliament and they are typically politically unpopular which makes the government more reluctant to implement such measures. This is unlike monetary policy, which is freer to implement policy changes that might inflict pain to various groups as it is seen as the key stabilisation policy of government that focuses on the long term economic prosperity and welfare of Australians.
- The **crowding out problem** that may be associated with 'expansionary budget deficits' was discussed in Section 8.9. It can involve either the crowding out of the private sector or the crowding out of the external sector, which negatively impacts on aggregate demand and economic growth. As the government delivers budget deficits, the financing of the deficits will exert upward pressure on interest rates (if deficit financing occurs via the sale of bonds to the Australian domestic sector) and/or upward pressure on exchange rates (if deficit financing occurs via the sale of bonds to foreigners). The higher interest rates will tend to reduce private sector consumption and investment (i.e. the private sector is crowded out by the government sector) while a higher exchange rate will reduce international competitiveness and decrease net exports.
- Budget deficits to stimulate the economy may become ineffective over time to the extent that economic agents (specifically consumers, businesses and investors) anticipate future budget restraint in order to both repair the budget in the future and reduce the size of government debt. For example, if economic agents expect future taxes to increase (or future levels of government spending to fall) in order to 'balance the budget', they might reduce current spending levels (increase savings) in order to prepare for the anticipated increase in spending that will be required in the future. This of course reduces the effectiveness of any given budget deficit to stimulate the economy given that private savings may increase relative to consumption in response to budget deficits. [This idea is known as the **Ricardian equivalence theory**, named after a 19th century economist, David Ricardo.]



Activity 8j: Stage 3 tax cuts controversy - a weakness of budgetary policy?

In late 2022 there was much debate about the economic viability of allowing the already-legislated Stage 3 tax cuts to come into force on the 1st of July 2024. These cuts were legislated prior to the recession of 2020, during a time when the budget was heading towards a surplus. They were part of a broad personal income tax reform package that included Stage 1 and 2 tax cuts that had already come into force by 2022 (and mostly favoured low to middle income earners). The Stage 3 cuts in their original form involved the removal of the 37% tax bracket and would have resulted in anyone earning an income between \$45,000 and \$200,000 being taxed at a marginal rate of 30%.



Given that the original Stage 3 cuts resulted in an effective flattening of the personal income tax system, they were already controversial given that the benefits were heavily skewed towards middle and high income earners. However, this controversy increased following COVID-19 and the impact the recession had on public finances. The delivery of very large budget deficits from 2020-21 led to mounting (net) government debt and resulted in many economists arguing that the country could not afford to follow through with the Stage 3 tax cuts. The cuts were estimated to cost the budget more than \$250 billion over 10 years, during a time when government was facing significant fiscal challenges related to an ageing population (e.g. expenditure on aged care), the need to provide for greater expenditure on areas such as health care, disability support, and climate action, as well as the need for greater defence spending during a period of heightened geopolitical tensions. The decline in the terms of trade from late 2022 and the rise in inflation to well beyond the RBA's target range, provided further evidence that the (inflationary) tax cuts might not be in Australia's economic interests.

Faced with these considerations, the incoming Labor Government chose not to repeal the legislation in its first Budget. Its decision was based less on economic grounds and more on the need to maintain political credibility as, leading into the May 2022 election, the Labor Party promised not to make changes to the tax legislation. It also did not repeal the legislation in later budgets, and was even loathe to make minor revisions. It knew that any decision to repeal (or amend) the legislation would open itself up to criticism from the opposition who would argue that it was another example of 'broken promises'. A mantra of 'broken promises' could then haunt the Labor Government in the lead up to the next federal election due in 2025. While it did eventually make relatively minor revisions to the legislation, it ensured that the Stage 3 tax cuts that came into force on the 1st of July 2024 were politically palatable – doing just enough to satisfy the electorate (i.e. addressing the equity concerns) and not so much that the opposition could gain much traction from its mantra of broken promises.

This highlights a potential weakness of budgetary policy given that it can be argued that the Stage 3 tax cuts were not in the nation's best economic interests and should have been repealed. The fact that they were delivered in 2024 added to inflationary pressures and contributed to a budget deficit, potentially resulting in the tax cuts coming at an excessive opportunity cost.

Questions/tasks

1. Outline why the nature of the Stage 3 tax cuts in their original form would have resulted in a flattening of the tax system. In your response, refer to Australia's progressive PAYG income tax system.
2. Explain why the original Stage 3 tax cuts and the revised cuts might not have been in Australia's economic best interests.
3. Explain why the Government was reluctant to repeal the tax cuts.
4. Explain how the reluctance of the government to repeal the tax cuts can represent a weakness of budgetary policy.

Review questions 8.13 - 8.14

1. Describe how the government reduced the personal income tax burden over recent years.
2. Explain how a reduction in the personal tax burden is expected to impact on the achievement of the government's domestic macroeconomic goals.
3. Outline two changes made to business taxes in recent budgets and describe how these are designed to influence economic growth and employment.
4. Discuss whether lower company tax rates will increase or decrease pressure on inflation.
5. Identify how the government has invested in infrastructure and explain how this is expected to impact on the achievement of the government's domestic macroeconomic goals. Distinguish the possible short-term impact from the long term impact.
6. Describe two separate budget initiatives that were recently introduced to reduce unemployment.
7. Identify two separate miscellaneous budgetary policy initiatives that were introduced over the past two years and explain how these initiatives may have helped to support economic growth and jobs.
8. Outline three strengths of budgetary policy.
9. Outline three weaknesses of budgetary policy.

Multiple choice review questions

1. **Which of the following statements about budgetary policy is false?**
 - a) The annual budget is usually released in May of each year
 - b) The budget will either be in surplus or deficit
 - c) The government can implement budgetary policy measures at any time of the year
 - d) Budgetary policy involves the manipulation of government receipts and payments

2. **Which of the following is the ultimate target of budgetary policy?**
 - a) Strong and sustainable economic growth
 - b) Greater equity in the distribution and wealth
 - c) Full employment
 - d) Increasing living standards

3. **Which of the following budgetary policy measures is least likely to contribute to strong rates of economic growth?**
 - a) Lower income tax rates
 - b) Increased government spending on foreign aid
 - c) Lower company tax rates
 - d) Increased government spending on infrastructure

4. **The largest category of Federal Government expenditure is:**
 - a) Education
 - b) Health
 - c) Social security and welfare
 - d) Defence

5. **A federal budget surplus occurs when:**
 - a) The value of inflows of goods and services into Australia exceeds the value of outflows
 - b) Public sector borrowings are less than in the previous year
 - c) Commonwealth expenditure exceeds receipts in a year
 - d) Commonwealth receipts exceeds expenditure in a year

6. **If the underlying budget deficit rose in any given year and the government did not make any discretionary changes to receipts or expenditure, then which of the following is not a possible explanation for the larger deficit?**
 - a) Real GDP declined
 - b) Commodity prices fell
 - c) Unemployment decreased
 - d) Deflation

7. **An immediate policy problem with a budget deficit is:**
 - a) How taxes can be raised to pay for the deficit
 - b) The problem of 'crowding out' of private investment and/or net exports
 - c) The possibility of Budget measures being rejected by the Department of Treasury
 - d) Whether to use the deficit to retire government debt

8. **The best definition of the underlying budget outcome is:**
 - a) The headline budget outcome less one off price changes
 - b) The headline budget outcome less net cash flows from investments in financial assets for policy purposes
 - c) The headline budget outcome less the cyclical component of the Budget
 - d) The headline budget outcome less the structural component of the Budget

9. **Given the hypothetical figures in the adjacent table, the underlying cash surplus must be:**
 - a) \$40B
 - b) \$20B
 - c) \$30B
 - d) \$120B

10. **Automatic stabilisers:**
 - a) Smooth out fluctuations in economic activity
 - b) Reinforce fluctuations in economic activity
 - c) Do not occur when the economy falls into recession
 - d) Cause the growth rate in the sales of automatic motor cars to stabilise

Item	\$B
Receipts	150
Outlays	120
Headline cash surplus	30
Net cash flows IFAPP	- 10

- 11. A budget deficit smaller than that originally estimated by the Australian Government one year earlier, would be most likely to result from:**
- An unexpected natural disaster, such as a drought
 - An unexpected decrease in unemployment
 - An unexpected increase in the level of foreign aid to Africa
 - An unexpected decrease in company profits
- 12. The fiscal strategy is most likely to be one that is designed:**
- To achieve budget repair and reduce the size of the budget deficit
 - To reduce the size of net foreign debt to zero
 - To restore stability and confidence in the banking system
 - To ensure that budget surpluses are achieved every year
- 13. Which of the following provides the best indicator of a more contractionary budgetary policy setting?**
- Higher tax rates, higher interest rates and increased government spending
 - Higher tax rates and lower government spending
 - Higher interest rates and increased government spending
 - Higher interest rates, higher tax rates and lower government spending
- 14. A budget deficit in any given year can be financed by:**
- Tax increases
 - Reducing the level of government expenditure
 - Reducing the level of income tax
 - Selling government bonds
- 15. Which of the following is likely to cause the cyclical component of the budget deficit to fall in the future?**
- Privatisation of Australia Post
 - An increase in the GST rate to 12.5%
 - Further reductions in tax concessions for superannuation
 - Increased company tax received due to a stronger terms of trade
- 16. The most appropriate budgetary policy action to reduce the level of economic growth would be to:**
- Increase government spending and/or increase the level of taxation
 - Decrease government spending and/or increase the level of taxation
 - Decrease government spending and/or decrease the level of taxation
 - Increase government spending and/or decrease the level of taxation
- 17. Which of the following is least likely to be inflationary?**
- Financing a budget deficit via bond sales to the public
 - Financing a budget deficit via bond sales to the RBA
 - Reducing the rate of personal income taxes
 - Large cash bonuses to Australian taxpayers
- 18. Which of the following is not a potential problem associated with budget deficits?**
- Crowding out
 - Crowding in
 - Increased debt levels that act as a strain on future budgets
 - A potential downgrading of Australia's credit rating
- 19. Which of the following statements about budgetary policy is incorrect?**
- Interest rate manipulation is not a feature of budgetary policy
 - A decrease in the rate of the GST would increase spending
 - Sales of bonds to the Australian public will tend to result in a higher exchange rate
 - An unexpected surge in economic growth will tend to increase the actual budget deficit compared to the estimated budget deficit
- 20. Which of the following budgetary policy initiatives introduced over recent years is likely to have an impact on the budget outcome in the short term that is different to the other three?**
- Reducing the personal tax burden for most income earners
 - Encouraging investment by allowing businesses to immediately deduct capital expenditure
 - Fewer tax concessions for high income earners investing in superannuation
 - Spending money on upgrading national infrastructure

Chapter Summary

1. Budgetary policy is the manipulation of Federal Government receipts and outlays in order to assist in the achievement of its economic and social objectives for Australia.
2. The overriding objective of budgetary policy is to improve the welfare or living standards of all Australians, or to achieve the most efficient allocation of the nation's resources.
3. Budgetary policy is used to assist in the achievement of all of the government's economic goals of strong and sustainable economic growth; low inflation; full employment.
4. The fiscal strategy involves the government laying out a plan for how it intends to meet its goal to promote economic prosperity and welfare of Australians.
5. The Federal Government collects approximately \$698 billion per annum, with the largest source of the Federal Government's receipts coming from personal income taxes.
6. The Federal Government spends approximately \$726 billion per annum, with social security and welfare the largest component.
7. The government's budget amounts to approximately 26% of GDP in a typical year, which means that the manipulation of government revenue and expenses will have a powerful influence on the level of economic activity.
8. With every budget there can be three possible outcomes. A budget balance (receipts = outlays), a budget deficit (receipts less than outlays) and a budget surplus (receipts greater than outlays).
9. The headline cash outcome is the total cash received by the Federal Government less the total cash paid.
10. The underlying cash balance is simply the headline cash outcome, but excluding 'net cash flows from investments in financial assets for policy purposes.'
11. Discretionary stabilisers (i.e. the structural component of the budget) are deliberate policy decisions designed to change receipts or outlays in an effort to influence economic activity.
12. Automatic stabilisers (i.e. the cyclical component of the budget) are changes to the budget that occur with changes in the level of economic activity and without any deliberate action of the government.
13. Fiscal drag is also referred to as 'bracket creep' and occurs during times of inflation for countries with a progressive income tax system. It results in an increase in the 'average' rate of tax paid by taxpayers, boosting government revenue and lowering 'real disposable incomes for taxpayers.'
14. The 'estimated' budget outcome will differ from the 'actual' budget outcome because the estimated outcome depends heavily on forecasts that are never 100% accurate.
15. In isolation, a balanced budget is neither contractionary nor expansionary in terms of its impact on the economy. A budget deficit is generally 'expansionary' in terms of its impact on the economy. A budget surplus is generally 'contractionary' in terms of its impact on the economy.
16. The 'stance' or impact of budgetary policy over time will depend on the relative size of the structural vs cyclical impacts on the budget outcome from one period to the next.
17. Under certain circumstances a larger budget surplus can be considered expansionary and a bigger budget deficit can be considered contractionary.
18. When the budget is in deficit it means that the government needs to raise funds to finance the deficit.
19. Selling bonds to the RBA is the most expansionary method of financing a budget deficit and is generally not used in current times. Selling bonds to Australian investors (lenders) is least expansionary.
20. Selling bonds to overseas investors (lenders) results in capital inflow that exerts upward pressure on the value of the AUD, which in turn has a negative impact on net exports and aggregate demand, reducing the expansionary impact of a budget deficit.
21. Budget deficits lead to a build-up of government debt over time that create potential problems for governments in terms of the impact on government credit ratings and the restraint needed in the future to reduce debt.
22. Crowding out refers to the impact that budget deficits have on lifting interest rates (and/or exchange rates) and reducing AD.
23. Crowding in refers to the impact that budget surpluses have on reducing interest rates (and/or exchange rates) and lifting AD.
24. Fiscal consolidation is a term commonly used to describe a government consolidating its finances by reducing expenditure and raising revenue in order to reduce the deficit or return the budget to surplus.
25. The problem of high inflation is primarily tackled by the RBA. However, budgetary policy will generally be framed with some consideration given to the likely inflationary impact.
26. Generally speaking, the delivery of a budget deficit, or an expansionary budget, is expected to assist in the achievement of economic growth.
27. Budgetary policy is the primary policy weapon used to tackle the problem of unemployment.
28. The overriding objective of budgetary policy is to improve the welfare or living standards of all Australians, or to achieve the most efficient allocation of the nation's resources.
29. The current fiscal strategy involves a short-term focus on assisting monetary policy to contain inflationary pressures and then, once price stability is achieved, to focus on achieving budget repair and improving the budget position over time (i.e. reducing the size of the budget deficit over time).
30. The fiscal strategy allows automatic stabilisers to push the budget back towards surplus as economic growth increases in the future and for any future surplus to fall as the economy enters its next downturn.

31. The underlying cash deficit is currently below the headline deficit due primarily to the net payment for financial assets for policy purposes (e.g. investment in the NBN company.)
32. Every year, the government's budget figures are necessarily reliant on a number of parameters, such as the rate of growth in real and nominal GDP, the rate of unemployment and the rate of inflation.
33. The movement from surplus to deficit and then back 'towards' surplus reflects the cyclical nature of the budget, with a strong surplus when the economy is going well (e.g. up to 2007-8) being replaced by deficits when the economy enters a downturn (e.g. the recession of 2020) and a reduction in the (estimated) deficit as the economy recovers over time.
34. The current fiscal strategy (to achieve budget repair and improve the budget position over time) allows both automatic and discretionary stabilisers to push the budget towards surplus in the event that the economy enters a period of prolonged economic expansion.
35. In the most recent 2024-25 budget, the government adopted an expansionary stance as the outcome moved from a surplus of \$15.8 billion for 2023-24 to an estimated deficit of \$28.3 billion. This reflects the government's determination to support households and businesses during 2024 via a net injection of funds into the economy.
36. The ongoing size of 'structural deficits' over the forward estimates highlights the growing strain on government finances, owing to factors such as an ageing population, which impacts negatively on revenue growth (as the size of the working population falls), as well as growth in health care expenditure (including greater funding for aged and disability care). Given the continuing budget deficits that are expected into the future, it is estimated that gross government debt will increase to more than \$1.1 trillion by the middle of 2028.
37. Provided that government expenditure has been productively employed in the economy (e.g. invested in infrastructure that helps to boost the nation's productive capacity), then high debt levels needn't be a problem so long as the government is able to adequately service (i.e. repay) the debt without placing strain on the economy (in the future).
38. Personal tax cuts introduced in past budgets are likely to contribute to economic growth, reduce unemployment but increase pressure on inflation.
39. Increases in government infrastructure investment in recent budgets should help to stimulate economic growth, reduce unemployment and in the long run help to reduce inflationary pressures.
40. Business tax concessions are expected to accelerate growth in real GDP, reduce unemployment and help to reduce inflationary pressures in the long run.
41. The government has introduced a number of other initiatives (e.g. funding for defence and aged care) that are not specifically designed to achieve macroeconomic stability but instead to achieve a more efficient allocation of resources and boost Australian living standards in the long-term.
42. Budgetary policy strengths refer to those factors that make budgetary policy a relatively potent weapon in the policy mix, including its ability to target particular sectors, its flexibility and its relatively short impact lag.
43. Budgetary policy weaknesses refer to those factors that make budgetary policy a relatively weak weapon in the policy mix, including political hurdles and political bias, as well as its typically long implementation lag.

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Chapter 9

The nature and operation of monetary policy

9.1 A definition of monetary policy

Monetary policy is operated by the RBA on behalf of the government and involves the manipulation of key financial variables in the economy (primarily interest rates) in order to achieve specific economic goals and ultimately improve the **prosperity and welfare** of all Australians. While better welfare or prosperity is the ultimate goal for all policies, monetary policy has a clearly defined medium term objectives that are seen as the key to the achievement of its ultimate goal. This medium term objectives are **price stability** (where consumer price inflation is kept between 2 and 3 per cent, on average, over time) and sustained **full employment** (maximum level of employment that is consistent with low and stable inflation).

Study tip

'Consumer price inflation' is simply the 'headline' rate of inflation we studied in Chapter 5. It should not be confused with the 'consumer price index,' which is a measure of consumer price inflation (or headline inflation)

9.2 The objectives of monetary policy

The objectives of monetary policy are summed up in the RBA's charter as stated in the most recent RBA Statement on the Conduct of Monetary Policy (8 December 2023). This is summarised in Box 9.1 below:

Box 9.1: The objectives of monetary policy as stated in the 'Statement on the Conduct of Monetary Policy (8 December 2023)'

The Reserve Bank Act 1959 sets out the specific goals for monetary policy. The Reserve Bank Board and Government agree that the goal of **economic prosperity and welfare** of the Australian people is an overarching objective for monetary policy. The Reserve Bank Board can best fulfil this mandate by conducting monetary policy in a way that will best contribute to both **price stability** and **full employment**.

The Reserve Bank Board and the Government agree that a flexible inflation target is the appropriate framework for achieving price stability, recognising the importance of **low and stable inflation**. They agree that an appropriate goal is consumer price inflation between 2 and 3 per cent. This approach supports the anchoring of inflation expectations, while recognising that all outcomes within the target range are consistent with the Reserve Bank Board's price stability objective. The Reserve Bank Board sets monetary policy such that inflation is expected to return to the midpoint of the target. The appropriate timeframe for this depends on economic circumstances and should, where necessary, balance the price stability and full employment objectives of monetary policy.

The Government's objective is **sustained and inclusive full employment** where everyone who wants a job can find one without searching for too long. The Reserve Bank Board and Government agree that the Reserve Bank Board's role within this is to focus on achieving sustained full employment, which is the current maximum level of employment that is consistent with low and stable inflation. The Reserve Bank Board commits to regularly communicating its assessment of how conditions in the labour market stand relative to sustained full employment, drawing on a range of indicators and recognising that full employment is not directly measurable and changes over time. The Reserve Bank Board commits to clearly communicating how it is balancing its inflation and full employment objectives. More generally, when inflation is expected to be significantly away from the midpoint of its target of between 2 and 3 per cent or labour market conditions are expected to deviate significantly from those consistent with full employment, the Board commits to communicating how long it expects it will be before it again meets each of its objectives and why.

Source: <https://www.rba.gov.au/monetary-policy/framework/stmt-conduct-mp-8-2023-12-08.html>

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While the RBA charter doesn't specifically refer to the economic goal of **'strong and sustainable economic growth'**, the RBA will always take into account the short and long term policy impacts on economic growth when determining monetary policy settings.

This RBA's dual focus on **price stability** and **full employment** represents a departure from the past (pre-2024) where the RBA's charter required it to focus on the achievement of price stability first, before switching the focus towards full employment only once low and stable inflation was achieved. Importantly, it will now seek to strike a (better) balance between the achievement of price stability and full employment. For example, if inflation accelerated well above 3%, the RBA would be less likely to aggressively target price stability if the rate of unemployment was high. However, the existence of low(er) inflation provides the RBA with the freedom to focus more intently on the achievement of full employment.

In relation to price stability, it is important to recognise that it doesn't mean the RBA has failed when inflation moves outside the 2-3% range. The RBA recognises that inflation will occasionally 'overshoot' or 'undershoot' the target range, but it will only be concerned if inflation is outside the range for a 'sustained' period. Importantly, the RBA will take into account a range of factors, such as inflation expectations and labour market conditions, before changing monetary policy settings to achieve price stability.

Striking the right balance between the focus on price stability and full employment was addressed by the RBA Governor, Michele Bullock, in a speech in late 2023, where she said:

We see achieving our inflation target as going hand in hand with our full employment objective, as it lays the foundations for economic growth and jobs creation. The Board is seeking to balance reducing inflation in a reasonable timeframe and maintaining as many of the gains in the labour market that we have seen in the past few years as possible. Ultimately, though, it is crucial to remember that our full employment goal is not served by letting inflation stay above target indefinitely.

Source: <https://www.rba.gov.au/speeches/2024/sp-gov-2024-09-05.html>

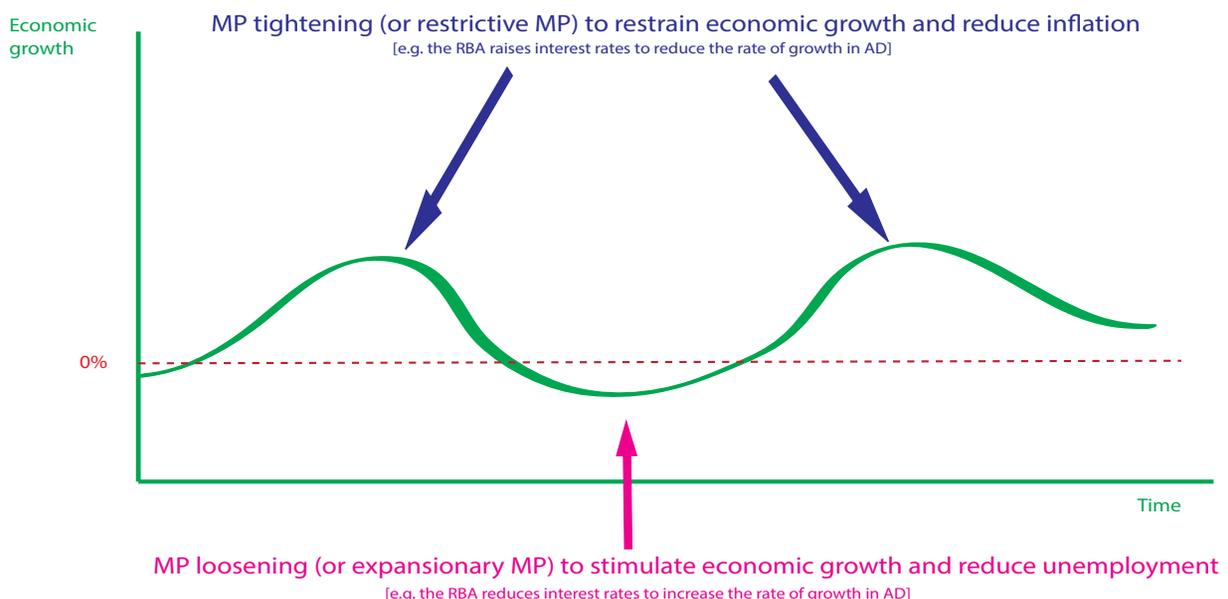
While budgetary policy provides support, monetary policy is the key macroeconomic policy that is used to achieve stability in the level of domestic economic activity (i.e. internal stability), where it will generally be used in a counter-cyclical way to boost activity when inflation and growth are too low and restrain activity when inflation and growth are too high.

Stabilising the business cycle

In Section 8.10 of Chapter 8 (Budgetary Policy), we examined the extent to which the government is prepared to use budgetary policy to stabilise the level of domestic economic activity over the course of the business cycle. We saw that budgetary policy will typically play a support role, allowing the RBA to use monetary policy as the primary means of stabilising the business cycle. While the RBA will have a keen eye for the implications of policy for the longer term, it is also aware of its short term stabilisation role.

Implicit in the RBA's Charter is the important role that monetary policy plays in economic stabilisation. For when the economy is in the boom phase of the cycle, characterised by high rates of economic growth and high levels of inflation, the RBA will typically tighten monetary policy (i.e. raise interest rates). This will help to reduce both economic growth and inflation back to more sustainable levels. In contrast, during a trough in the business cycle, where economic growth and inflation are low (or negative) and unemployment is high, the RBA would typically loosen monetary policy (i.e. reduce interest rates), which helps to stimulate economic growth, reduce the rate of unemployment and allow inflation to increase (perhaps back into the target range). In this way, monetary policy acts in a counter-cyclical way to achieve economic stabilisation.

Macroeconomic stabilisation role of monetary policy



The importance of the underlying rate of inflation

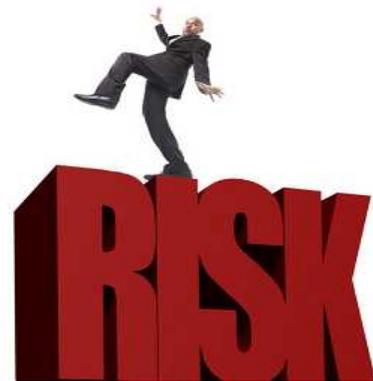
The RBA target for inflation is clearly quoted in terms of the headline rate of inflation – seeking to achieve a 2-3% rate, on average, over time. ‘On average’ means that the RBA accepts there will be some short term volatility around the target rate over the economic cycle. This target can only be achieved if the RBA, when deliberating on monetary policy, focuses on a measure of inflation that provides it with an understanding of the core or underlying price pressures existing in the economy. Accordingly, it uses the **‘underlying rate of inflation’** (covered in Chapter 5) as the key statistic that helps it to forecast what is likely to be happening to the headline CPI in the future. A focus on the underlying rate of inflation effectively enables the RBA to ignore any temporary factors that influence the CPI and it is therefore an important tool used by the RBA even though it is not specifically referred to in the ‘target’.

“The headline measure is important because it influences people’s expectations of what inflation is going to be in the future. It’s kind of the thing that gets the most media coverage. But the measures of underlying inflation are critically important, because we want to understand what the ongoing inflation momentum is in the economy.”

(RBA Governor, 16 Sep 2022)

Financial Stability

While the role of supervising the banks now rests with the Australian Prudential Regulation Authority (APRA), the RBA maintains the responsibility for promoting stability of Australia’s financial system. It does this by managing and providing liquidity to the system, and by its role as the Chair of the Council of Financial Regulators. The RBA has made it clear that its role does not extend to guaranteeing the solvency of financial institutions. This is a clear attempt by the RBA to reduce any future moral hazard (see Chapter 3) that might surface in the event that Australian banks experience financial difficulty of the magnitude that afflicted USA and European financial institutions during the height of the Global Financial Crisis in 2008. As noted above, the RBA will also take into account the implications that any change in monetary policy will have for the financial stability of the private sector. For example, when considering a loosening of monetary policy, the RBA will balance the need for further stimulus to boost ‘growth and jobs’, with the need to protect against the risks of contributing to an over-leveraged private sector (e.g. a higher level of household indebtedness) that threatens both financial stability and sustainable growth.



9.3 Conventional monetary policy

The traditional and most conventional way that the RBA implements monetary policy is primarily via the manipulation of interest rates. Whilst the RBA has no direct control over all interest rates in the economy, its ability to directly manipulate the **‘cash rate’** enables it to indirectly affect all other interest rates.

The method by which the RBA controls the cash rate has changed since COVID-19 and it is about to undergo a further change over 2025-26. The system that existed up until the 2020 recession was referred to as the ‘interest rate corridor with scarce reserves’ and it remains (as at late 2024) the ‘conventional’ means of implementing changes to monetary policy. However, the onset of the covid recession necessitated a change in the way that the RBA implemented monetary policy, which included a host of unconventional measures that were designed to add stimulus to the economy. In terms of the manipulation of the cash rate, the RBA changed its system to a ‘floor system with excess reserves’. This was always designed to be temporary, and was essentially another example of ‘unconventional monetary policy’ where the RBA allowed the financial system to be effectively be flooded with liquidity (another way of saying ‘available money/credit’). It was expected that the system would eventually return to the conventional pre-COVID system of ‘interest rate corridor with scarce reserves’ (once excess liquidity in the financial system dried up). However, in 2024, the RBA notified markets that it would eventually be switching to a hybrid of the two systems, referred to as ‘ample reserves’.

In this section, the focus will be on the ‘conventional’ way that the RBA changes interest rates - that is, the ‘interest rate corridor with scarce reserves’. However, it will include information or detail that clarifies how this was temporarily changed between 2020-21 and 2024-25, and how it is likely to change after 2024-25.

The cash rate is the interest rate that applies to borrowing and lending by banks in the overnight money market (also called ‘cash market’). Each Australian bank is legally required to have an **exchange settlement account (ESA)** with the RBA in order to settle interbank transactions at the end of each day. This is because there are millions of transactions

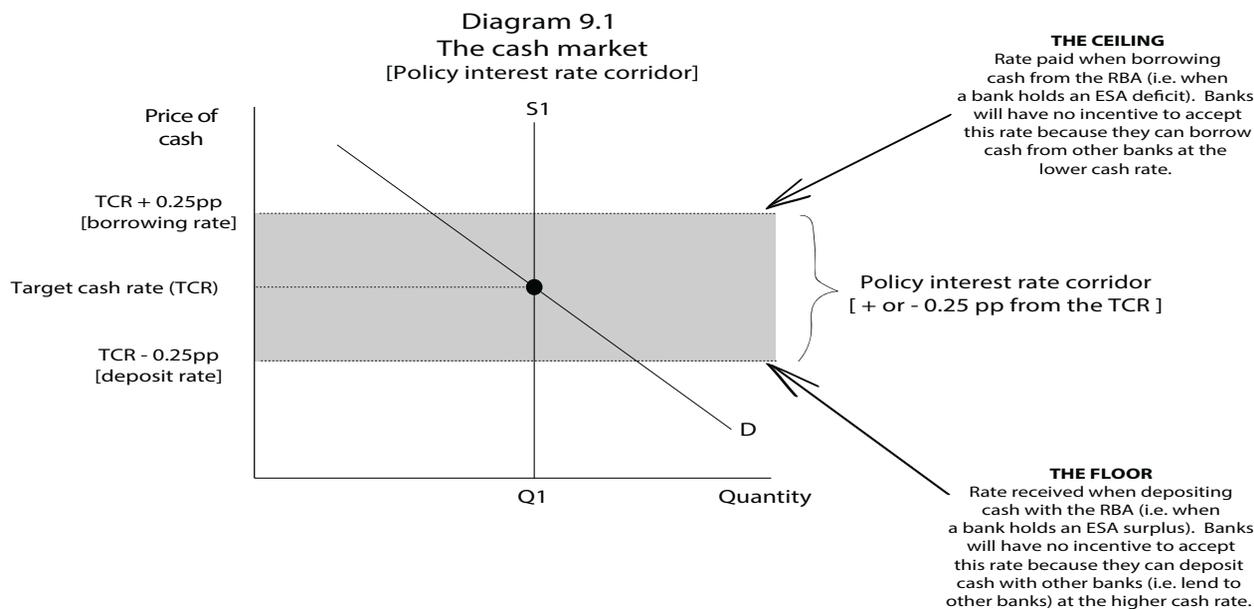
involving banks and their customers, and there needs to be a systematic and organised way of settling the amounts that are owed from one to the other at end of the day. For example, if I make an electronic transfer of \$1,000 from my CBA account into your Westpac account, then at the end of the day the CBA will settle the transaction by transferring the funds to Westpac. In isolation, this transaction will lead to a surplus in Westpac’s ESA and a deficit in the CBA’s ESA. However, there are millions of these types of transactions at the end of every day, resulting in some banks having surplus ESA balances (because they have received more than they paid) and others having deficit ESA balances.

Given that the RBA legally requires the banks to maintain a positive cash balance at the end of every day, those banks in deficit will need to find a way of eliminating the deficit in their ESA, which effectively creates a market for overnight cash. Those with surplus balances in their ESAs will be seeking to lend the excess funds to those banks with deficits in their ESAs, which of course means that those banks with ESA deficits will be seeking to borrow from those banks with ESA surpluses. Like any market, equilibrium will occur where the price of cash (i.e. the cash rate) is such that demand equals supply.

If we didn’t consider the activities of the federal budget (e.g. payments and receipts by the federal government), then surpluses and deficits would cancel each other out and the supply of cash in the market would remain unchanged. In other words, there is a fixed amount of cash circulating in the system and the RBA is the monopoly supplier of cash.

How the RBA can control the cash rate (liquidity management)

First, the RBA operates a **corridor system**. In such a system, the RBA announces the target level of the cash rate, and allows banks to borrow unlimited amounts from the RBA, but at an effective ‘penalty rate of interest’ that is 25 basis points above the cash rate. The RBA will also pay interest on surplus ESA balances, but this time at an ‘unattractive rate of interest’ that is 25 basis points below the cash rate. This band (or **policy interest rate corridor**) means that banks always have an incentive to borrow and lend in the cash market within a margin of 25 basis points around the announced (target) cash rate. The banks can always access cash in the market and the RBA can always be certain that the interest rate banks lend to each other for overnight loans will always be within the 25 basis points of the target cash rate. This is illustrated in Diagram 9.1 below:



Study tip

After COVID-19, one of the unconventional measures employed by the RBA (see Section 9.4) was the reduction of the deposit rate to 10 basis points below the target (instead of the conventional 25 basis points). In addition, the RBA stopped conducting daily OMOs to manage ES balances and instead allowed the actual CR to trade below the target. These arrangements are not permanent and the means of liquidity management will eventually return to that described in this section.

Second, since the RBA is the monopoly issuer of cash (which explains the vertical supply curve), it can effectively control the exact level of the cash rate on a day to day basis by managing its supply via **open/domestic market operations (OMOs)**. OMOs refer to the RBA’s buying and selling of financial instruments, such as **Australian Government Securities (AGS)**, or repurchase agreements (repos), to participants in the cash market. RBA purchases of these financial instruments injects cash into the market (increases supply) and reduces the cash rate, while RBA sales of these

Study tip

Australian Government Securities (AGS) are also known as Commonwealth Government Securities (CGS)

instruments withdraws cash from the market (reduces supply) and increases the cash rate. By getting this 'liquidity management' exactly right (i.e. achieving effective control of the supply of cash in the cash market), the RBA can achieve its target cash rate.

So this means that the RBA will manipulate the cash market on a daily basis to ensure that the actual cash rate is as close as possible to the target cash rate. In the event that the cash rate starts to climb above the target, the RBA will drive the cash rate down by increasing supply of cash via the purchase of CGS or repos. The supply of cash increases because banks will be holding more cash and less CGS.

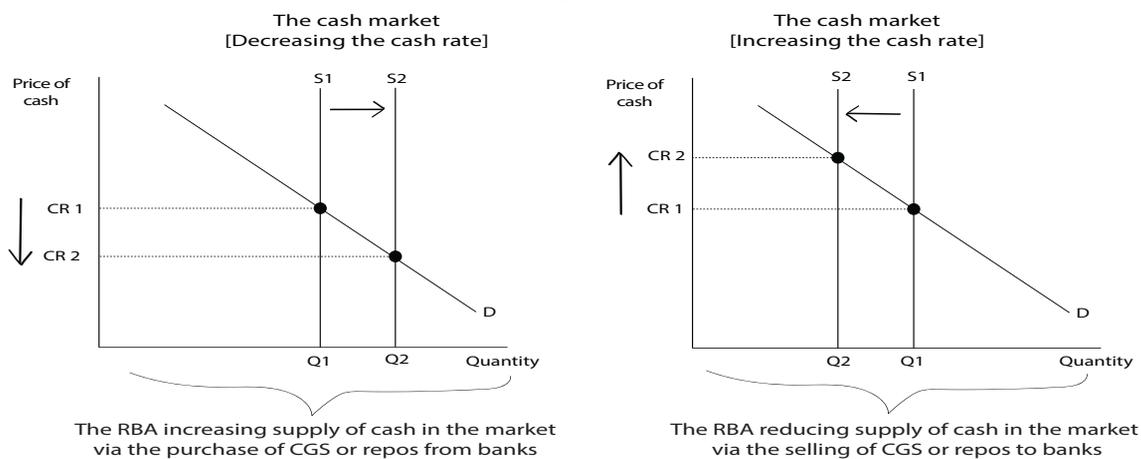
Alternatively, in the event that the cash rate falls below the target, the RBA can drive the cash rate up by reducing supply of cash in the market via the selling of CGS or repos. In this case, the supply of cash decreases because banks will be holding more CGS and less cash. This is why this conventional approach to the implementation of monetary policy is referred to as an interest rate corridor with 'scarce reserves'. The 'reserves' refer to cash in the overnight market and the RBA would use OMOs to ensure that there is just enough cash in the market to meet the demands of banks at (or as close as possible to) the prevailing target cash rate.

This manipulation of liquidity in the cash market by the RBA is illustrated using demand and supply curves in Diagram 9.2 below.

Study tip

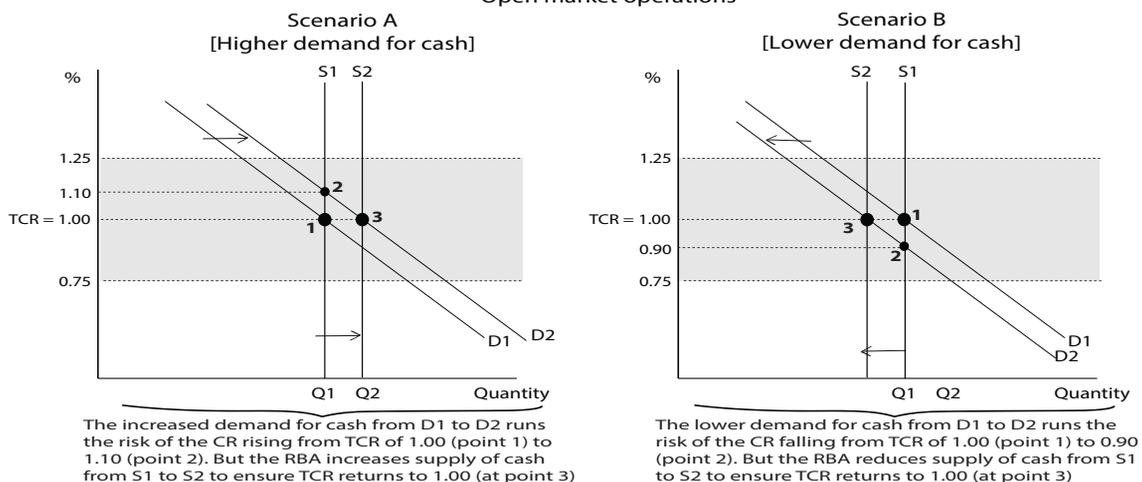
Repurchase agreements are contracts where the RBA will buy (or sell) a CGS at its current market price but then agrees to sell (or buy) the same CGS at an agreed price in the future. Having said this, you do not need to know the difference between government securities (see Chapter 8) and repurchase agreements. Simply remember they are both means by which the RBA injects cash into the market (via buying CGS or repos) or reduces cash in the market (via selling CGS or repos).

Diagram 9.2



There are generally two reasons for the cash rate moving away from the target cash rate during any given day, the first emanating from the demand side and the second from the supply side. In relation to demand, an increase in demand for cash by the private sector, will exert pressure on the cash rate to climb above the target cash rate. This higher demand might occur because financial conditions become volatile (e.g. during the global financial crisis) and householders are keen to hold more cash, which ultimately results in banks increasing their demand for cash in the cash market. The reverse will occur in the event that the demand for cash falls. These scenarios are highlighted in Diagram 9.3a below.

Diagram 9.3a
Open market operations



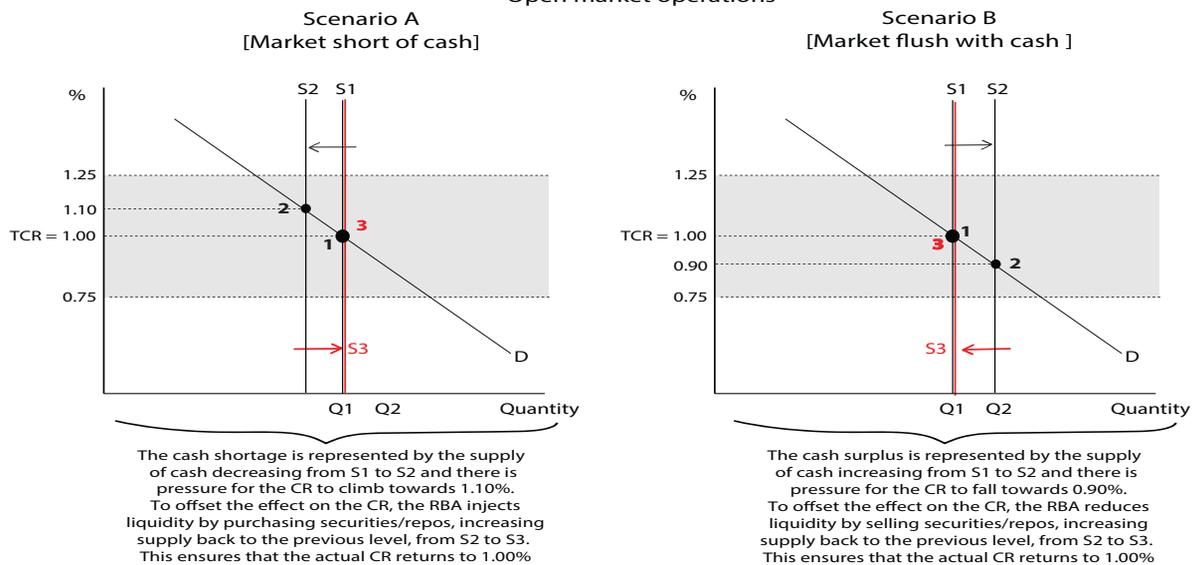
The more important influence on the actual cash rate involves the financial activities of the federal government. The RBA is the banker to the federal government and it processes all government payments (e.g. welfare payments such as pensions) and receipts from the government (e.g. personal and company taxes). Given that government payments effectively increase ESA balances (because there is a net injection of cash into the economy) and government receipts (such as the receipt of tax revenue) decrease ESA balances (because there is a net leakage of cash from the economy), the liquidity in the cash market is changing on a daily basis. In other words, every day cash is sent out from the government’s account for payments (e.g. a pensioner receives their fortnightly pension), and cash is returned to the account for tax payments (e.g. a company pays tax to the government). There will typically be an imbalance between the amount of cash paid to and received from the government’s account with the RBA, which changes both the supply of cash (i.e. liquidity) and therefore the price of cash (i.e. the cash rate). If the RBA didn’t do anything about this, then the level of ESA balances (i.e. cash) would change frequently and the cash rate would move within the 25 basis points band every day. But in practice, the RBA sells or buys securities/repos from the banks to fully offset this effect (using its daily forecast of the change in net government payments less taxes).

Study tip

Students will often hear the words ‘basis points’ when reference is made to interest rate changes. Note that a one percentage point change in interest rates (e.g. from 1.50% to 2.50%) represents an increase of 100 basis points. Accordingly, if the RBA increases the cash rate by one quarter of a percentage point, this is referred to as an increase of 25 basis points.

This process is illustrated in Diagram 9.3b below.

Diagram 9.3b
Open market operations



Temporary changes to the operation of conventional monetary policy

As noted earlier, the excess supply of money in the financial system in late 2020, largely as a consequence of other unconventional expansionary monetary policy initiatives (see Section 9.4), the RBA implemented a temporary change to the implementation of monetary policy. With the reduction in the target cash rate at the time to 0.1%, the RBA moved away from the system described above and adopted a ‘floor system with excess reserves’. The key changes were:

1. The reduction in the deposit rate (the floor of the corridor) from 25 to 10 basis points below the TCR.
2. Limiting OMOs and allowing the cash rate to remain below the target cash rate, where the ‘floor’ for the cash rate became the RBA deposit rate.

The rationale behind the change was the fact that the excess liquidity in the system manifested in surplus ESA balances and the RBA was keen to ensure that the floor of the corridor didn’t become negative, which would have overly penalised banks for maintaining surplus balances in their ESAs with the RBA. This equated to an excessive supply of cash or ‘excess reserves’ in the system, and the RBA allowed this to persist, which resulted in the actual cash rate remaining below the target cash rate for the entire period between 2020 and 2024. Increasingly, the surplus liquidity in the system diminished in line with the phasing out of unconventional monetary policy stimulus measures (e.g. quantitative tightening that is referred to in Section 9.4), which resulted in the actual cash rate increasing towards the target.

Leading into 2025, the RBA has declared that it would be moving away from this 'floor system with excess reserves'. A new system will be implemented from 2025 that will be a hybrid form of the 'excess reserves' and 'scarce reserves' systems used in the past. The new system is technically referred to as 'ample reserves with full allotment OMO'. It will involve the RBA once more engaging in OMOs to ensure that the banks are provided with sufficient cash to meet their demands at a rate that lies between the floor (i.e. the RBA deposit rate) and the target cash rate. So instead of the RBA manipulating liquidity in the cash market on a daily basis (i.e. via the conventional scarce reserves approach), it will allow the actual cash rate to float around the target and conduct OMOs less frequently. [The fine detail relating to the precise approach, such as the frequency of OMOs, is yet to be revealed at the time of writing.]

9.4 Unconventional monetary policy

In Australia, unconventional monetary policy has involved the RBA using tools or methods, other than a direct change to the cash rate, in order to influence market rates of interest and economic activity. These tools include asset purchases (e.g. quantitative easing), the introduction of a Term Funding Facility and forward guidance. It also includes the temporary changes to the implementation of monetary policy referred to in the previous section. While the RBA has had the ability and flexibility to use these methods in the past, it was only when Australia experienced the COVID-19 recession, that it realised the use of traditional or conventional monetary policy would be insufficient to steer Australia out of the worst recession since the Second World War.

Asset purchases/quantitative easing

Assets in the context of monetary policy refer to any financial instrument that is traded in financial markets. However, in the current context, it refers to government bonds (or government securities). In simple terms, the programs of asset purchases involve the RBA entering the market and undertaking wholesale purchases of government bonds. These bond purchases occurred in secondary markets (i.e. purchasing from those who had already purchased the bonds from the government), rather than primary markets (i.e. purchasing directly from the federal government) as the RBA was determined to maintain a clear separation of monetary and budgetary policies. The purchase of the bonds exerted downward pressure on interest rates because it resulted in the sellers of the bonds (e.g. the banks) receiving cash in exchange for the bonds, which increased the supply of cash in the market and resulted in downward pressure on the price of cash (i.e. interest rates). In more technical terms, the increased demand for bonds by the RBA exerted upward pressure on the price of bonds, and given that there is always an inverse relationship between the price of a bond and its yield (i.e. its interest rate), it caused bond yields/interest rates to fall across the economy.



The asset purchases by the RBA between 2020 and 2022 included a combination of those that targeted the yield on the bond and those that targeted the quantity of bonds in the market. First, those RBA purchases targeting the yield/interest rate related to purchases of bonds (typically 3 year bonds), where the RBA purchased the exact quantity of bonds necessary to ensure that the yield fell to 0.1% (i.e. the same rate as the TCR). In this respect, the quantity of bond purchases by the RBA was variable over time to ensure that the yield remained 'fixed' at 0.1%. Second, those RBA purchases targeting the quantity of bonds in existence (often referred to as '**quantitative easing**' or QE for short) were designed to reduce longer term interest rates, such as yields on 5 and 10 year bonds. However, the RBA was not targeting any particular yield and instead was content to allow any given quantity of longer term bond purchases to exert downward pressure on longer term interest rates. During the asset purchase/QE phase of 2020-2022, the RBA would then reinvest or rollover the bonds upon maturity, thus ensuring that the supply of funds in the economy remained high and there was continuing downward pressure on interest rates.

Study tip

The Study Design requires students to know one example of the operation of unconventional monetary policy use over the past two years. To the extent that the 3-year bond purchases made by the RBA during 2021-22 are maturing during 2024-25, and the long term funding facility continued to support low borrowing costs into 2024, it can be argued that these remain examples of unconventional monetary policy use 'over the past two years'.

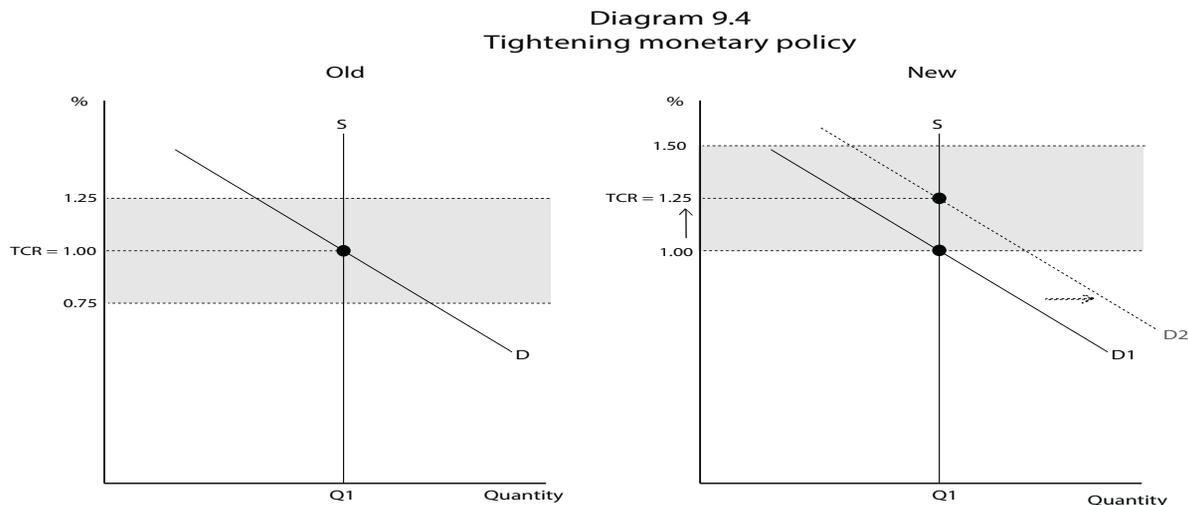
Overall, the asset purchases/QE helped to reduce both short term and longer term interest rates in the economy, which therefore assisted with the RBA's goal to stimulate AD during a period when economic growth was relatively low, inflation was below the bottom end of the target range and unemployment was relatively high. However, by early 2022, economic growth had picked up, unemployment was quickly approaching full employment levels and

Overall, when the unconventional monetary policy initiatives were introduced, the RBA Governor stated that the initiatives carried financial and other risks for the RBA. However, in the context of extraordinary times, implementing these initiatives was needed to support both conventional monetary policy, and budgetary policy stimulus measures, to ensure that Australia was able to emerge from the recession more quickly than otherwise. The use of unconventional monetary policy was therefore consistent with the RBA's overriding goal to promote the economic welfare of the people of Australia.

9.5 Monetary policy tightening and loosening

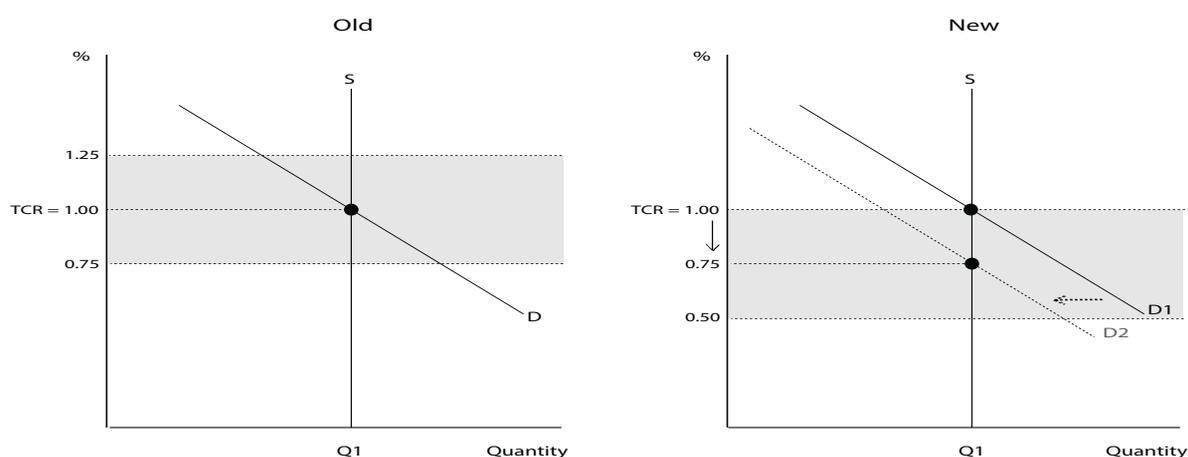
A **tightening of monetary policy** involves the RBA announcing a higher target cash rate the afternoon of its monthly Board meetings. If it decides to increase the target cash rate (e.g. from 1.00% to 1.25%) it will simply move the policy interest rate corridor up by 25 basis points as shown in Diagram 9.4 below. There is no need for the RBA to actually enter the cash market and engage in OMOs in order to restrict liquidity and force the cash rate up to the new TCR of 1.25%. This is because the market will automatically adjust to the new policy interest rate corridor.

The banks will accept this change in the cash rate level because they know that the RBA has a monopoly on cash and thus can achieve whatever cash rate target level the RBA wants to achieve through its OMOs. They realise that there is no point trying to achieve a different cash rate when the RBA can (and will) offset whatever the banks try to do to achieve a different cash rate level. This ability to know that banks will immediately adjust the cash rate to whatever is the target after one of the monthly RBA meetings comes from being a very credible central bank. There will be no incentive for the banks to transact (borrow and lend) outside the new range, and the actual cash rate will gravitate to the new target. [A new demand curve (D2) will necessarily intersect with the existing supply curve at a rate of 1.25% because banks will be willing to borrow more from the market given that it is more expensive to borrow from the RBA]. Importantly, under conventional monetary policy implementation, the RBA only needs to engage in OMOs to ensure that the actual cash rate hits the target cash each day thereafter. It does not actually engage in OMOs to give effect to a monetary policy tightening. [The unconventional approach to monetary policy implementation currently in place to the end of 2024 – the excess reserves approach – has allowed the actual cash rate to sit below the target. The future system to take effect sometime over 2025-26 - the ample reserves approach - will involve some use of OMOs to reduce the spread (difference) between the actual cash rate and the target cash rate.]



A **loosening of monetary policy** involves the RBA announcing a lower target cash rate the afternoon of its monthly Board meetings. If it decides to decrease the target cash rate (e.g. from 1.00% to 0.75%) it will simply move the policy interest rate corridor down by 25 basis points as shown in Diagram 9.5 below. As before, there is no need for the RBA to actually enter the cash market and engage in OMOs in order to increase liquidity and force the cash rate down to the new TCR of 0.75% as the market will automatically adjust. Once again, there will be no incentive for the banks to transact outside the new range, and the actual cash rate will gravitate to the new target. [Once again, a new demand curve (D2) will necessarily intersect with the existing supply curve at a rate of 0.75% because banks will be unwilling to borrow at any rate above 1.00% given that they can borrow from the RBA at this new cheaper rate.] Again, the RBA does not actually engage in OMOs to give effect to a monetary policy loosening.

Diagram 9.5
Loosening monetary policy



Review questions 9.1 - 9.5

1. Define monetary policy and outline the goals of the RBA as set out in the December 2023 Statement on the Conduct of Monetary Policy.
2. Describe the medium-term objectives for monetary policy.
3. Explain why the RBA's dual focus on price stability and full employment represents a departure from the past.
4. Explain how monetary policy can be used in a counter-cyclical manner.
5. Explain why the RBA focuses more on the underlying rate of inflation and less on the headline rate of inflation when implementing monetary policy.
6. Discuss why the RBA refuses to guarantee the solvency of banks.
7. Distinguish the 'target cash rate' from the 'cash rate' and define the 'policy interest rate corridor'.
8. Explain why the RBA applies below market interest rates on ESA balances.
9. Explain why, at the end of each day, ESAs might be in deficit or surplus.
10. Outline how the RBA uses open market operations to reduce the cash rate back towards the target cash rate.
11. Outline how the RBA uses open market operations to increase the cash rate up towards the target cash rate.
12. Briefly describe the temporary changes made to the implementation of conventional monetary policy
13. Describe how the RBA can employ unconventional monetary policy measures to stimulate the economy.
14. Distinguish quantitative easing from quantitative tightening.
15. Explain the process involved in both a tightening and loosening of conventional monetary policy. In your answer, refer to the policy interest rate corridor.

9.6 The transmission mechanism

The transmission mechanism refers to the way a change to the cash rate (or longer term interest rates influenced by non-conventional measures) affects economic activity and there are two general stages to consider. The first stage relates to how a change to the cash rate affects other interest rates in the economy and the second stage relates to how the resulting change to interest rates influences economic activity (and inflation).

Stage 1: How other interest rates respond to a change in the cash rate

How other interest rates respond to changes in the cash rate is often referred to as **'the interest rate pass-through'**. Assume that the RBA has tightened monetary policy and the cash rate increased. The price of money that is close to cash (such as 30 day bank bills or deposits) will also increase, otherwise lenders (or depositors) will be less inclined to invest in Bank Bills (or bank deposits) and more inclined to invest in the cash market. Similarly, other interest rates will also move up in order to retain market share. Accordingly, 'competition for funds' forces other rates to increase in line with the increase in the cash rate. Similarly, if the cash rate increases, the cost of funds increases for lenders of money in the 30 – 90 day market (effectively, financial institutions). As they essentially face higher costs of production, they pass on this increase in the form of higher interest rates. This process continues to affect longer term rates in the economy.

It is important to remember that the RBA only has direct control over one interest rate, that is, the cash rate. Accordingly, the extent to which changes in the cash rate flow through to change all other rates depends on the competitive pressures existing in local and global financial markets. For example, banks did not fully pass on the reductions in the cash rate that

occurred between 2016 and 2020, and they more than fully passed on the increases in the cash rate that have occurred since start of 2022. The oligopolistic nature of the banking industry also means that the lack of competitive pressures enables the banks to boost margins independently of changes to monetary policy settings. [This can be considered a weakness of MP and will be considered in Section 9.13.]

Stage 2: How changes in interest rates influence economic activity and inflation

In Unit 3, we saw that a change in interest rates will affect economic activity primarily via the impact on the willingness to borrow and the discretionary income of households and businesses, thereby affecting Consumption and Investment. These are the two primary ways that interest rate changes affect economic activity. However, in reality, there are four key ways that interest rate changes ‘transmit’ their effects on economic activity (and inflation). The transmission occurs via four separate channels.

- (a) The cost of credit (Savings and Investment)
- (b) Cash flows
- (c) Asset values/prices
- (d) Exchange rate

The explanation of each channel below focuses on the impact of a monetary policy tightening (i.e. raising the target cash rate), however the reverse is true when monetary policy is loosened (i.e. the target cash rate is reduced).

Study tip

To the extent that there is any price rise in response to higher interest rates, it will only prevail in the short term, and will be reversed once the demand side effects of higher interest rates set in over time. Indeed, businesses are less likely to pass on the cost increase if they anticipate that higher interest rates will start to negatively impact on their sales level.

Cost of credit channel (Savings and Investment)

With respect to the **cost of credit channel** (also referred to as the Saving and investment channel by the RBA), a tighter monetary policy will result in higher interest rates which make it more costly to borrow money. This higher cost of credit should reduce the willingness of households to borrow money for the purchase of goods and services, and provide them with **greater incentive to save**. In particular, it reduces the demand for consumer durables, and overall, it is likely to reduce Consumption demand in the economy. Similarly, businesses are likely to reduce or delay Investment as higher borrowing costs make any investment spending less viable. This is because it becomes more difficult for any investment project to achieve the **‘hurdle rate of return’** that is necessary for approval. The consequent reduction in Consumption and Investment works to reduce AD, economic growth and inflationary pressures in the economy. Given that changes in interest rates cause spending to shift across time periods (e.g. less spending today compared to the period ahead when interest rates rise and vice versa), some economists refer to this channel of monetary policy as the **‘inter-temporal substitution’** channel.

Cash flow channel

With respect to cash flows, higher interest rates negatively impact on those in the economy with existing **variable rate loans**. In particular, households with (net) debt (i.e. ‘borrower households’) will immediately suffer a drop in their **‘cash flow’** (or **discretionary income**) as more of their disposable income needs to be used to repay the interest on their debt (which is typically a mortgage for most households). While it is true that some households benefit from higher interest rates because they are (net) lenders, in aggregate, the household sector in Australia has a stock of net debt (i.e. the value of debt held by households exceeds the value of interest earning assets). In addition, borrower households are typically more sensitive to changes in interest rates and cash flows than lender households. This means that, in aggregate, households will typically reduce Consumption and AD in the economy when interest rates rise, which reduces economic activity and inflationary pressures. The business sector will also experience a drop in cash flow when interest rates rise as they spend more to service any variable rate loans, further reducing AD via lower Investment.



Asset prices and wealth channel

With higher interest rates, the price or value of assets, such as housing and shares, are likely to decrease because the demand for various types of **assets** is likely to fall. This reduces the average **‘wealth’** of households (given that household wealth is closely tied to the value of property) and reduces Consumption, AD, economic activity and inflationary pressures. This means that, to the extent that higher interest rates cause less demand for housing and lower house prices, it is fair to expect a slowdown in the rate of spending by some property or share owners who experience a decline in the value of their wealth. For example, not only will some asset owners experience less **‘paper wealth’** (i.e. on paper, they are less wealthy), others will experience a drop in **‘real wealth’** if and when they sell their assets at lower prices, thereby achieving smaller ‘capital gains’ and/or suffering capital losses. This particularly applies to property investors.

To the extent that higher interest rates lead to a reduction in asset or property values, this will also reduce the ability of households to borrow more money from banks. This is because the equity or collateral held in the home (i.e. the difference between the value of property and the debt/mortgage attached to the property) will necessarily decrease and the riskiness of existing debt increases.

The exchange rate channel

The exchange rate will generally be positively correlated to interest rates, such that a rise in interest rates is expected to cause an appreciation of the **exchange rate**. This is because higher domestic interest rates attract foreign funds (capital inflow) seeking relatively higher rates of return on their investments. [This was outlined in detail in Chapter 7.] For example, a lender in the USA lending money to an Australian institution because the interest return is relatively higher than that offered in the USA or an Australian borrower going offshore to borrow money in places where interest rates are relatively lower. As the foreign funds enter Australia, they are exchanged into Australian dollars, increasing the demand for the AUD thereby exerting upward pressure on the value of AUD. As discussed in Chapter 5, a higher exchange rate reduces the **international competitiveness** of Australia’s tradables sector, reducing net exports (X-M) and decreasing economic activity and inflationary pressure. In addition, a higher exchange rate makes imports relatively cheaper and reduces the prices of imported consumer and producer goods. This further reduces inflationary pressure in the economy.

Activity 9a: Transmission mechanism

Each of the statements below relate to one or more of the four key transmission channels of monetary policy. Read each statement and determine which of the four transmission channels is relevant in the context of the the RBA tightening monetary policy. Shade the appropriate box. The first one has been done for you.

Statement	Cost of credit	Cash flow	Exchange rate	Asset values
I will delay taking out a personal loan to buy a new car as the price of the loan will be higher				
I am now going to put fewer purchases on my credit card				
This is really going to have a negative impact on the number of tourists staying in my hotel				
With interest rates being so low it makes sense to store my wealth in cash under my mattress				
I am now going to have less discretionary income to spend on goods and services				
It’s much more enticing to put money in the bank rather than spend it				
The AUD is likely to rise which will help me to afford imported goods online				
I think it’s going to negatively affect the value of my house so my spending will fall				
The hurdle rate of return before capital investment is viable has now increased				
I think it makes more sense to travel to Bali rather than holiday within Australia				
The sharemarket crashes which means I can’t afford to spend as much as before				

The role of inflationary expectations

The real or concrete effect that a change in interest rates has on Consumption and Investment via the transmission channels will be supplemented by the effects on **inflationary expectations**. Households and businesses will typically have some expectation of where they think inflation will be in the near term and these ‘expectations’ can, and do, influence their decision making. For example, the mere expectation that inflation will be higher next year, can cause workers to be more aggressive in their demand for higher wages, which if successful, leads to higher labour costs and an increase in actual inflation as businesses raise prices to protect profit margins.

As a consequence, the RBA places some importance on reducing or ‘anchoring’ inflationary expectations and creating greater certainty about the movement of prices over time. Only when consumers and businesses believe that inflation is ‘under control’ will their saving and spending decisions be made in a way that doesn’t risk spiraling inflation that is fueled by expectations alone. This is one reason why the RBA looks into the future when deliberating on

Study tip

It is important to note that while inflationary expectations do impact on the transmission mechanism of monetary policy, inflationary expectations are not included as one of the four key transmission channels that describe how a change in interest rates impact on the economy.

monetary policy and why it pays particular attention to the **underlying rate** of inflation. For example, if the RBA senses that unwelcome inflationary pressures are beginning to emerge, evidenced by a tightening of labour markets or capacity constraints more generally, it will typically act in advance by tightening monetary policy. This is precisely what played out over 2022 and 2023, with inflation climbing to more than 7% (due mostly to cost pressures) and the RBA continued to tighten monetary policy despite the real risks of creating another downturn (or even recession). Eliminating inflationary expectations was seen as the key to returning inflation to between 2-3% on average over time, despite the risks to the economy. It highlights that intervention of this nature is the key to lowering inflation and increasing the effectiveness of monetary policy over time.

9.7 Monetary policy settings (the stance of monetary policy)

Monetary policy neutrality

Monetary policy neutrality exists when the cash rate is at a level where it is neither working to stimulate nor contract the economy. This is the cash rate that will be consistent with an economy growing at a strong and sustainable rate, with full employment being achieved and inflation under control. In other words, the **neutral cash rate** is the cash rate that prevails when internal stability is achieved and the cash rate is neither stimulating nor contracting the economy.

Assuming that inflation and inflationary expectations are at the mid-point of the RBA's target range at 2.5%, then monetary policy neutrality occurs when the target cash rate is approximately 3.0% - 3.5%. This means that when the economy is growing at a 'healthy or sustainable rate', with full employment and price stability being achieved, then the target cash rate is likely to be approximately 3.0% - 3.5%. If the target cash is above 3.5%, it would suggest that the economy is growing at an excessive rate, with relatively high inflation and labour market shortages. However, if the target cash rate is lower than 3.0% it suggests that the economy is growing slowly, with negligible inflationary pressures and relatively low rates of economic growth.

Study tip

For the purposes of VCE Economics, how the neutral rate is determined is less important than what it implies. It is therefore useful to focus more on what is implied by an actual cash rate below or above any given neutral rate, such that a cash rate below the neutral rate means that monetary policy is expansionary and a cash rate above the neutral rate means that monetary policy is restrictive.

Importantly, the neutral cash rate is not static and its precise level is unknown (See Activity 9b). Its level will depend on a number of factors, both domestic and international, that can have an impact on the flows of savings and investment over time. For example, the decrease in competition within the banking system, the high level of household indebtedness, and lower actual and expected inflation rates are factors that reduced the level of the (nominal) neutral cash rate in the past - by approximately 200 basis points, from approximately 5% in 2007 to approximately 3.0% in 2020. Since 2020 there has been much speculation about the exact level of the neutral cash rate, with the RBA Governor clarifying that, at a minimum, the neutral (nominal) rate was 2.5%, which equated to a real neutral rate of zero (because if inflation averages 2.5% and the nominal rate was 2.5%, then the real rate would be nominal rate minus inflation rate = 0). Any positive growth in productivity per annum would then cause the nominal neutral rate to climb above 2.5% as the economy would be able to sustain a stronger rate of economic growth than otherwise before any given level of interest rates start restraining the economy. Accordingly, given that productivity growth is typically around 1% per annum, the neutral rate currently resides anywhere between 3.0% - 3.5%.

This has real implications for monetary policy settings, such that the cash rate (and interest rates more generally) need to fall to much lower levels before monetary policy becomes expansionary, and don't need to rise by as much before monetary policy becomes restrictive. The RBA increased the target cash rate to 3.1% in December 2022, and again to 3.6% in March 2023, indicating that the rate rose through the neutral range and monetary policy became restrictive in March 2023, before becoming more restrictive over 2023 as the target cash rate rose to 4.35% by November 2023.

Expansionary vs restrictive monetary policy

An **expansionary monetary policy stance** (often referred to as an **accommodative stance**) is one where the setting of the target cash rate is low enough to be stimulating AD and increasing inflationary pressure. This occurs when the cash rate is below the neutral rate of approximately 3.0% - 3.5% and will typically be achieved by a loosening of monetary policy and employed by the RBA when the economy is growing below trend, inflation is very low and unemployment is relatively high. The expansionary stance will then be used to stimulate economic growth and employment and allow the rate of inflation to return to the target range.

A **restrictive monetary policy stance** is also referred to as **contractionary** monetary policy. It is one where the setting of the target cash rate is high enough to be restraining AD and reducing inflationary pressure. It currently occurs when the target cash rate is above approximately 3.0% - 3.5% and will typically be achieved by a tightening of monetary policy and employed by the RBA when the economy is growing above trend, inflation is high and unemployment is relatively low.

Review questions 9.6 - 9.7

1. Explain why general interest rates in the economy rise when the cash rate increases.
2. Describe each of the four transmission channels of monetary policy in terms of how each influences aggregate demand.
3. Define inflationary expectations and discuss the importance of inflationary expectations to RBA decision making.
4. Distinguish an expansionary monetary policy stance from a restrictive monetary policy stance.
5. Explain what is meant by monetary policy neutrality.

Activity 9b: The neutral interest rate

The following passages have been extracted from the July 2022 *Minutes of the Monetary Policy Meeting of the RBA* and the RBA Governor's address to the Australian Strategic Business Forum (Melbourne) on 20 July 2022 titled '*Inflation, Productivity and the Future of Money*'.



...In considering the outlook for interest rates at its most recent meeting, the Board had an extended discussion of the neutral real interest rate. The concept of the **neutral real interest rate** is a useful one – it is the real interest rate that is neither stimulatory nor contractionary. From a practical perspective, though, one of the challenges that we face is that the neutral real interest rate cannot be observed or measured directly. It must be estimated or inferred from other information. The staff at the RBA use a wide range of models and techniques to do this.

These models produce a range of estimates and the estimates change through time as more information becomes available. This means that there is considerable uncertainty around any particular estimate of the neutral real rate. Having said that, most approaches suggest that the neutral real rate for Australia is at least positive. A related challenge is that the Board needs to translate any estimate of the neutral real rate into an estimate of the **neutral nominal rate**, as the Board sets the nominal cash rate, not the real cash rate. This translation requires an estimate of expected inflation. If we take the 2½ per cent midpoint of the inflation target as a reasonable estimate of medium-term inflation expectations, this suggests that the neutral nominal rate is at least 2½ per cent. It would be higher than this if medium-term inflation expectations were to shift higher.

[The level of the neutral interest rate will also depend on other factors. For example, any development that affects the desired levels of saving or investment will affect the neutral rate. This includes slow-moving influences, such as trend productivity growth and demographic change, and more rapidly evolving influences, such as persistent changes in risk appetite. In a small open economy like Australia, where capital flows freely across borders, the neutral rate is determined by both global and domestic factors. Estimates of the neutral rate tend to be correlated across countries over time, reflecting similar global influences on saving and investment as well as spillovers across borders. In recent decades, estimates of the neutral rate have drifted lower in major advanced economies and in Australia.]

I want to emphasise that the concept of the neutral rate is no more than one reference point for the Board. It is not the basis of a mechanical rule and we are not on a pre-set path to achieve any specific level of the cash rate. Rather, the Board will continue to be guided by the incoming evidence and by its assessment of the outlook for inflation and the labour market. It is determined to do what is necessary to return inflation to 2–3 per cent.

Questions

1. Explain what is meant by a neutral interest rate.
2. Distinguish the real neutral rate from the nominal neutral rate.
3. Describe why the neutral rate of interest (either nominal or real) is not fixed over time.
4. Explain what would happen to the nominal neutral rate of interest in the event that:
 - Inflationary expectations increase to very high levels (e.g. 10%)
 - Productivity growth is very low
 - Borrowers in the economy become much more risk averse
 - The ageing population results in fewer borrowers and more lenders in the economy.

9.8 Exchange rate intervention

Interest rate changes will impact on the value of the Australian dollar via international capital (money) flows, but the RBA will not specifically tighten (or loosen) monetary policy in an effort to increase (or decrease) the exchange rate. This has been made clear by the RBA when it says:

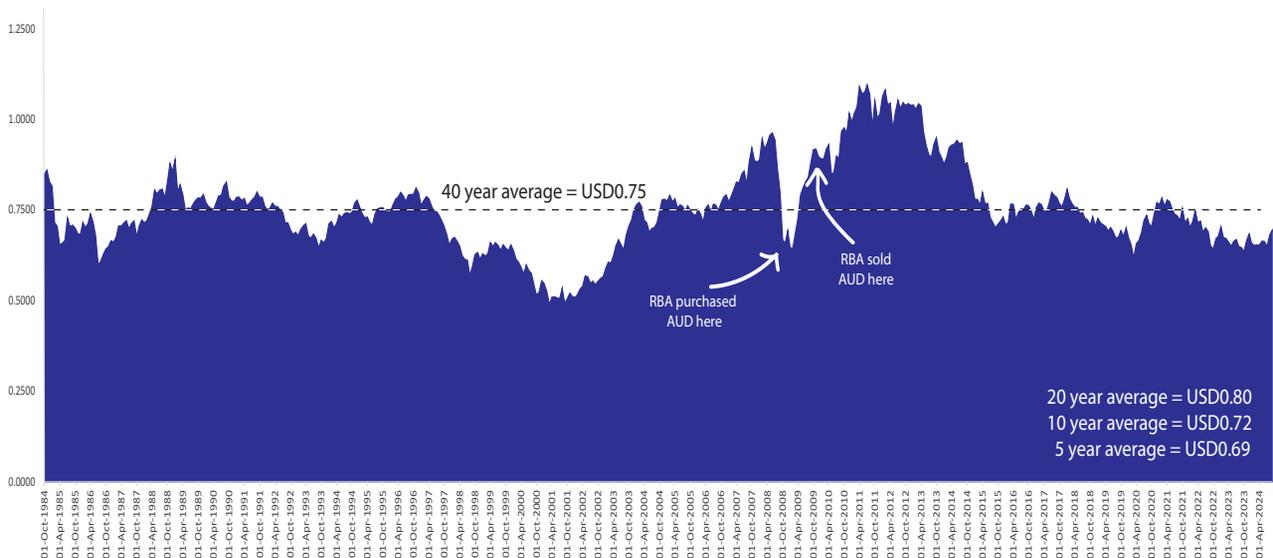
'.....the exchange rate has not served as either a target or an instrument of monetary policy in Australia since the currency was floated. The exchange rate is best considered as part of the transmission mechanism....'

Accordingly, unlike inflation, the RBA does not target a particular level for the value of the dollar. However, it will occasionally intervene in the foreign exchange market if it believes that the Australian dollar has clearly overshot or undershot its **fundamental or underlying value**. [Ongoing foreign exchange intervention by a central bank is sometimes referred to as a **dirty float**.] To manipulate the value of the dollar, the RBA directly enters the foreign exchange market and either buys or sells Australian dollars in exchange for another currency (typically the USD). When it purchases (demands) the AUD, it places upward pressure on its value and when it sells (supplies) the dollar it places downward pressure on its value.

Chart 9.1 below charts the value of the Australian exchange rate over the past 40 years, with a 40 year average of USD0.75, and 10 and 5 year averages of USD0.72 and USD0.69 respectively. The chart highlights the most recent significant occasion when the RBA significantly intervened in the foreign exchange market. This occurred in late 2008, after the AUD dropped dramatically, from close to parity with USD towards USD0.60. This occurred because of the large fall in the terms of trade, a realisation that the currency was a little overvalued, lower interest rates and a deteriorating world economy more generally. The 38% fall in the dollar over three months was the quickest and most rapid fall in its value since it was floated in 1983. In this environment, the RBA judged that it was being 'oversold', driven by speculation, and that caused it to become undervalued. In other words, at a price of close to USD0.60, the RBA believed that it was well below its 'fundamental value' (of approximately USD0.75). Accordingly, the RBA intervened in the market during October and November of 2008, purchasing \$3.8B of Australian dollars to stem the decline and restore confidence in the value of the exchange rate. As confidence in the value of the Australian dollar returned during the first half of 2009, the RBA took the opportunity to sell much of its holding of Australian dollars (i.e. it purchased foreign currencies) and made a nice profit for the Australian government in the process.



Chart 9.1 Australian exchange rate (AUD/USD)



Again, when the AUD was above USD1.00 for much of 2011-2013, many observers (including the RBA) considered the AUD to be an overvalued currency, which was damaging Australia's international competitiveness. Ordinarily, one would have expected the RBA to intervene in the foreign exchange market by selling AUD in order to purchase foreign currency (e.g. USD) and return the AUD back towards its fundamental value. However, the RBA Governor at the time was at pains to point out that, while the RBA reserves the right to intervene directly in the foreign exchange, it will only do so if a significant correction was required. It was clearly the RBA's view at the time that, whilst being overvalued, the AUD would return towards its core or fundamental value (considered at the time to be closer to USD0.80 – 0.85) without direct intervention, which is precisely what occurred thereafter.

The loosening of monetary policy between 2016 and 2022 might be seen by some analysts or commentators to represent an attempt to reduce the value of the AUD towards its 'fundamental value', which is heavily influenced by the terms of trade and interest rate differentials, but at the time was approximately USD0.70. While it is true that lower interest rates did indeed help to reduce the value of the AUD (because Australian interest rates become 'relatively' lower than overseas rates which reduced capital inflow and encouraged capital outflow), the RBA continues to maintain that policy easings were designed to boost AD and achieve stronger rates of economic growth – not to reduce the value of AUD per se.

Overall, since the float of the Australian currency in 1983, the RBA has, on balance, not systematically changed the value of the currency. In other words, the purchases and sales of the dollar since 1983 have tended to cancel each other out such that the RBA has neither been a net purchaser nor a net seller of the currency since 1983.

9.9 Monetary policy to achieve price stability

As discussed in Section 9.1, the RBA's charter requires it to focus on the economic prosperity and welfare of Australians. It does this, at least in part, by seeking to achieve a **rate of inflation of between 2-3%, on average, over time**. Price stability is considered the key ingredient for longer term economic growth, employment creation and the advancement of Australian living standards. Once inflation or inflationary pressures are considered to be under control, the RBA will usually switch its attention to stimulating economic and employment growth in the shorter term. The willingness of the RBA to switch its attention towards economic growth and employment is an example of its ability to exploit the short-run trade-off between inflation and economic growth/employment. Importantly, this trade-off only exists in the short-run and any attempt by the RBA to stimulate economic growth in the long-run via expansionary monetary policy will only result in higher inflation (See Activity 9c).

Interestingly, between 2014 and 2021, the inflation rate was considered to be too low on average, consistently residing below the bottom end of the RBA's target range and even becoming negative (i.e. deflation) for the year to end June 2020. In this environment, the RBA was open about its commitment to increase inflation back into the 2%-3% target range. This was an acknowledgement that a small amount of inflation can actually benefit an economy, as discussed in Chapter 5. For example, some inflation is a normal feature of a growing economy and a small amount of inflation facilitates real wage flexibility that can be important for the efficient operation of labour markets. However, the RBA was equally motivated by the need to stimulate growth in AD given that growth in real GDP and wages was relatively low during this time. As a consequence, very low or negative rates of inflation resulted in a more expansionary monetary policy setting - one that remained consistent with efforts to achieve both price stability and full employment/economic growth. By the end of 2020, the RBA adopted the most expansionary monetary policy stance on record, reducing the target cash rate to 0.1% and rolling out a range of unconventional monetary policy measures (see Section 9.4) in an attempt to stimulate economic growth and jobs, and simultaneously lift inflation back towards 2%.

By the middle of 2022, the economic recovery was well underway, with economic growth a healthy 3.6% and unemployment falling to as low as 3.4%. However, inflation accelerated to 6.8% due primarily to cost pressures (i.e. cost inflation) emanating from the war in Ukraine, continuing COVID-19 supply constraints and the effects of floods in eastern Australia. The RBA then became concerned about inflationary pressures and the need to anchor inflationary expectations to the middle of the target range (i.e. 2.5%). Concerned about price instability, the RBA adopted a less expansionary stance by tightening monetary policy and increasing the target cash rate to 3.1% by the end of 2022, and again to 4.35% by the end of 2023, making monetary policy restrictive at the time and keeping the target cash rate at this restrictive level until the time of writing in October 2024. A key factor influencing the RBA's decision to maintain a restrictive monetary policy stance over 2024, despite the relatively slow rate of economic growth (and negative per capita growth for 18 months), was the consideration that inflationary pressures were fuelled by the existence of an 'output gap' (See Activity 9d), where growth in AD was outpacing the capacity to produce goods and services (i.e. potential output or productive capacity) such that inflation was too high.

As monetary policy is tightened, and interest rates across the economy increase, this eventually works to reduce inflationary pressure in a number of ways:

- First, via reductions in the growth of AD that occurs through the **transmission channels** referred to in Section 9.6. This makes it less likely that the economy will face 'excess demand' or 'capacity constraints,' limiting any price increases from producers and even resulting in some price discounting as stock levels start to build-up in many businesses.
- Second, to the extent that higher interest rates cause an **appreciation of the exchange rate**, (which of course is one of the monetary policy transmission channels) there is a direct and favourable impact on inflation. The prices of imported consumer goods should fall, directly reducing growth in the CPI. Similarly, there should be a fall in the prices of producer imports (including the cost of capital equipment), assisting in the containment of the CPI over the medium term once some of these cost reductions are passed onto consumers. Further, a higher exchange rate forces local producers in the tradables sector to decrease prices (and/or increase efficiency) in order to compete with cheaper imports.
- Third, the policy tightening signals to economic agents (consumers, producers and governments) that the RBA is serious about containing inflation and this helps to contain **inflationary expectations**. The inflation targeting by the RBA (i.e. 2-3%), combined with a clear commitment to achieve this target, are keys to ensuring that the expectations of inflation are low. With low inflationary expectations, price rises are not factored into decision making by economic agents, helping to keep actual price rises to a minimum. For example, if unions do not expect high inflation, they will not commence negotiations from a starting point of X % wage increase to protect the real wages of its members. This prevents the expectations becoming 'self-fulfilling' as higher wages tends to increase costs and increase prices, which can precipitate a **wage-price spiral** (see Chapter 5).
- Fourth, the slower growth in AD and GDP should contain growth in labour demand and reduce pressure on labour costs, further reducing **cost inflationary pressure**.

It is important to note that a tightening of monetary policy will tend to have its *full* impact delayed by up to two years. That is, there can be a **'time lag'** of up to two years before a tightening of policy actually has its full impact on reducing economic activity and the rate of inflation. This is because interest rate changes have a large impact on investment spending, which then has lengthy flow on effects across various markets. For example, higher interest rates may cause a reduction in construction investment, which leads to a smaller demand for inputs (including labour), which then reduces income of those owning these resources, which further reduces spending and so on. Similarly, it can take considerable time for any change in the exchange rate (the exchange rate mechanism) to work its way through the tradables sector, particularly given that relatively longer term supply contracts exist in export/import markets. As a consequence, all RBA deliberations must be **forward looking or anticipatory**, to gauge what inflationary pressures are building over the next couple of years rather than what is happening to inflation at the current time.

Comments or warnings by the RBA Governor can also have an impact on economic activity, independent of any change to monetary policy settings. For example, if the RBA governor was to express a concern about the high rate of household borrowing, this could be interpreted in financial markets as a sign that the RBA is more likely to tighten monetary policy. This will immediately cause some interest rates to rise in the economy, negatively impacting on economic activity. In addition, economic agents may constrain spending in the expectation of a more contractionary monetary policy stance. Accordingly, the Governor's comments, on their own, have worked to reduce growth in AD and economic activity. This is sometimes colloquially referred to as RBA **'open mouth operations'** or **'jawboning'** by the RBA Governor.

Activity 9c: Managing the trade-off between inflation and economic growth/employment

The following is an edited extract from the RBA's website found at <http://www.rba.gov.au/education/monetary-policy.html>

The monetary policy target in Australia allows some scope for policy to take account of short-run trade-offs between inflation, and activity or employment, subject to the goal of meeting the inflation target on average over time. The short-run trade-off faced by policy-makers can be described as follows: other things equal, at a given point in time, an easing or loosening of policy (a cut in interest rates) will stimulate the economy and will tend to make both economic growth and inflation higher than they otherwise would have been. This means that a loosening of monetary policy will, in the short-run, assist with the economic growth/full employment objectives but make it more difficult to achieve the price stability objective. In contrast, a rate increase (i.e. a tightening of monetary policy) will tend to reduce economic growth and inflation in the short-run, which means that it will help to achieve price stability but make it more difficult to achieve the economic growth/full employment objectives. This of course relates to the short-run trade-off that exists between inflation and unemployment as summed up by the **Phillips Curve**. [See Chapter 5.]



This means that, over short periods, monetary policy can be thought of as having to balance one policy objective against another – for example, achieving a higher growth outcome but a less satisfactory inflation rate. It therefore makes sense for policy to take into account the nature of this trade-off. Consider, for example, a situation in which inflation is regarded as likely to be too high. A rise in interest rates will help to reduce inflation but can also be expected to reduce growth. How far and how quickly interest rates should be raised will depend partly on how the economy is performing at the time. If the economy is operating with very little surplus capacity or is overheating (which will be evidenced by a high capacity utilisation rate in the economy), a fairly rapid rise in interest rates might be called for. If, on the other hand, there is significant surplus capacity (e.g. lower capacity utilisation rates) in the economy, the appropriate increase in rates might be more gradual. Thus, it makes sense for policy to take account of short-run cyclical developments in pursuing the inflation target.

But having made that point, it is important to recognise that this type of trade-off does not exist in the longer run. Ultimately, the growth performance of the economy is determined by the economy's real productive capacity, and it cannot be permanently stimulated by an expansionary monetary policy stance. Any attempt to do so simply results in rising inflation. The Bank's policy target recognises this point. It allows policy to take a role in stabilising the business cycle but, beyond the length of a cycle, the aim is to limit inflation to the target of 2–3 per cent. In this way, policy can provide a favourable climate for growth in productive capacity, but it does not seek to engineer growth in the longer run by artificially stimulating demand.

Questions

1. Explain what is meant by the short-run trade-off between inflation and economic growth/employment.
2. Outline how a more expansionary monetary policy stance is likely to impact on economic growth and inflation in the short-run.
3. Outline how a more restrictive monetary policy stance is likely to impact on economic growth and inflation in the short-run.
4. Discuss the relevance of capacity utilisation rates in the economy when the RBA considers how aggressive it needs to be when adopting a less expansionary/more restrictive monetary policy stance.
5. Explain why the RBA believes that the trade-off (outlined in question 1) does not exist in the long run.
6. In the context of the previous question, explain why the maintenance of an expansionary monetary policy stance for a prolonged period of time will not stimulate economic growth in the long-run.
7. Discuss how economic growth can be stimulated in the long-run. In your answer, describe the important role that monetary policy can play.

Activity 9d: Potential output gaps to determine inflationary pressures

The following is an edited extract from Chapter 4 of the May 2024 Statement on Monetary Policy

Potential output is the total amount of goods and services that can be produced by an economy that is operating at a 'sustainable' capacity. When the overall demand for goods and services is equal to potential output, the economy is considered to be in balance. At this level of output, factors of production such as labour and capital (which includes the buildings, machines and equipment firms use to produce their goods and services) are being utilised at 'sustainable' levels to meet demand, without being underutilised or utilised too intensively. In this context, sustainable means being consistent with low and stable inflation over the business cycle (provided that longer term inflation expectations remain anchored). Over the medium-to-long term, an economy that is operating at its potential level of output is also achieving sustained full employment.



Australia's potential output varies over time because of changes in the availability of labour, capital and the growth of productivity. The availability of labour evolves with growth in the overall size of the population and the number of hours each person is willing and able to work when the economy is at full employment. The stock of capital increases or decreases as firms invest in new assets and maintain or retire assets that have depreciated over time. ... How effectively the economy can use its resources to produce goods and services is another source of change in potential output over time. This depends on productivity growth. When productivity grows, the economy can produce more output even if no additional labour or capital is used. All else equal, productivity growth can reduce inflationary pressure in the short term, as goods and services can be produced more cheaply by using inputs more efficiently.

Longer term economic growth is determined by growth in potential output. Growth in potential output depends on growth in the supply of labour and capital as well as growth in productivity. An important development in recent decades is that the growth rate of potential output appears to have been on a downward trend in many advanced economies, including Australia. This might reflect a number of factors, including slower growth in the labour force, capital stock and productivity. A decline in the growth rate of potential output means the economy cannot achieve the same rates of GDP growth it had in the 1990s and 2000s without putting upward pressure on inflation.

When AD (as measured by actual output) exceeds potential output, there is a '**positive output gap**'. When this occurs, factors of production are being utilised intensively to meet demand. While this is feasible in the short run, it cannot be sustained without inflationary pressures rising. Inflation will typically rise above its target, as wage pressures increase in the face of very low unemployment, high vacancies and staff turnover, and as other input costs tend to rise when firms operate their stock of capital intensively and compete for scarce inputs. Once AD and potential output move closer into balance, inflation will typically move closer to target. AD below potential output (a '**negative output gap**') often coincides with employment below full employment and capital being underutilised. This is costly in terms of the lost production and consumption from not making full use of Australia's resources, and in terms of the financial and social costs of employment being below full employment.

...The output gap is closely connected to price stability and full employment. Monetary policy affects AD to bring it closer into line with potential output (i.e. closing the output gap); doing so plays a key role in achieving the RBA's objectives of price stability and full employment. An output gap close to zero is important in achieving price stability. Deviations of actual output from potential output tend to see inflation deviating from the inflation target. Forming a view on the current and future path of output relative to potential output is therefore an important input into the RBA's forecast for inflation, which in turn informs the Board's monetary policy decisions. However, in practice, the output gap is not necessarily the most useful leading indicator for forecasting inflation, and for this reason, measures of labour market spare capacity play a larger role in informing the RBA's forecasts.

Full employment and an output gap close to zero are interrelated. Full employment is the maximum level of employment consistent with low and stable inflation over the medium term. While this implies a balance between demand and supply in the labour market, low and stable inflation over the medium term also requires balance in the markets for goods and services, and thereby economic activity in line with potential output. Short-term movements of output from potential output tend to coincide with movements of employment from full employment.

Questions

1. Define potential output.
2. Explain why potential output varies over time. In your answer, refer to productivity growth.
3. Explain why longer term economic growth is determined by potential output.
4. Describe some factors that might account for the downward trend in potential output over time.
5. Explain the relationship between potential output and the achievement of full employment.
6. Distinguish a positive output gap from a negative output gap.
7. Examine the implications that a positive output gap has for inflation.
8. Examine the implications that a negative output gap has for inflation.
9. Explain the role of monetary policy in closing the output gap when focusing on the achievement of both price stability and full employment.

A pre-emptive approach taken by the RBA

As discussed, time lags slowdown the transmission mechanism, forcing the RBA to be forward looking when deliberating on monetary policy. Accordingly, changes to the target cash rate are typically pre-emptive in the sense that they act to dampen inflation or inflationary expectations before they actually appear in the economy. This approach requires the RBA to use a variety of economic statistics, such as current rates for economic growth, inflation and unemployment, as well as a host of other statistics that help it to measure the relative forces of aggregate demand vs aggregate supply, or the existence of output gaps (see Activity 9d), that determine underlying inflationary pressures existing in the economy. Importantly, the RBA will pay particular attention to those statistics that are **leading indicators** of economic activity. These statistics, such as loan approvals or building approvals, provide an indication of what is likely to happen to economic growth or inflation in the future. They contrast with **lagging indicators**, such as the unemployment rate, which provide more of an indication of what has happened to economic activity when the statistic changes, rather than what is likely to happen to economic activity. [However, it is also true that some lagging indicators have a predictive element, such as higher unemployment reflecting low levels of activity as well as pointing to further falls in economic activity as incomes, confidence and spending levels start to fall.] In addition to these indicators, the RBA will use a host of statistics, including some **coincident indicators**, such as retail sales levels, which reflect the current level of economic activity. It will also rely on some anecdotal evidence from the business community to provide it with an indication of the inflationary pressures that are building in the economy. The types of statistics the RBA will rely upon when making a determination about the direction of monetary policy include those in Table 9.1 below.

• Headline and underlying inflation rates	• Real unit labour costs
• Real GDP	• Business and consumer confidence
• Producer price inflation	• Share market prices
• Loan approvals	• Property prices
• Credit growth	• Wage price index
• Building approvals	• Budgetary policy settings
• Household debt levels	• Profitability
• CAD or NFD	• Consumption or investment levels
• Unemployment/underemployment rates	• Capacity utilisation (or capacity usage)
• Job vacancy rates	• Average weekly earnings
• Growth rates overseas	• Terms of Trade
• Retail sales levels	• Commodity or raw material prices
• Trade weighted index	• Interest rates overseas

The need to forecast future growth rates in economic activity and inflation can sometimes lead to policy decisions that actually contribute to economic harm in the event that RBA forecasting is incorrect. A notable example where this applied was early 2008 when the RBA raised the cash rate to 7.25%. A few months later, signs began to emerge that the economy was entering a slowdown, the severity of which was not forecast by the RBA, or by most other economic forecasters. Had the RBA correctly forecast the economic downturn, it would not have increased the cash rate to as high as 7.25% and the extent of the economic decline at the time may not have been as severe. This is sometimes referred to as policy being **pro-cyclical** (i.e. contributing to the movement in the economic cycle and thus worsening a downturn or exacerbating a boom) when it was intended to be **counter-cyclical**.

The pre-emptive nature of monetary policy decision making also results in RBA decisions that appear peculiar, but are indeed appropriate for the time. For example, in November 2010 the RBA tightened monetary policy by increasing the target cash rate to 4.75% despite both the headline and underlying rates of inflation sitting within the RBA's target range. The RBA was looking into the future and recognised that demand inflationary pressures would start to emerge and it was necessary to make monetary policy settings slightly more restrictive.

More recently, the RBA faced criticism from a number of economists and market analysts for keeping interest rates too low for too long, causing monetary policy to contribute to the excessive inflationary pressures that built up over 2022. While it is true that the bulk of the inflationary pressures during 2022 emanated from the supply side, it is also true that expansionary budgetary policy and the record high terms of trade was contributing to excessive growth in AD (which may have exacerbated the output gap explained in Activity 9d above.) Failure on the part of the RBA to accurately forecast the impacts on the economy meant that monetary policy became somewhat pro-cyclical during a time when it perhaps should have been following the lead of other central banks around the world and tightening policy.

The reluctance of the RBA to loosen monetary policy over 2024 was also criticised in light of the existence of a very slow rate of economic growth, negative growth in real GDP per capita, rising unemployment and a fall in the rate of inflation towards the top end of the target range. However, the RBA remained steadfast in its resolve to maintain the restrictive stance given that it was focused on the existence of a **positive output gap** (i.e. AD growing faster than AS) that continued to exert excessive pressure on prices.

Can monetary policy be used to fight cost inflation?

Over the course of 2022, the RBA came under increasing criticism from a number of economists, who claimed that tighter monetary policy was ineffective in controlling inflation when the cause of inflation is coming from the supply side of the economy. In other words, given that inflation during 2022 was driven primarily by higher costs of production (i.e. cost inflation caused primarily by higher oil prices), there was concern that the increase in interest rates to combat inflation would only serve to reduce aggregate demand and economic growth and run the risk of pushing Australia into another recession.

However, while the RBA acknowledges that higher interest rates do indeed have a negative impact on aggregate demand, and does involve some pain, it argues that its focus is on reducing both inflation and inflationary expectations. If the RBA allowed the higher prices to linger, and failed to make it clear it would act to reduce inflationary pressure, then it increases the risks that inflationary expectations become locked in or anchored, which results in further upward pressure on both wages and prices. This then potentially triggers a wage price spiral as workers continually seek to protect their real wage via increases in their nominal wage. By raising interest rates relatively early, it helps to reduce growth in aggregate demand and results in a greater degree of price discounting, as businesses attempt to counter the decline in sales. This in turn helps to temper inflationary expectations, which ultimately prevents wages growth from accelerating in a way that leads to excessive inflation over time.

Activity 9e: Influences on monetary policy settings

This activity comprises two tasks. First, you are required to complete the table below to demonstrate a knowledge of how various statistics or indicators might influence RBA decision making. Second, you are required to refer to the table and answer the questions below.

Place a T (for tighten) or an L (for loosen) in each of the blank boxes below to indicate what the RBA is more likely to do in the event that there is a <u>rise</u> in the relevant statistic.			
• Inflation rates		• Real unit labour costs	
• Real GDP		• Bus & cons confidence	
• Producer price inflation		• Share market prices	
• Loan approvals		• Property prices	
• Credit growth		• Wage price index	
• Building approvals		• Budget deficit	
• Household debt levels		• Profitability	
• CAD or NFD		• Levels of C or I	
• The unemployment rate		• Capacity utilisation	
• Job vacancy rates		• Average weekly earnings	
• Growth rates overseas		• Terms of Trade	
• Trade weighted index		• Interest rates overseas	
• Retail sales levels		• Commodity prices	

- Discuss how an increase in the rate of growth in real GDP to unsustainable levels may influence monetary policy settings.
- Explain why higher producer prices might influence the RBA to tighten monetary policy.
- Discuss how a fall in asset prices (such as shares and property) may influence monetary policy settings.
- Discuss how the delivery of a smaller (structural) budget deficit might influence monetary policy settings.
- Discuss what is likely to be happening to the unemployment rate, job vacancy rates and real unit labour costs if the RBA is concerned about inflationary pressure stemming from a tight labour market.
- Explain how a fall in the capacity utilisation rate may affect monetary policy settings.
- Explain why a lower trade weighted index is likely to contribute to an increase in the target cash rate.
- Explain why a slower rate of economic growth in China is likely to contribute to a decrease in the target cash rate.

Review questions 9.8 - 9.9

1. Explain how and why the RBA might intervene to manipulate the value of Australia's exchange rate.
2. Outline the monetary policy stance that is likely to be adopted by the RBA in order to reduce inflationary pressure.
3. Discuss how a tightening on monetary policy should reduce inflation over time. In your answer, refer to the role of inflationary expectations.
4. Explain why the very expansionary monetary policy stance in place over 2020-21 was consistent with the achievement of both price stability and full employment.
5. Explain why monetary policy-decision making needs to be forward looking or pre-emptive.
6. Explain why the pre-emptive nature of monetary policy may result in poor RBA decision making.
7. Discuss why a tightening of monetary policy may occur even when inflation is between 2-3%. Use an example to illustrate your answer.
8. Explain how a tightening of monetary policy helps to reduce the rate of inflation.
9. Discuss why a loosening of monetary policy may occur even when inflation is above the 2-3% target band.
10. Explain how RBA 'open mouth operations' or RBA Governor 'jawboning' can influence economic activity.
11. Select any six indicators from Table 9.1 and outline the monetary policy implications that stem from an increase in each one of these indicators.
12. Distinguish a leading indicator from a lagging indicator and explain why lagging indicators are less useful for monetary policy deliberations.
13. Explain why the RBA was criticised for not loosening monetary policy over the course of 2024.
14. Discuss the effectiveness of monetary policy as a weapon to fight the problem of cost inflation.

9.10 Monetary policy to achieve stronger economic growth and employment

As we discussed earlier, once inflation and inflationary expectations have been contained (or if inflation is too low or negative), the RBA can loosen monetary policy to provide short term stimulus to growth and employment. This is consistent with the RBA's charter, providing the rate of economic growth is relatively low and unemployment rate is relatively high. The lower interest rates should stimulate AD and economic activity via the four transmission channels discussed earlier and should assist with the achievement of the government's goals of strong and sustainable economic growth and full employment. However, a loosening of monetary policy will generally not be used to achieve a long-term stimulus to growth and employment as this could be inflationary and only serve to make growth unsustainable. Long term economic growth and employment growth are achieved via the attainment of low inflation, in conjunction with appropriate implementation of Aggregate Supply side policies (see Chapter 10) and the successful use of budgetary policy (see Chapter 8).

To achieve a strong and sustainable rate of economic growth over time, monetary policy will be used to achieve the goal of 2-3% inflation on average over time. This is because low inflation is seen as the 'pre-condition' to the achievement of stronger growth in real GDP and employment. From Chapter 5 you will recall that low rates of inflation will cause an increase in economic growth in the medium to longer term because low inflation stimulates AD via a number of avenues. These include:

- an increase in Consumption demand due to an increase in **purchasing power** over goods and services
- an increase in **consumer and investor confidence** due to greater certainty about future price changes which helps to stimulate Consumption and Investment demand
- an increase in **international competitiveness** of Australia's traded goods sector (assuming overseas inflation rates are higher) working to boost demand for net exports (X-M).



With a central bank is committed to achieving its inflation target, **inflationary expectations** are reduced to a minimum and the opportunities exist to achieve a period of low inflation and a relatively high rate of economic growth, which of course is the foundation for the achievement of strong and **'sustainable'** growth.

In addition, the RBA will always take into account the trade-off between short term and long term economic growth that exists when changing monetary policy settings. For example, it may use its forward-looking indicators and determine that inflation is likely to be high for an excessive period. Accordingly, the RBA might elect to tighten monetary policy

and adopt a restrictive stance, even if rates of economic growth and employment growth are relatively low at the time. This was the situation facing the RBA over recent years, where it persisted with a restrictive monetary policy stance through 2024 despite the very low rate of economic growth. While the higher interest rates further constrain growth rates, economic growth should return to a more sustainable footing over the longer term. Accordingly, economic growth today is traded-off for growth in the future. Conversely, the RBA might be faced with recessionary conditions, such as those it faced in 2020, and decide to pursue a more expansionary monetary policy stance. To the extent that this leads to excessive economic growth and inflation in the future, it can potentially result in future economic growth being traded-off for current growth. As discussed earlier, this was the position it faced during 2022, with a prolonged period of monetary policy stimulus adding to inflationary pressures and potentially jeopardising more sustainable rates of economic growth in the future.

With respect to the impact on unemployment, tight monetary policy to achieve low inflation is likely to cause a reduction in both the **demand for labour** and **employment** in the short term. However, once the RBA positions the economy for strong and sustainable growth over time, via the containment of inflation, this will help to generate a strong derived demand for labour, boosting employment growth and reducing **rates of unemployment**. In addition, the RBA can switch its focus to the short term and loosen monetary policy in an effort to stimulate employment and reduce the unemployment rate. In the past, the RBA would only consider this option if it was certain that inflation was under control. However, with its new 'dual focus' on price stability and full employment, the RBA is perhaps more likely to employ this more short term focus under certain circumstances (e.g. if unemployment climbs very quickly to high levels).

9.11 Monetary policy to achieve better living standards

It should be clear that the RBA's ultimate objective is to improve the **economic prosperity and welfare** of the people of Australia. This means that every single monetary policy decision is 'designed' to improve the **living standards** of Australians in the longer term. While some groups may be made worse off by RBA decisions, particularly in the short term, such as highly **indebted households** during the period of monetary policy tightening over 2022-23, Australians, on average, are likely to be better off over time once the RBA is able to steer the economy towards low inflation and strong and sustainable rates of growth.

9.12 Use of monetary policy over recent years

Stabilisation of the business cycle

As mentioned in Section 9.2, during periods of very low growth (or recession), the RBA will be prepared to adopt a more expansionary stance and loosen monetary policy in an effort to stimulate AD, real GDP and employment. This was precisely the scenario that faced the RBA during 2020 as the Australian economy recorded its deepest recession since the 1930s. With negative economic growth, deflation and an effective rate of unemployment above 10%, the RBA implemented the most expansionary monetary policy stance on record. It reduced the target cash rate to an incredibly low 0.1% and this was complemented by unconventional monetary policy measures. These two components of monetary policy (conventional and unconventional) combined to support the record budgetary policy stimulus measures introduced over 2020-21 (see Chapter 8). The lower interest rate environment encouraged AD to increase via the transmission channels referred to earlier, which in turn stimulated economic growth and prevented unemployment from rising to unacceptable levels.

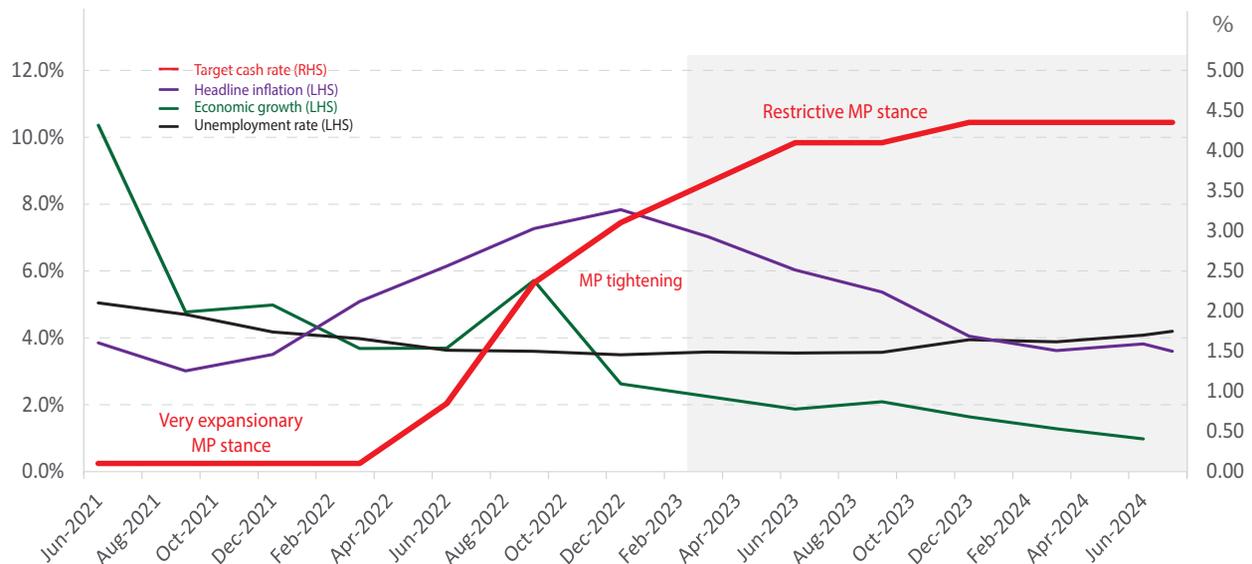


The economy entered the recovery phase of the business cycle between 2021 and 2023, with unemployment falling to very low levels (below the NAIRU rate), economic growth rates increased above 3% and inflation climbed into, then above, the 2–3% target band. In response, the RBA adopted a less expansionary stance, increasing the target cash rate to as high as 3.1% in late 2022 in order to stabilise the economy and bring inflation back down from above 7% and into the target range. The RBA remained concerned about excessive inflation over 2023 and continued to tighten monetary policy, raising the target cash rate to 4.35% by the end of 2023. This restrictive monetary policy stance was maintained throughout 2024, which helped to reduce aggregate demand in the economy, contributing to looser labour market conditions (and a corresponding rise in the unemployment rate) and a fall in the rate of inflation towards the target range.

Monetary policy use to achieve macroeconomic goals since 2021

Chart 9.2 summarises the movement in the target cash rate since 2021 along with the movement in the key macroeconomic variables that help to determine if Australia's key macroeconomic goals are being achieved.

Chart 9.2: Target cash rate and key macroeconomic variables since 2021



For much of 2021, with signs of economic recovery and inflation well under control, the RBA maintained a focus on full employment and communicated a desire to see growth in both wages and inflation (into the bottom end of the target range). As part of its [unconventional] forward guidance, it noted that the expansionary policy setting would remain in place until at least 2024. This was articulated by the RBA Governor in October 2021 in the following way:

The Board remained committed to maintaining highly supportive monetary conditions to achieve a return to full employment in Australia and inflation consistent with the target. It will not increase the cash rate until actual inflation is sustainably within the 2 to 3 per cent target range. The central scenario for the economy is that this condition will not be met before 2024. Meeting this condition will require the labour market to be tight enough to generate materially higher wages growth than at the time of the meeting.

Since then, the economic recovery gained momentum, evidenced by much stronger (annual) rates of economic growth by the end of 2021 (5% for the year ended December 2021), combined with a re-emergence of inflationary pressure (headline inflation of 3.5%) and an unemployment rate falling towards 4%. The strength of the economic recovery during the latter part of 2021 and the early parts of 2022 were evidenced by the following types of indicators:

- Strong growth in commodity prices/terms of trade
- Continuing strong growth in net export demand
- Large growth in job vacancies and job advertisements
- Strong employment growth
- Falls in the unemployment (and underemployment) rates
- Sizeable rebounds in both consumer and business confidence
- High levels of construction activity
- Growth in the housing and share markets
- Strong growth in lending to businesses and households
- Relatively high rates of capacity utilisation
- Continuing stimulus from budgetary policy

By the second quarter of 2022, however, the economy experienced a number of simultaneous shocks that caused a relatively large acceleration in (cost) inflationary pressures. The war in Ukraine resulted in global energy prices increasing, which included a steep rise in the price of crude oil and natural gas. This was compounded by the effects of floods on the east coast of Australia, which raised the costs and prices of agricultural commodities. In addition, there were ongoing COVID-19 global supply chain disruptions which inflated the cost of imported inputs (e.g. building supplies) due to exorbitant growth in shipping costs as well as closure of manufacturing facilities in China. The labour market also continued to tighten over 2022, with the unemployment rate falling to as low as 3.4% and wage pressures also beginning

to emerge by the middle of 2022. With unemployment either at or below the NAIRU level, and inflation climbing well above the target range, the RBA embarked on a tightening phase, raising the target cash rate to 3.1% by the end of 2022 to make monetary policy less expansionary.

During 2023, the inflationary pressures persisted in the economy and the RBA further tightened policy, increasing the cash rate to reach 3.85% in May and again to 4.35% by November. This resulted in monetary policy moving from an expansionary to a restrictive stance by the middle of 2023. Despite growing community anxiety about the aggressive monetary policy tightening (much earlier than ‘promised’ by the former RBA Governor) and the negative impacts on certain groups (e.g. those with mortgages forced to endure ever increasing servicing costs), the RBA was unapologetic about its stance, highlighting that some short-term pain (from higher interest rates) was necessary to avoid the more pervasive longer term damage that high inflation brings. In explaining the RBA’s November 2023 monetary policy tightening, the RBA Governor noted the following:



Returning inflation to target within a reasonable timeframe remains the Board’s priority. High inflation makes life difficult for everyone and damages the functioning of the economy. It erodes the value of savings, hurts household budgets, makes it harder for businesses to plan and invest, and worsens income inequality. And if high inflation were to become entrenched in people’s expectations, it would be much more costly to reduce later, involving even higher interest rates and a larger rise in unemployment.

The restrictive stance helped to reduce inflation over the course of 2024, with inflation to June 2024 falling to 3.8% and the less meaningful monthly CPI reading for August 2024 also seeing inflation fall to 2.7%. However, part of the more recent falls in inflation were attributed to one-off price reductions stemming from the delivery of cost of living relief measures (e.g. energy rebates) delivered by state and federal governments. The RBA was still concerned about the imbalance between aggregate demand and aggregate supply, despite the low rate of economic growth, and the underlying rate of inflation was expected to remain high until late 2025. In this environment, the RBA resisted calls for an easing of monetary policy over 2024 and maintained its restrictive setting with the cash rate remaining at 4.35% at the time of writing in October 2024. In essence, the RBA felt that the underlying forces exerting upward pressure on prices outweighed those forces exerting downward pressure on prices. These forces are summarised in the table below:

Forces contributing to inflation	Forces contributing to disinflation
• Expansionary budget deficits	• Falling production costs as global supply constraints ease
• The stimulus provided by Stage 3 tax cuts	• A lower terms of trade (or lower commodity prices)
• Relatively low rates of productivity growth	• Low levels of consumer confidence (albeit rising)
• Continuing low rates of unemployment/tight labour market (albeit loosening in late 2024)	• Slow rates of economic growth
• Continuing strong growth in (real) unit labour costs	• Declining real disposable income per capita
• Relatively high wages growth (albeit falling)	• Weaker growth in China
• Easing of monetary policies overseas	• The higher exchange rate over the past year
• High rates of capacity utilisation/positive output gap	
• Continuing solid growth in the housing and share markets	
• Possible abuse of market power by oligopolists (e.g. supermarkets)	
• Growing geopolitical uncertainty/conflicts	

The RBA also received criticism for its aggressive tightening of monetary policy since 2022 in an effort to reduce demand inflationary pressures when the economy was experiencing cost inflationary pressures (see ‘Can monetary policy be used to fight cost inflation?’ in Section 9.9). However, the RBA maintained its resolve, citing forecasts for inflation to rise further above 7% or 8% and the risks that inflationary expectations would become anchored over time. It was keen to avoid the emergence of a costly price-wage spiral that could be very difficult to unravel in the future and would lead to a deterioration in the economic prosperity and welfare of Australians in the long run.

Activity 9f: The latest RBA Minutes

Download the latest RBA Minutes from the following link: <https://www.rba.gov.au/monetary-policy/rba-board-minutes>. At a minimum, read the sections found at the bottom portion of the Minutes titled:

- Considerations for monetary policy
- The decision

Then answer the following questions:

1. Describe one example from the Minutes where the RBA board provides an indication of labour market conditions.
2. Explain how the labour market conditions described in the the answer to the above question are likely to have influenced the RBA's decision-making. In your answer, refer to labour market tightness/weakness and wage pressures.
3. Describe two (other) indicators referred to by the RBA board that suggest inflationary pressures are increasing and explain how this might impact on monetary policy settings.
4. Describe two (other) indicators referred to by the RBA board that suggest inflationary pressures will remain low and explain how this might impact on monetary policy settings.
5. Briefly summarise the RBA's decision as described in the final section of the Minutes.
6. On balance, taking into account the various influences described above, explain the rationale behind the RBA's decision.



9.13 Strengths and weaknesses of monetary policy

As discussed in Chapter 8, providing an overview of some of the major factors that make policies relatively powerful or weak will help identify the right policy combinations to employ when seeking to achieve economic goals. The strengths of monetary policy are those factors that make it particularly potent in achieving domestic macroeconomic goals, while its weaknesses are those factors that constrain or limit the ability of monetary policy to make a meaningful contribution to the achievement of particular economic goals.

Strengths of monetary policy

- Monetary Policy is implemented independently from the government by the RBA and (unlike budgetary policy) the RBA is more able to make policy decisions that are free from **political bias**. It is only under very exceptional circumstances (e.g. when there is a material policy difference between the RBA and the government) that the government will interfere. In reality, such interference is a politically demanding process and is a course of action that is very unlikely to be taken by the government. For example, just prior to the May 2022 election, the RBA felt the need to tighten monetary policy as it believed that this was in the best interests of the nation, despite the fact that it potentially harmed the re-election prospects of the incumbent government at the time.
- The **implementation lag** is relatively short compared to other policies as it takes very little time to implement a monetary policy decision once the RBA Board decides to change policy settings. For example, once the decision was made to tighten monetary policy in November 2023, the RBA announced the decision in the afternoon and the cash market automatically adjusted to the higher cash rate announcement, raising the actual cash rate towards the new target. Financial markets more generally then automatically started to adjust other interest rates upwards shortly after the announcement was made.
- Monetary policy has a powerful influence on **expectations** of economic agents. In some instances, concerns expressed by the RBA Governor (without actual changes to policy settings) can have a powerful influence on the behaviour of consumers, investors, borrowers or lenders.
- Monetary policy is relatively powerful at restraining AD during a boom as a tightening of policy will immediately reduce **discretionary income** of indebted households.
- The ability to use of unconventional monetary policy can be viewed as a strength of policy in that the RBA has the **flexibility** to introduce 'unconventional' measures (e.g. 'quantitative easing') to support the more conventional measures (i.e. a lower target cash rate) in extraordinary circumstances.



Weaknesses of monetary policy

- Monetary policy is unable to discriminate within the economy as any effort to restrain or stimulate AD will occur via a change to interest rates that apply across the entire economy. Unlike other policies, it is unable to restrain or stimulate activity in particular sectors, or address the specific needs of certain groups across the economy. For example, during the relatively strict lockdown measures imposed on Victoria during 2020 and again in 2021, monetary policy could not single out Victoria from the rest of the economy and provide additional stimulus (unlike budgetary policy). Similarly, during the recent terms of trade boom, high growth was experienced in mining states, such as WA and Qld, masking the relatively lower growth rates in other states. Monetary policy was unable to stimulate the low-growing states without over-inflating the mining states; nor was it able to provide isolated support to the manufacturing or retail sectors in the weak states who were suffering as a result of the higher exchange (caused by the growth in the terms of trade). In addition, monetary policy is particularly ineffective at reducing unemployment other than cyclical unemployment. For example, unlike budgetary policy, monetary policy cannot achieve a reduction in structural unemployment as it lacks the ability to improve the skills of those structurally unemployed. In these respects, monetary policy is often referred to as a **'blunt instrument'** or a policy that is relatively **'one dimensional.'**
- The time it takes for monetary policy actions to fully impact on the economy (the **impact lag**) can be up to two years. This forces decision making to be very forward looking, relying on economic forecasts and estimates that may be incorrect or misleading. Accordingly, monetary policy can actually become pro-cyclical when it intends to be counter-cyclical. A recent example relates to prolonged expansionary phase up to 2022 which, many argued, meant that interest rates were kept too low for too long, which contributed to capacity constraints and inflationary pressures experienced from the second half of 2022.
- The RBA does not have **direct control** over interest rates. Instead, it can only exert control over the cash rate, and the extent to which changes in the cash rate flow through to change all other interest rates depends on the competitive pressures existing in financial markets. For example, over recent years financial institutions did not pass on 'in full' the reductions in the cash rate for reasons such as higher funding costs and reduced levels of competition in the financial system. In addition, once policy was tightened over 2022-23, some banks raised retail interest rates by more than the increase in the target cash rate.
- Monetary policy cannot directly reduce inflationary pressures that are generated from the supply side of the economy (i.e. **cost inflation**). Efforts to reduce cost inflationary pressure via a loosening of monetary policy (i.e. by lowering interest rates to reduce the costs of production for businesses), will only ignite demand inflationary pressures; and attempts to reduce cost inflation via monetary policy tightenings will run the risk of triggering a downturn or a recession. This criticism was levelled at the RBA during 2022 when it aggressively tightened monetary policy to reduce inflation that was mostly caused by cost inflationary pressures. [See 'Can monetary policy be used to fight cost inflation?' in Section 9.9.]
- Unlike budgetary policy, monetary policy is less effective in stimulating AD during an economic downturn. This is because a reduction in interest rates may not immediately increase AD, because consumers are not forced to spend any increase in **discretionary income** and are unlikely to do so when consumer confidence is low. They are more likely to de-leverage (reduce their level of debt) instead, which does not contribute directly to AD.
- Expansionary monetary policy becomes less effective at stimulating AD when levels of **private sector indebtedness** increase to high levels. This is because economic agents are less likely to become incentivised by lower interest rates given that borrowing more money would only serve to fuel the already high debt levels. In addition, households become more incentivised to use any increase in discretionary income to make higher loan repayments to reduce the size of their debt. Ultimately, this undermines the effectiveness of the cash flow and savings and investment (cost of credit) channels of monetary policy when monetary policy is loosened. For example, over the period leading into 2022, the RBA noted on a number of occasions the reduced effectiveness of monetary policy in stimulating aggregate demand given the high levels of household debt. [Of course, it can be argued that the reverse is true when monetary policy is tightened, as it has since 2022, as the high household debt levels tend to make households more sensitive to higher interest rates, which can increase the effectiveness of the cash flow and savings and investment channels.]
- Related to the above points is the fact that monetary policy is less effective at stimulating AD when **interest rates are at very low levels** (such as the time between 2020 and 2022). This is because these low rates will typically be evident when economic growth is very weak (or the economy is experiencing a recession), levels of uncertainty are high and consumer/business confidence are low. Financial institutions may also become less willing to extend credit during this environment as they attempt to repair balance sheets and protect against further losses (e.g. bad debts).

- During 2020-21, the RBA noted that the cash rate was at its **'effective lower bound'** (0.1%), which highlights that the RBA is not prepared to reduce the target cash rate below 0.1%. It highlights a real weakness associated with the use of 'conventional monetary policy' as the (target) cash rate cannot be lowered further in the event that additional economic stimulus is required. This is why 'unconventional monetary policy' measures were implemented over the course of 2020-21. This means that monetary policy is relatively weak compared to budgetary policy which (notwithstanding the risks and costs of further indebtedness by governments) can continue to stimulate the economy by running successive deficits as required.
- The **exchange rate channel** of monetary policy becomes less effective (or even impotent) if other central banks around the world are also making equivalent changes to monetary policy settings as those being made in Australia. For example, the increase in the target cash rate over 2022-23 resulted in higher market interest rates which would ordinarily lead to higher relative interest rates in Australia. This is then designed to raise the demand for the AUD (as foreign investors chase higher investment returns on offer in Australia) and appreciate the exchange rate, thereby helping to reduce demand and cost inflationary pressures in Australia. However, other countries, such as the USA, were increasing their official interest rates by more than Australia, which exerted downward pressure on Australia's exchange rate and resulted in the exchange rate channel becoming totally ineffective at this time.

Review questions 9.10 - 9.13

1. Explain why low inflation is seen as a pre-condition to the achievement of higher growth in real GDP and employment.
2. Under what economic circumstances is the RBA likely to trade-off shorter term growth for longer term growth?
3. Under what economic circumstances is the RBA likely to trade-off longer term growth for shorter term growth?
4. Briefly summarise how monetary policy is used to advance Australian living standards.
5. Outline how the RBA has used monetary policy to stabilise the economy over recent years.
6. Identify three economic indicators that the RBA may have relied upon when changing monetary policy settings between 2019 and 2021.
7. Describe how each of the indicators refer to in the previous question contributed to the change in monetary policy settings.
8. Explain how the RBA changed monetary policy settings since the middle of 2022.
9. Identify three economic indicators that the RBA may have relied upon when changing monetary policy settings in late 2023.
10. Describe how each of the indicators referred to in the previous question contributed to the change in monetary policy settings.
11. Summarise two weaknesses and two strengths associated with the use of monetary policy. Explain how each makes the policy relatively more or relatively less effective compared to another policy option.



Multiple choice review questions

- 1. Which of the following provides the best definition of monetary policy?**

 - a) The manipulation of exchange rates to achieve low inflation rates
 - b) The manipulation of interest rates to achieve low inflation rates
 - c) The manipulation of the currency to achieve low inflation rates
 - d) The manipulation of inflation rates to achieve low interest rates
- 2. Which one of the following statements does not appear in the RBA's charter as an explicit objective of monetary policy?**

 - a) Low and stable inflation
 - b) Relatively low levels for interest rates
 - c) The maintenance of full employment in Australia
 - d) The economic prosperity and welfare of the people of Australia
- 3. The most appropriate monetary policy response during a period of high inflation is:**

 - a) a raising of the policy interest-rate corridor
 - b) the purchase of government securities by the RBA
 - c) the purchase of foreign currency
 - d) the sale of the foreign currency
- 4. Which of the following best defines the RBA's inflation target?**

 - a) To achieve 2-3% underlying inflation on average over time
 - b) To achieve 2-3% headline inflation on average over time
 - c) To achieve 2-3% consumer price index on average over time
 - d) To achieve 2-3% consumer price deflation on average over time
- 5. The underlying rate of inflation is important for monetary policy deliberations because:**

 - a) It is the target variable used in the RBA's medium term objective
 - b) It provides valuable information about the core rate of economic growth
 - c) It provides information about the future direction of consumer price inflation
 - d) It helps to determine the level of manipulation needed in the cash market
- 6. Raising the TCR to curb inflationary pressure is likely to be most effective when it is accompanied by:**

 - a) More expansionary budgetary policy
 - b) Stronger growth overseas
 - c) A reduction in the budget deficit
 - d) A persistent fall in the value of the dollar
- 7. Which of the following indicators could add support to calls for a monetary policy loosening in 2024-25?**

 - a) A further rise in property prices
 - b) More expansionary budgetary policy settings
 - c) A rise in building approvals
 - d) Lower capacity utilisation rates
- 8. A positive output gap in the economy suggests that:**

 - a) Aggregate demand is growing faster than aggregate supply and inflation will be excessive
 - b) Aggregate demand is growing slower than aggregate supply and inflation will be excessive
 - c) Aggregate demand is growing faster than aggregate supply and disinflation will occur
 - d) Aggregate demand is growing slower than aggregate supply and disinflation will occur
- 9. If the Reserve Bank undertakes large purchases of securities in the cash market, this will tend to:**

 - a) Reduce liquidity and increase interest rates
 - b) Reduce liquidity and decrease interest rates
 - c) Increase liquidity and increase interest rates
 - d) Increase liquidity and reduce interest rates
- 10. Which one of the following factors would not contribute to the adoption of a less restrictive monetary policy stance?**

 - a) A depreciation of the exchange rate
 - b) Growth in the unemployment rate above full employment levels
 - c) A reduction in the terms of trade
 - d) Falls in consumer and business confidence

- 11. A loosening of monetary policy by the Reserve Bank will lead to:**
- a) higher interest rates and an expansion in economic activity
 - b) higher interest rates and a contraction in economic activity
 - c) lower interest rates and an expansion in economic activity
 - d) lower interest rates and a contraction in economic activity
- 12. With respect to the transmission mechanism of monetary policy (i.e. how changes in the cash rate affect the economy), which of the following does not represent the common channels by which a change in 'interest rates' affect the economy?**
- a) The effect on cash flows
 - b) The effect on liquidity in the cash market
 - c) The effect on savings and investment
 - d) The effect on the exchange rate
- 13. Which of the following transmission channels becomes less effective when foreign central banks change monetary policy settings in tandem with Australia?**
- a) Cash flow
 - b) Exchange rate
 - c) Savings and Investment
 - d) Asset prices
- 14. In relation to the actual cash rate and the target cash rate:**
- a) They will always be at the same level
 - b) The actual cash rate can be below or above the target cash rate
 - c) The target cash rate will always be above the actual cash rate
 - d) The target cash rate will always be below the actual cash rate
- 15. Monetary policy neutrality refers to a situation where:**
- a) The level of the target cash rate is low enough to be stimulating the economy
 - b) The level of the target cash rate is high enough to be restricting the economy
 - c) The level of the target cash rate remains the same for more than two consecutive quarters
 - d) The level of the target cash rate is at a level that is neither stimulating nor restraining economic activity
- 16. When the RBA increases the cash rate, this means that:**
- a) Monetary policy is in a restrictive phase
 - b) Monetary policy has been tightened
 - c) Monetary policy has moved towards a neutral position
 - d) Monetary policy is in an expansionary phase
- 17. With respect to the transmission channels of monetary policy, which of the following is most likely to occur when monetary policy is loosened?**
- a) The price of houses is likely to rise
 - b) The price of imports should fall
 - c) The price of money should rise
 - d) The price of shares should fall
- 18. Which of the following best describes how the RBA will seek to prevent the value of the Australian dollar from falling too far?**
- a) Tighten monetary policy to increase interest rates, attract capital inflow and raise demand for the dollar
 - b) Loosen monetary policy to decrease interest rates, attract capital inflow and raise demand for the dollar
 - c) Conduct net purchases of foreign currency on the foreign exchange market
 - d) Conduct net sales of foreign currency on the foreign exchange market
- 19. A loosening of monetary policy is likely to:**
- a) decrease AD and a reduce inflation
 - b) increase capital inflow
 - c) reduce the trade weighted index
 - d) decrease lending to foreigners by Australians

20. Which of the following is most correct in relation to monetary policy?

- a) The RBA is actively engaged in purchases and sales of foreign currency in order to target a particular value for the Australian dollar
- b) When deliberating on monetary policy, the RBA will not take into account recent and expected changes in the value of the Australian dollar
- c) The RBA cannot directly change interest rates in the economy
- d) An increase in the target cash rate means that the monetary policy stance is restrictive

Chapter Summary

1. Monetary policy is operated by the RBA on behalf of the government designed to manipulate key financial variables in the economy (primarily interest rates) in order to achieve specific economic goals and ultimately improve the living standards or welfare for all Australians.
2. The key medium-term objective for monetary policy is to achieve price stability and full employment.
3. The RBA will always take into account the short and long term policy impacts on growth and employment when determining monetary policy settings, as well as the impact on financial stability.
4. The RBA uses the 'underlying rate of inflation' as the key statistic that helps it to forecast what is likely to be happening to the headline CPI in the future.
5. The RBA implements conventional monetary policy primarily via the manipulation of the cash rate and interest rates more generally.
6. Up until 2020, the RBA used conventional monetary policy implementation via the use of the 'interest rate corridor with scarce reserves' which involved the RBA using open market operations on a daily basis to manipulate the price of cash (i.e. the cash rate) to its designated target cash rate.
7. Under this system, to decrease the cash rate, the RBA would increase liquidity in the cash market by purchasing government securities or repos.
8. In contrast, to increase the cash rate, the RBA would reduce liquidity in the cash market by selling government securities or repos.
9. A tightening of monetary policy involved the RBA announcing a new higher target cash rate and then adjusting the policy interest rate corridor upwards. The actual cash rate would rise to the new target as the market automatically adjusts.
10. A loosening of monetary policy involves the RBA announcing a new lower target cash rate and then adjusting the policy interest rate corridor downwards. The actual cash rate would fall to the new target as the market automatically adjusts.
11. The RBA typically manipulated liquidity in the cash market on a daily basis to ensure that the actual cash rate matched the target cash rate.
12. Due to excess liquidity in the system and the reduction in the TCR to 0.1% in late 2020, the RBA adopted less conventional means of monetary policy implementation via the use of the 'floor system with excess reserves'.
13. It allowed the deposit rate (the floor of the corridor) to fall from 25 to 10 basis points below the TCR to ensure that the floor of the corridor didn't become negative.
14. This temporary system resulted in the actual cash rate resting below the target cash rate for the entire period between 2020 and 2024.
15. In 2024, the RBA notified markets that it would eventually be switching to a hybrid of the two systems in the future, referred to as 'ample reserves'.
16. Unconventional monetary policy has involved the RBA using tools or methods, other than a direct change to the cash rate, in order to influence market rates of interest and economic activity.
17. In Australia, unconventional monetary policy has involved the RBA using tools or methods, other than a direct change to the cash rate, in order to influence market rates of interest and economic activity. This has involved asset purchases/quantitative easing, forward guidance, and a term funding facility.
18. Other interest rates in the economy are likely to move in line with any change in the cash rate.
19. The transmission mechanism refers to the way a change in the cash rate (or interest rates influenced by unconventional measures) affects economic activity. The first stage relates to how a change to the cash rate affects other interest rates in the economy and the second stage relates to how the resulting change to interest rates influences economic activity (and inflation).
20. A tightening of monetary policy involves the RBA increasing the target cash rate/interest rates and a loosening of monetary policy involves the RBA decreasing the target cash rate/interest rates.
21. There are four recognised channels by which interest rate changes 'transmit' their effects on economic activity. These are the cost of credit (Savings and Investment), cash flows, asset values and the exchange rate channels.
22. The effect that a change in interest rates has on Consumption and Investment via the four transmission channels will be supplemented by the effects on inflationary expectations. Appropriate monetary policy intervention by the RBA is designed to minimise inflationary expectations which then helps to make monetary policy more effective

over time.

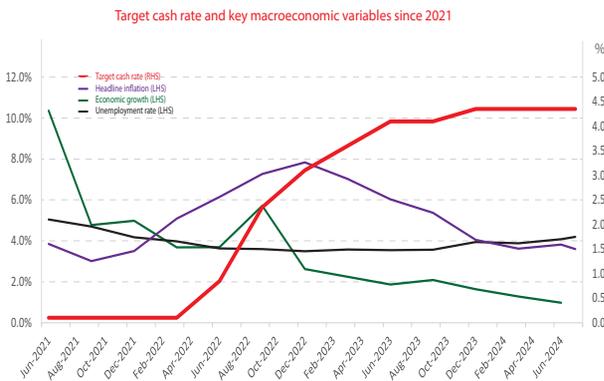
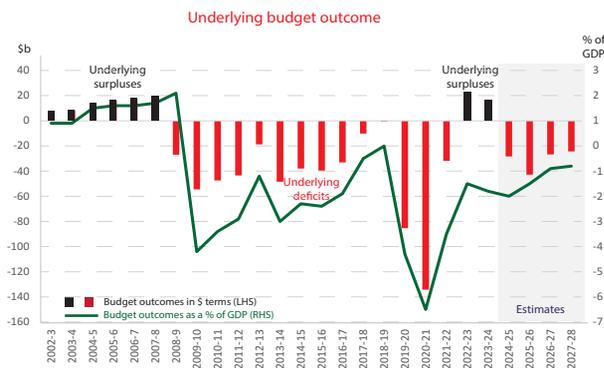
23. An expansionary monetary policy stance is one where the setting of the target cash rate is low enough to be stimulating AD and increasing inflationary pressure.
24. A contractionary monetary policy stance is also referred to as restrictive monetary policy. It is one where the setting of the target cash rate is high enough to be restricting AD and reducing inflationary pressure.
25. Monetary policy neutrality describes a situation where the level of the cash rate is neither working to stimulate nor contract the economy. This has changed over recent years from approximately 5.00 - 5.5% in 2007, to roughly 3.0 – 3.5% in 2024.
26. The RBA will not specifically tighten (or loosen) monetary policy in an effort to increase (or decrease) the exchange rate.
27. The RBA does not target a particular level for the value of the dollar. It will occasionally intervene in the foreign exchange market if it believes that the Australian dollar has clearly overshot or undershot its fundamental or underlying value.
28. When the RBA purchases (demands) the AUD in the foreign exchange market, it places upward pressure on its value, and when it sells (supplies) the dollar it places downward pressure on its value.
29. To prevent excessive inflation the RBA will adopt a less expansionary stance or a more restrictive stance that will typically involve a tightening of policy.
30. Once policy is tightened and interest rates across the economy increase, this eventually works to reduce inflationary pressure by restricting growth of AD, and labour costs, as well dampening inflationary expectations and reducing the price of imports via an appreciation of the exchange rate.
31. There can be a 'time lag' of up to two years before a tightening of policy actually has its full impact on reducing economic activity and the rate of inflation. As a consequence, all RBA deliberations must be forward looking.
32. Changes to monetary policy must be 'pre-emptive' in the sense that they act to dampen inflation or inflationary expectations before they actually appear in the economy. Accordingly, the RBA will pay particular attention to those statistics that are 'leading indicators' of economic activity.
33. The need to forecast future growth rates in economic activity and inflation can sometimes lead to policy decisions that actually contribute to economic harm in the event that RBA forecasting is incorrect.
34. The pre-emptive nature of monetary policy decision-making also results in RBA decisions that appear peculiar, but are indeed appropriate for the time.
35. In the event that inflation and inflationary expectations have been contained to the satisfaction of the RBA, it can loosen monetary policy to provide short term stimulus to growth and employment.
36. Tight monetary policy is likely to be less effective at controlling cost inflation because higher interest rates may do little to reduce the relevant cost pressures.
37. Low inflation is seen as the 'pre-condition' to the achievement of higher growth in real GDP and employment.
38. A committed RBA will always run the risk of engaging in a trade-off between short and long term growth.
39. Tight monetary policy to achieve low inflation is likely to cause a reduction in both the demand for labour and employment in the short term but help to achieve longer term employment growth via the achievement of a low inflation environment.
40. Every single monetary policy decision is ultimately 'designed' to improve the living standards of Australians.
41. It is possible that the RBA may implement policy that is 'pro-cyclical' when its intention was for its actions to be 'counter-cyclical'.
42. During periods of very low or negative growth, the RBA is likely to adopt a more expansionary stance and loosen monetary policy in an effort to stimulate AD, real GDP and employment.
43. The RBA acknowledges that a target cash rate of 0.1% was its 'effective lower bound', which potentially highlights the limits associated with the use of conventional monetary policy.
44. In the middle of 2022, with unemployment either at or below the NAIRU level, and inflation climbing above the target range (to as high as 6.1% for the year ending June 2022), the RBA embarked on a tightening phase, raising the target cash rate to 3.1% by December 2022.
45. This tightening phase continued throughout 2023 with the target cash rate rising to a restrictive 4.35% as the RBA was concerned about capacity constraints that resulted in excessive inflation. This restrictive stance was maintained throughout 2024 (at least until the time of writing in October), despite low rates of economic growth and disinflation, as the RBA still felt that aggregate demand was growing too fast relative to aggregate supply.
46. The strengths of monetary policy are those factors that make it particularly potent in achieving domestic macroeconomic goals, while its weaknesses are those factors that constrain or limit the ability of monetary policy to make a meaningful contribution to the achievement of particular economic goals.

Activity Centre: Unit 4 Outcome 1

This activity centre contains a sample of practice SAC and exam questions relating only to those key knowledge dot points covered in Area of Study 1 (Unit 4) of the VCE Economics Study Design (2023-27). It also contains a crossword puzzle to help students familiarise themselves with some of the key definitions or concepts relating to this area of study. The answers to all of the questions and crossword can be found at the CPAP website at www.commpap.com.

Question 1

Refer to the charts below and answer the questions that follow:



- Describe the movement in both the budget outcome and the target cash rate since 2022. (4 marks)
- Describe the changing stance of monetary policy since 2022. (2 marks)
- Describe two distinct economic indicators or factors that might account for the change in monetary policy settings since 2022. (4 marks)
- Using the appropriate chart for support, outline whether the movement in the estimated/projected budget outcome beyond 2023-24 is consistent with the government's fiscal strategy. (4 marks)
- Outline how a less restrictive monetary policy stance in 2025 can stimulate aggregate demand via the exchange rate mechanism. (3 marks)
- Explain how the fiscal policy setting in Australia over 2024-25 might be influencing economic growth and employment. (6 marks)
- Explain how the movement in the estimated budget outcome from 2023-24 onwards might influence monetary policy settings. (4 marks)

Question 2

'Budgetary policy plays an important stabilisation role in the Australian economy, able to support monetary policy efforts to limit the damaging effects of economic slowdowns'

- Define budgetary policy and outline its overriding goal (4 marks)
- Define monetary policy and outline its goals (4 marks)
- Distinguish the structural and cyclical components of the budget and explain how they combine to support economic growth during a downturn or recession (6 marks)
- Discuss whether an increase in the budget deficit is evidence of the Government taking a more expansionary budgetary policy stance. (4 marks)
- Explain how a weakening global economy is likely to impact on budgetary policy settings (4 marks)

Question 3

- Distinguish public debt from private debt. (2 marks)
- Outline why a budget deficit should result in a higher value of public debt (2 marks)
- Explain how better economic conditions are likely to impact on monetary and budgetary policy settings (5 marks)
- Outline how policy makers in Australia can ease monetary and fiscal policies. (3 marks)
- Given the relatively high household debt levels that exist in Australia, outline why a loosening of monetary policy is expected to be less effective at stimulating AD compared to the past, when household debt levels were lower. (3 marks)
- Describe a possible factor that could cause the RBA to further tighten monetary policy in the future and outline whether an increase in the target cash rate means that the monetary policy stance becomes restrictive. (4 marks)
- Explain why there was a cyclical deterioration in the budget outcome during 2024-5. In your answer refer to both the receipts and expenditure sides of the budget. (4 marks)

Question 4

- Describe how the Stage 3 tax cuts are likely to impact on both the participation rate and the unemployment rate. (4 marks)
- Explain how the RBA tightens monetary policy (4 marks)
- Explain how a further increase in the excise on tobacco by 5% per year is likely to impact on living standards. (3 marks)
- Explain how energy rebates delivered during 2024 influenced the rates of headline and underlying inflation. (3 marks)

Question 5

- Explain what is meant by an expansionary monetary and budgetary policy setting. (2 marks)
- Outline two reasons for the budget outcome moving from a surplus to a deficit during an economic downturn. In your answer, refer to the cyclical (automatic) and structural (discretionary) components of the budget. (4 marks)
- Explain how large budget deficits can theoretically undermine the effectiveness of monetary policy. (4 marks)
- Explain how each of the following factors contribute to a loosening of monetary policy (6 marks)
 - A lower terms of trade
 - Large declines in consumer confidence
 - A sharemarket collapse

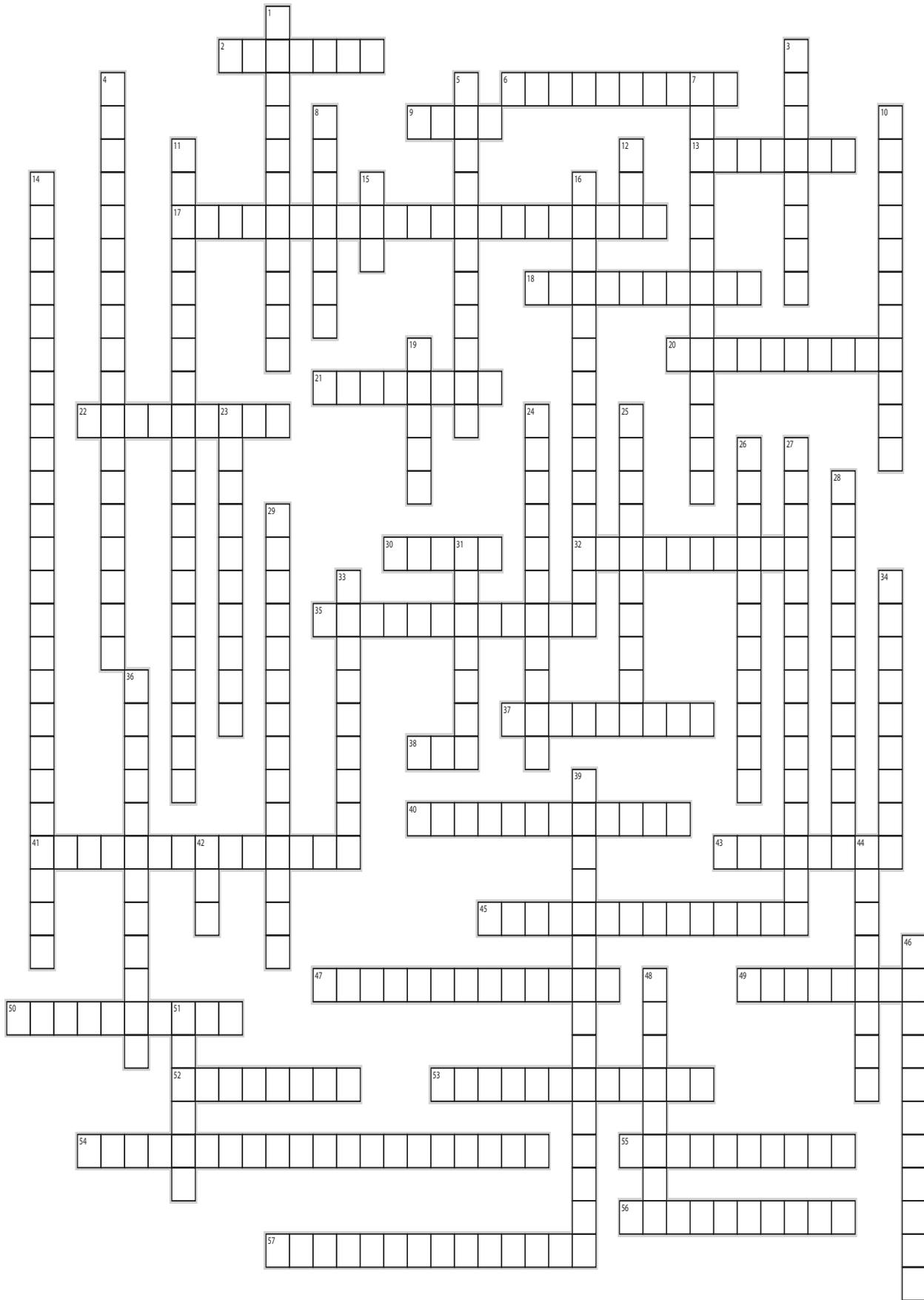
Giant Crossword Puzzle - AOS 1 Unit 4

Across

2. The budget outcome where government revenue (or receipts) exceeds government expenses (or expenditure).
6. That part or component of the budget outcome that changes (or has changed) as a result of discretionary stabilizers (i.e. deliberate policy decisions by the government).
9. A measure of inflation that seeks to provide an idea of the underlying price pressures in the economy (also called the underlying rate of inflation)
13. Taxes paid by corporations. Currently a flat and proportional 30% of profits for large companies.
17. The way that a change in interest rates affects economic activity (2 words)
18. Colloquially, the RBA's manipulation of the exchange rate via the buying and selling of AUD in the foreign exchange market (2 words)
20. The market manipulated by the RBA in order to change interest rates in the economy (2 words)
21. That component of the budget outcome that changes (or has changed) as a result of automatic stabilisers.
22. A tax paid by economic agents, normally based on the income they earn, such as income taxes (2 words)
30. Debt instruments issued by governments or corporations. The bond purchaser becomes the lender to the bond issuer.
32. In relation to the government's budget cash balance, the headline cash outcome, but excluding 'net cash flows from investments in financial assets for policy purposes.'
35. The rise in this has helped to reduce the budget deficit significantly (3 words)
37. The means by which monetary policy becomes more expansionary or less restrictive
38. A broad-based consumption tax applied at a rate of 10% on most goods and services (acronym)
40. A policy that is designed to stimulate or expand economy activity.
41. A form of retirement savings that is promoted through the budget via generous tax concessions.
43. A tax paid by economic agents via their purchases of goods and/or services (such as the GST)
45. A policy operated by the RBA on behalf of the government and involves the manipulation of key financial variables in the economy (primarily interest rates) in order to achieve specific economic goals and ultimately improve the living standards or welfare for all Australians (2 words)
47. The income available for consumption following a change in interest rates and its effect on cash flows. Not to be confused with disposable income.
49. Income that is taken from one group (e.g. taxpayers) and given to another (welfare recipients), usually via the government. Common examples include pensions and unemployment benefits.
50. When the monetary policy stance is neither expansionary or restrictive
52. The only interest rate that can be directly manipulated by the RBA (2 words)
53. The cost of borrowing money and one of the monetary policy transmission channels (2 words)
54. The process involved in the manipulation of liquidity in the cash market by the RBA via the purchasing and selling of government securities (or repos) (3 words)
55. Also referred to as bracket creep. The process of inflation increasing nominal wages (as workers seek to protect real wages) and pushing some workers into higher marginal tax brackets. This increases the 'average' rate of tax paid by taxpayers and boosts the real value of federal government revenue (2 words)
56. A tax that collects proportionally more from lower income earners compared to higher income earners. It involves the rate of tax decreasing as income increases.
57. A term to describe monetary policy initiatives that do not involve a manipulation of the cash rate
7. When the RBA leaves the target cash rate unchanged during times of stronger economic growth, the monetary policy stance is sometimes referred to as this.
8. Government's may use policies to increase this in order to reduce the level of NFD
10. A policy that is designed to constrain economic activity. Used mostly in relation to monetary policy efforts to restrain AD.
11. In relation to budgetary policy, the changes to the budget that occur automatically with changes in the level of economic activity. Also referred to as the cyclical component of budget. Contrast with discretionary stabilisers/structural component of the budget (2 words)
12. Government issued debt, typically in the form of government bonds (Acronym)
14. In relation to budgetary policy, the deliberate policy decisions designed to change receipts or outlays in an effort to influence economic activity (2 words)
15. A compulsory account held by all the commercial banks with the RBA to facilitate the transfer of funds between banks after settling amounts owing following interbank transactions (acronym).
16. Budget spending on roads, telecommunication networks, ports and electricity grids are examples of this type of investment that provides the foundation for economic activity to take place
19. A government tax initiative to support low and middle income earners by increasing their effective tax free threshold (acronym)
23. The means by which monetary policy becomes less expansionary or more restrictive
24. Macroeconomic demand management policies cannot fight this problem without the support of Aggregate Supply policies.
25. Describes the process of budget surpluses resulting in lower interest rates and/or exchange rates which then stimulates AD (via Consumption, Investment and/or net exports) and economic growth (2 words)
26. One hundredth of one percent. For example, 100 of these equals 1% (2 words)
27. The manipulation of the level and composition of federal government receipts and outlays in order to assist in the achievement of its economic and social goals for Australia (2 words)
28. This channel of monetary policy becomes less effective or even impotent when all other central banks adopt identical changes to their monetary policy settings (2 words)
29. In relation to budgetary policy, the government laying out a plan for how it intends to meet its objectives or goals. (2 words)
31. The budget outcome where government revenue (or receipts) is less than government expenses (or expenditure).
33. All policies will be used to help avoid this. A period of very low rates of growth in production (or real GDP) and relatively high (or increasing) rates of unemployment. It occurs at the lowest point in the business cycle.
34. Related to the provision of government benefits where the receipt of such benefits will only occur if the recipients' level of income (or wealth) is below a benchmark level. It is designed to ensure that support is only provided to those welfare recipients genuinely in need of support (2 words)
36. A tax that involves the rate of tax applying to income earned remaining the same for all taxpayers. Company tax is an example in Australia.
39. Commonly used in relation to the impact of government policies to describe those policy actions that work against the current stage of the economic (or business) cycle. (2 words)
42. The government's share of this will tend to increase when budget deficits are delivered (acronym)
44. One of the monetary policy transmission mechanisms (or channels) and refers to the cash available for spending following a change in interest rates (2 words)
46. Describes the process of budget deficits resulting in higher interest rates and/or exchange rates which then reduces AD (via Consumption, Investment and/or net exports) and economic growth (2 words)
48. In relation to the government's budget outcome, it is total cash received by the federal government less the total cash paid.
51. A tax that is paid to the government based on income earned.

Down

1. A tax that collects proportionally more from higher income earners compared to lower income earners. It involves the rate of tax increasing as income increases.
3. The budget outcome when receipts = outlays
4. An economic indicator of primary concern to the RBA (3 words)
5. An underlying measure of inflation calculated by measuring the price changes of all CPI items but removing the top 15% of goods and services whose prices increased the most and the bottom 15% of goods and services whose prices increased the least.



Chapter 10 The nature and operation of aggregate supply policies

10.1 A definition of aggregate supply policies

As already learned, **aggregate supply (AS)** refers to the total volume of goods and services available for sale in the economy and is affected by the willingness and ability of businesses to supply goods and services.

Aggregate supply policies refer to any government policy action that is designed to reduce the costs of production and/or improve supply conditions for businesses. This is achieved by increasing both the **quantity and the quality of the factors of production** available to businesses, which expands the economy's **productive capacity** or the 'speed' at which it can grow, over the long-term. An economy that can grow more strongly without triggering inflationary pressures can deliver higher living standards for its population. Essentially, these policy actions increase the economy's potential level of output by making aggregate supply conditions more favourable.

Aggregate supply policies include measures directed at:

- increasing the productivity or efficiency of resources; that is, increasing output (of goods & services) from inputs (factors of production or economic resources).
- increasing the quality (or standard) of the factors of production. For example, through training programmes to enhance the skills of labour resources, in order to increase labour productivity (as measured by real GDP per hour worked). It should be noted that increasing the quality of the factors of production increases the productivity or efficiency of the factors of production.
- increasing the quantity (or availability) of the factors of production. For example, by incentivising greater participation in the labour force through incentives such as childcare subsidies.
- reducing the costs of production. For example, by reducing the tax burden on businesses and removing cumbersome business regulations, which provides businesses with a greater incentive to increase supply.

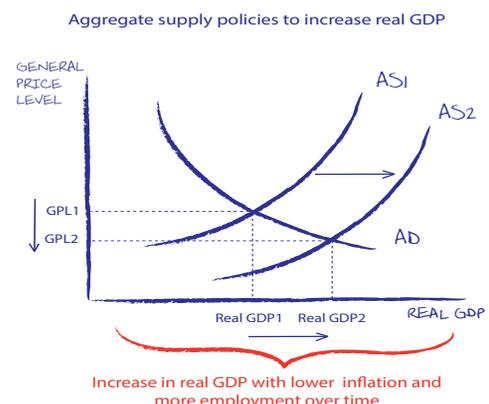
10.2 An overview of aggregate supply policies

All aggregate supply policies operate on the supply-side of the economy and strive to lift aggregate supply by increasing the quantity and quality of the factors of production at the disposal of the business sector. Thus, AS policies generally involve a shift of the AS curve to the right. By contrast AD policies operate on the demand-side of the economy and involve a shift of the AD curve. When aggregate demand policies seek to stimulate aggregate demand, the AD curve will shift to the right. Conversely, when aggregate demand policies operate to restrain aggregate demand, the AD curve will shift to the left. The operation of aggregate supply policies can be illustrated through the use of an AD/AS diagram as illustrated in Diagram 10.1.

An increase in AS means that there has been an increase in the volume of goods and services available for sale in the economy, which is shown as a shift of the AS curve to the right from AS1 to AS2. This increase in AS at all price levels exerts downward pressure on the general price level, which in turn stimulates demand for this increased level of output (shown as a downward movement along the AD curve) by increasing the purchasing power of households' incomes and by raising the international competitiveness of Australia's tradables sector. Thus, AS policies ultimately promote higher rates of non-inflationary economic growth.

Diagrammatically, this can be seen as an increase in Real GDP from Real GDP1 to Real GDP2, combined with a corresponding decrease in the general price level from GPL1 to GPL2. In other words, the simultaneous achievement of the macroeconomic goals of strong and sustainable economic growth, and low and stable inflation. A productive and competitive economy creates ideal conditions for business expansion and job creation, and in doing so, also supports the achievement of the macroeconomic goal of full employment. When all three macroeconomic goals are achieved, domestic economic stability is realised, which supports higher living standards

Diagram 10.1



Another way of visualising the operation of aggregate supply policies is through the production possibilities frontier diagram (sometimes also referred to as the PPC or PPF). As noted, AS policies raise the economy's productive capacity by increasing both the quantity and quality of the factors of production or reducing the cost of production. As previously learned, productive capacity represents the potential output of the economy, when all factors of production are fully and efficiently employed.

Diagrammatically, an improvement in AS conditions is shown as a shift of the production possibilities frontier outwards (or to the right) as shown in Diagram 10.2 as a shift from PPF1 to PPF2. This permits the economy to increase the total volume of goods and services available for sale, which of course is the level of aggregate supply. Consequently, greater quantities of goods and services can be supplied, which ultimately lifts living standards.

Diagram 10.2
Aggregate supply policies expand productive capacity



Aggregate supply policies aim to improve living standards by improving supply conditions and helping to simultaneously achieve strong and sustainable economic growth, full employment and low levels of inflation.

10.3 The differences between aggregate demand and aggregate supply policies.

As previously noted, AD policies involve a shift of the AD curve while AS policies involve an increase in the economy's productive capacity and a shift of the AS curve. Thus, a key difference between these policies is that AD policies operate in a counter-cyclical manner in order to stabilise aggregate demand, and avoid or address problems associated with the phases of the business cycle - such as demand inflation and cyclical unemployment. That is, by regulating aggregate demand, AD policies strive to 'smooth out' fluctuations or volatility in the business cycle, to promote domestic economic stability. On the other hand, aggregate supply policies strive to expand the economy's productive capacity to increase aggregate supply, through the use of economic incentives and other measures. By improving the economy's capacity to supply goods and services, the economy is less likely to encounter problems associated with excessive levels of aggregate demand, such as demand inflation.

While aggregate demand policies seek to address problems connected to excessive levels of aggregate demand - such as demand inflation, or to a deficiency of aggregate demand - such as cyclical unemployment, aggregate supply policies seek to address supply-side problems such as cost inflation and structural unemployment. For example, it is well-documented that in the years immediately following the COVID-19 recession, Australia grappled with the problem of high inflation. Most of this inflation was caused by supply-side (cost) inflation. The contributors included: rising costs of production due to ongoing disruptions to supply-chains; the Russian invasion of Ukraine and the impact of this geopolitical event on energy prices; labour market shortages owing to the prolonged closure of Australia's international border; slow or declining productivity growth, and capacity constraints more generally. It was these supply side constraints that contributed to the 'positive output gap' (discussed in Chapter 9) that was referred to by the RBA as the primary cause of excessive inflation since 2022 - where growth in AS was insufficient to keep pace with growth in AD.



Ultimately, it is aggregate supply policies that are best placed to tackle capacity constraints and/or the problems associated with cost inflation. For example, aggregate supply policies such as the construction of new infrastructure and investing in the skills of the labour force can alleviate capacity constraints and raise productivity. Such policies help to contain costs and improve supply conditions, easing cost inflationary pressures. In terms of structural unemployment, aggregate supply policies such as training and education equip the unemployed with the skills required to secure the jobs available in the economy. However, a drawback of these policies is that they typically operate over a longer time frame as it takes a considerable amount of time to upgrade the nation's infrastructure or to equip the labour force with the skills required by the economy. This is in contrast to aggregate demand policies that are focused on macroeconomic stabilisation over the short to medium-term.

10.4 The use of AS policies to complement AD policies in promoting non-inflationary economic growth over time

Aggregate supply policies play an important role in complementing aggregate demand policies in promoting the achievement of non-inflationary economic growth. As discussed, AS policies operate to raise the economy's productive capacity and therefore its ability to supply larger volumes of goods and services over time. This enables the economy to absorb higher levels of aggregate demand without the risk of high inflation emerging as an issue. For example, expansionary AD policies, if poorly timed or kept in place for too long, can result in excessive levels of AD, leading to widespread shortages of goods and services, 'pulling up' prices. For instance, as the economy emerged from the COVID-19 recession, the Reserve Bank was criticised for not increasing the cash rate target (and therefore interest rates) sooner. Similarly, the Australian Government was criticised for providing too much stimulus through budgetary policy. This is where the strengths of aggregate supply policies come to the fore. By raising the economy's supply potential over time, capacity constraints are less likely to set in. That is, the disinflationary effects of AS policies will act to counter the inflationary effects of expansionary AD policies, supporting the achievement of non-inflationary economic growth.

Further, in the first decade of the twenty-first century, the Australian Government was criticised for under-investing in vital infrastructure such as roads, rail and ports, which is instrumental in raising the economy's productive capacity to support the achievement of non-inflationary growth. At this point in Australia's history, we were enjoying immense economic prosperity as a result of the 'mining boom', and the positive impact this event had on our terms of trade and national income. This flowed through to strong levels of AD; however, the under investment in infrastructure meant the economy experienced production bottlenecks, leading to higher levels of inflation combined with slowing rates of economic growth. This underscores the importance of AS policies in expanding the economy's productive capacity to raise living standards for Australians.

Put simply, AS policies operate over the long-term to increase the total level of output, which allows the economy to meet increases in the total level of spending from expansionary AD policies and avoid the positive output gap that was the primary cause of inflation over 2023-24. Achieving this balance between AS and AD supports higher living standards by increasing production (as measured by Real GDP) while keeping increases in the general price level to a minimum (as measured by increases in the CPI).

The need for AS policies in Australia today

The success of AS policies in the past allowed Australia to maintain strong economic growth throughout the period despite global downturns. Nevertheless, between 2011 and 2016, commodity prices fell, heralding the end of the first phase of the mining boom (i.e. the price growth phase). This was then followed by the end of both the second phase of the boom (i.e. the investment phase) and the third phase of the mining boom (i.e. the production phase) a few years later. [See Activity 7k in Chapter 7 covering the three phases of the mining boom.] While commodity prices and the terms of trade rebounded significantly to the end of 2022, there has been a downward trend since then, and it is generally agreed that other sources of economic growth are required if Australia is to maintain high standards of living into the future. For example, the forecast decline in the terms of trade into the future, will act as a drag on economic growth into the near future. It makes it clear that a continued over-reliance on commodity price growth to generate economic growth only heightens Australia's exposure to the swings in the global business cycle. In addition, increasing global attention to addressing the environmental implications of carbon emissions could lead to a continued decline in the market for some of our most significant commodities, such as liquid petroleum gas and thermal coal. Accordingly, genuine attempts by governments at all levels to achieve supply side improvements to the economy will once again enable Australia to generate longer term and more sustainable rates of economic growth. This is particularly the case in light of the ageing population and the negative impact that the future decline in the size of the labour force is expected to have on levels of AS.



The importance of productivity growth and innovation in the context of an ageing population and the expected decline in the terms of trade was highlighted in a recent government report as follows

'Productivity growth is vital for Australia's future, particularly as the Australian and global economies emerge and begin to recover from the economic impacts of COVID-19. The 2021 Intergenerational Report makes it clear that future growth in income and living standards will be driven from productivity growth as the participation effects of young migration are offset by an ageing population. Global and domestic productivity growth in recent decades however has slowed. ... In this environment, Australia needs policy settings that foster a flexible and dynamic economy, that is able to adapt in the face of economic challenges and opportunities. Policy settings should encourage the economy to adapt to the growing importance of digital technologies, including through developing a skilled labour force. They must also be forward looking and support an environment that promotes economic dynamism, entrepreneurship and appropriate risk-taking, and innovation and technological adoption.'

Source: Productivity Commission '5-year Productivity Inquiry: Key to Prosperity', Interim Report, August 2022

In addition, the government also recognises the limitations associated with the use of AD side policies to drive stronger and sustainable rates of economic growth. For example, during the COVID-19 crisis, central banks around the world (including Australia's RBA) used expansionary monetary policy in the form of lower interest rates (in some cases to zero or below) and/or raising the money supply (commonly known as **quantitative easing**) to stimulate their economies. Initially, this extensive monetary policy stimulus was limited in its ability to accelerate growth given that interest rates were at their 'effective lower bound'. As a consequence, the Australian economy struggled to emerge from the trough in the business cycle, and the RBA has openly acknowledged the limitations imposed upon monetary policy during a time when a household debt levels were very high. Of course, the expansionary monetary policy stance was supported by the delivery of very expansionary budget deficits, with a combination of tax concessions and spending initiatives (e.g. cash handouts including the temporary doubling of unemployment benefits/JobSeeker) helping to stimulate AD and economic growth. The problem with demand side stimulus to the economy through the use of both monetary and budgetary policies was that it contributed to growth in inflationary pressures during 2022 and into 2023, with inflation only beginning to decline in 2024. While the growth in inflation to more than 7% over 2022 was largely a result of cost inflationary pressures (the supply side disruptions discussed earlier in this chapter) there is no doubt that the use of expansionary AD policies jeopardised the achievement of low inflationary growth over the course of 2022-24 (particularly in as much as they contributed to the positive output gap referred to earlier - where AS is unable to keep up with increases in AD.).

In this context, governments have recognised the limitations of AD policies and continue to investigate ways of securing more sustainable, low inflationary, rates of economic growth into the future. On numerous occasions over recent years, RBA officials have reiterated the need for the government to implement supply side initiatives through the budget, as well as develop an investment climate in which the private sector is provided with the appropriate incentives to innovate and develop new **comparative advantages**. In his testimony to the House of Representatives Standing Committee on Economics in late 2022, the then RBA Governor (Dr Philip Lowe) noted the challenges facing the budget and the need for structural (supply side) reforms to deliver the goods and services we require as a nation into the future.

I do worry how, as a community and society, we're going to tackle this need to pay for the things that we as a community want the government to deliver for us. The best option here is to do structural reform, to have a bigger pie, so there are more resources to pay for aged care, disability care, great education and defence, but that requires both governments and businesses to do things that are difficult.

Source: RBA Governor response to questioning at the House of Representatives, Standing Committee on Economics (Sep 2022)

Review questions 10.1 - 10.4

1. Define what is meant by an aggregate supply (AS) policy
2. Explain the differences between AD and AS policies.
3. Explain how AS policies operate to increase the nation's productive capacity. Both make reference to the quality and quantity of factors of production and use an AD/AS diagram to illustrate.
4. Explain the connection between productive capacity and AS.
5. Explain how AS policies complement AD policies in promoting non-inflationary economic growth.
6. Explain why the effective implementation of AS policies is particularly important during a period when the economy is expected to experience a lower terms of trade and a reduction in the labour supply. In your answer, refer to the role of productivity.
7. Explain what the former RBA Governor meant when he said that *'the best option here is to do structural reform, to have a bigger pie'*.

Activity 10a: Productivity growth is essential for improved living standards in the future

Productivity is a measure of how efficiently an economy turns inputs into outputs. Productivity grows when things are done more efficiently today than yesterday. When there is productivity growth, an economy produces more outputs from the same amount of inputs. The most common measure of productivity is labour productivity. It measures the quantity of goods and services produced per hour of work. Labour productivity growth is essential to improving national income and real wages. People can use their growing wages to buy more goods and services, save and invest, and have greater freedom to choose how they spend their time. In turn, higher wages increase tax revenues and the capacity of government to deliver services to the community.



Labour productivity has been the most important source of income growth in Australia over the past 30 years, contributing over 80 per cent of growth in real gross national income (GNI) per person. It is projected to remain the most important source of income growth in the future. ...Labour productivity growth has slowed over the past few decades, in line with global trends. Growth over the last complete productivity growth cycle averaged 1.2 per cent per year, which was below the 30-year historical average [of 1.5%] to 2018-19. ...Slowing productivity is driven by several factors [such as]:

- declining economic dynamism, which lowers productivity by slowing the rate of innovation and technology adoption, or slowing reallocation of resources – both capital and labour – from less productive to more productive firms
- structural shifts in the composition of the economy including the increasing size of the services sector and population demographics
- the nature of recent technologies and difficulties in their measurement
- lower business investment
- slower growth in educational attainment and labour quality, given a large portion of the labour force is already highly educated

...All levels of government have a role to play in boosting productivity growth through policy and regulation that facilitates efficient investment in technology, improves market efficiency and competitiveness, and lifts the health and capability of our workforce. By providing strong institutions and a predictable policy environment, government can increase certainty, encouraging investment and efficient risk-taking. The Government is accelerating reforms and investments to enable greater adoption of digital technologies to support the goal of Australia becoming a leading digital economy by 2030.

The Government is also continuing to implement reforms to make the economy more dynamic and productive. This includes recent reforms to bankruptcy, which encourage firms to innovate and experiment, ...[and] a 'patent box' to encourage companies to develop and retain innovation ideas in Australia, complementing the \$2 billion investment in the Research and Development Tax Incentive. The Government has also committed to boosting skills by investing in apprenticeships, higher education short courses, vocational education and training. This will open new opportunities and jobs for Australians, allow more innovation and adoption, and foster growth in labour reallocation and productivity.

Continued investments through the Government's infrastructure investment pipeline will further support productivity growth by bringing consumers closer to more markets and bring workers in contact with more employment opportunities. The Government's pursuit of open and free trade will provide further access to global markets, encouraging businesses to be more competitive, to innovate, and to adopt new technologies and methods supporting productivity growth.

The Government is committed to increasing productivity in non-market sectors, by ensuring diversity, choice, and responsiveness in the delivery of government services to spur innovation and quality. This commitment to pro-productivity policies and an environment that supports productivity growth aims to ensure sustained increases in output, wages and living standards into the future.

Source: Chapter 4 of the 2021 Intergenerational Report (Australia over the next 40 years).

Questions:

1. Define productivity and labour productivity and explain how each is measured.
2. Explain how productivity growth contributes to growth in wages and boosts living standards.
3. Outline the evidence provided to support the claim that improving productivity is the key to improved economic growth in the future.
4. Provide examples of two factors that may have contributed to a slowdown in the rate of productivity in the past.
5. Provide one example of how governments can encourage investment and boost productivity.
6. Describe one possible reform that the government could implement to make the economy more dynamic and productive.
7. Describe how infrastructure investment can support productivity growth and boost productive capacity.

10.5 The operation of AS policies to improve supply side conditions

Quality and quantity of factors of production

As noted in the introduction, all AS policies can contribute to an increase in the **quality of the factors of production** which means that our resources, such as labour and capital, are more capable of generating output. An increase in the quality of either **human capital** (i.e. labour), **physical capital** (e.g. machinery) or **natural capital** (e.g. land) will raise productivity by increasing the volume or real value of production relative to the inputs used in the production process. From Unit 3, you will recall that **productivity** can be measured in a number of ways. Labour productivity is best defined as output (real GDP) over the number of labour hours worked; capital productivity is defined as output over the number of capital hours used; and multifactor productivity is defined as output over a combination of inputs, such as labour and capital. Examples of how the government can implement AS policies to improve the quality of factors of production is highlighted below:

- In relation to the quality of human capital, the government can devote more funding to vocational education and training, or provide employers with tax concessions or subsidies to incentivise greater expenditure on training and development. This is designed to improve the quality of human capital, as younger Australians will ultimately exit these courses/programs with enhanced workplace skills, improving labour productivity as they should be able to contribute to greater output for each hour of employment. [More detail about the role of education and training as part of the budget is included later in this chapter. In addition, the role that skilled immigration plays in boosting the quality of human capital in Australia is also dealt with separately later in the chapter.]
- In relation to the quality of physical capital, the government can undertake invest in infrastructure itself (e.g. investment in telecommunications, road, port or rail infrastructure) or encourage the private sector to investment in more 'high tech' capital (e.g. by providing research and development grants or subsidies). The greater investment in infrastructure and/or capital will result in benefits such as better connectivity between Australian producers to markets, including export markets, through better highways or rail for example. The upgraded infrastructure should increase productivity levels over time, as the cost and speed of transportation services will improve. In addition, greater investment in capital, such as new and improved technology or robotics, will enable producers to achieve an increase in output with fewer resources, once again raising productivity.
- In relation to the quality of natural capital, the government could provide incentives or support for businesses to invest more in the improvement, preservation and/or protection of our natural resources, particularly for the long term. This largely relates to government environmental policies, which is covered at the end of this chapter, but it also relates to policy initiatives such as those that improve the quality of agricultural land for farmers or the quality of mineral resources for miners.



Some AS initiatives are focused on increasing the **quantity of the factors of production**. This can include those that are designed to increase the supply of labour, through incentives to either enter or to return to the labour force, such as subsidies for childcare, which encourage stay at home parents to return to the labour force, or an increase in the retirement age, which compels many workers to remain in the labour force for longer. [The role that immigration plays in increasing the availability or quantity of human capital in Australia is considered in detail later in the chapter.]

Increasing the quantity of the nation's resources might also include incentives for businesses to invest more in capital equipment, such as the provision of generous accelerated depreciation allowances or other tax concessions designed to increase private sector investment in capital. The use of taxes and/or subsidies as AS policies to incentivise businesses is covered in more detail later in the chapter.

Costs of production

In Unit 3 we considered the **costs of production** as a factor influencing the supply decisions of businesses. It is the most important factor, along with profit margins, that determines both the quantity and price at which products are offered in markets. In this respect, changes in costs of production across the economy will have important implications for AS and therefore the productive capacity of a nation. Any fall in the costs of production over time, on an aggregate level, will either encourage businesses to offer more goods for sale on markets, or incentivise businesses to reduce prices as a means of generating more sales. Either way, the total supply of goods and services in the economy (i.e. AS) will rise, which is reflected by the shift to the right of the AS curve and/or an increase in the productive capacity of the nation. This results in the volume of output increasing (i.e. a rise in real GDP) and the aggregate price level falling, as shown in diagrams 10.1 and 10.2 earlier.

The government has a more direct means of influencing the costs of production for businesses. The federal government can use its use of indirect taxes, such as excise/customs duties and royalty taxes, to influence production costs directly, which in turn impacts on the willingness and ability of businesses to supply goods and services. For example, the government could reduce royalty taxes applying to mining companies in an effort to reduce production costs, improve supply conditions and generate an increase in the volume of mining production. State governments can also reduce business taxes, such as payroll taxes, in order to reduce production costs and improve supply conditions. Alternatively, governments can reduce production costs and incentivise supply through the provision of subsidies. Both the use of taxes and subsidies are considered separately later in this chapter.

Government **laws and regulations** that are designed to achieve a host of different outcomes in the economy will also indirectly impact on the cost of production for businesses, further influencing supply decisions and AS. This includes those regulations relating to occupational health and safety, workplace discrimination, equal opportunity, product safety and many others that are designed to address market failures or achieve a better balance between equity and efficiency in the economy.

International competitiveness

In economic terms, competitiveness refers to the degree to which an entity can successfully compete against other entities in particular markets for goods and services, on price or non-price factors (such as service, quality or uniqueness). Australia's **international competitiveness** therefore refers to the degree to which Australian businesses are able to compete against other businesses in the domestic and global market. An improvement in Australia's international competitiveness means that Australian businesses or industries will be producing goods and services at lower prices or higher quality compared to rival businesses overseas.



Increasing the quantity and quality of the factors production and lowering the costs of production increase the willingness and ability of businesses to supply goods and services for sale. The resultant increase in the volume of goods and services available for sale exerts downward pressure on the general price level, which raises Australia's international competitiveness. In addition, subsidies and grants that support innovation and the development of new products (such as the government funding of research into a COVID-19 vaccine) can provide Australian producers with a 'competitive edge'. Lower prices, higher quality or unique products will therefore help Australian businesses to attract a larger share of the global market. To the extent that other countries also successfully manage to boost productive capacity (e.g. through AS policies), it becomes even more important for Australia to maintain growth in AS or productive capacity in order to at least retain our existing share of the global marketplace.

Review questions 10.5

1. Distinguish the quality of factors of production from the quantity of factors of production.
2. Explain what is meant by human capital, physical capital, and natural capital.
3. Define productivity and distinguish labour productivity from capital productivity.
4. Describe how AS policies can improve the quality of human capital, physical capital and natural capital.
5. Describe how AS policies can improve the quantity of factors of production.
6. Describe how AS policies ultimately lead to a reduction in the costs of production and increase aggregate supply.
7. Explain how AS policies can increase international competitiveness.

10.6 Aggregate supply policies to achieve economic goals and living standards

As briefly considered earlier, the use of AS policies has clear benefits for the government's economic goals of **price stability** and **strong and sustainable growth**. By increasing AS (indicated by a shift to the right of the AS curve as shown in Diagram 10.1, reproduced from earlier in the chapter), or expanding productive capacity, average production costs should fall. As is clear in the figure below, this results in lower average prices and an increased likelihood that the RBA's goal of 2 to 3% growth in the CPI on average over time will be achieved.

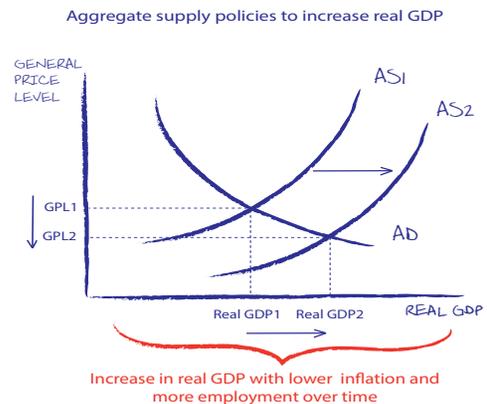
Importantly, the boost to productive capacity will mean that the economy is able to achieve a higher rate of economic growth alongside lower inflation, which as explained previously, is often referred to as 'low inflationary growth'. This is because an increase in aggregate supply exerts downward pressure on the general price level, which raises the purchasing power of households' incomes along with the international competitiveness of Australian businesses. In turn, this stimulates the Consumption and Net Exports components of Aggregate Demand (shown as an expansion along the AD curve) for this increased level of output (Real GDP). In such an economic environment, economic growth as measured by Real GDP becomes more sustainable as it occurs without inflationary pressure. This makes AS policies more effective in this regard compared to AD policies that may be used to stimulate growth, which tend to create inflationary pressure, particularly when the economy is operating near full capacity.

Generally speaking, to increase aggregate supply, businesses require more resources of all kinds, including labour. Thus, by improving AS conditions, aggregate supply policies should increase employment opportunities, reducing the rate of unemployment towards a rate that is consistent with the full employment rate of unemployment or the NAIRU (non-accelerating inflation rate of unemployment). However, any reduction in unemployment might be mitigated somewhat by higher participation rates over time, combined with the possibility of some '**jobless growth**' – where the increase in economic growth requires no additional labour owing to advances in productivity or efficiency.

Some supply-side policies, particularly those involving **structural reforms** to the economy (such as the effects of trade liberalisation, which are covered towards the end of the chapter) can tend to have a negative effect on unemployment in the short term. This is because industries will often make workers redundant when they are going through a major re-structure of their operations. This can increase structural unemployment in the short term but is expected to reduce unemployment in the longer term as the more efficient economy manages to generate even higher output levels and a larger demand for labour. There is also the possibility that some workers will remain unemployed for longer periods, and indeed some older workers may never regain employment. Despite this, the net effects for employment across the economy are expected to be positive.

Overall, AS policies should benefit average **living standards** for Australians. Average incomes across the economy should increase and real disposable income per capita should expand, providing Australians with a greater ability to purchase goods and services. Similarly, the fact that economic growth is more likely to occur without inflationary pressure, this preserves the purchasing power of consumers and provides a further boost to living standards. To the extent that AS policies contribute to growth in productivity and the quality of goods and services over time, this further helps to boost living standards over time, as does the possibility of more leisure to the extent that higher productivity is associated with lower average hours of employment. Of course, these benefits are tempered somewhat by the possibility that AS policies may impact negatively on other quality of life factors, such as when they lead to depletion of natural resources and/or the impact on structural or long term unemployment. In addition, to the extent that some supply-side policies focus too much on the short term, there is always the risk that longer term living standards may suffer. For example, AS policies removing or relaxing regulations or taxes that protect the environment, might lead to longer term problems for the economy in terms of depletion of resources (or damage to the environment more generally). For example, tax reform that removes taxation on pollution, such as the removal of the carbon tax in 2014, may lead to worse social and environmental outcomes.

Diagram 10.1



Study tip

It is important to remember that many supply side initiatives come about via an increase in AD before the supply side effects begin to materialise in the economy. For example, tax concessions for private sector investment in new technology will initially increase AD (via the increase in I) and place short term pressure on prices. However, once the technology begins to contribute to production, supply conditions improve, average costs of production fall and a better outcome for both prices and output should occur in the longer term.

Activity 10b: A micro lens on productivity growth

At the most elementary level, productivity describes the quantity of products that can be generated (output) from the resources (inputs) used in the production processes. In reality, the change in productivity — productivity growth — reflects not only the quantity of goods and services produced but also changes in their quality over time. It also reflects the invention and introduction of entirely new products.

Hence, the growth in living standards experienced over the last 200 years can be seen as manifesting in three main ways.



1. Goods and services that became cheaper — through a fall in the number of hours ('labour cost') of workers' time needed to produce existing goods and services
2. Goods and services that got better — through improvements in quality on multiple dimensions (by an amount worth more than any additional resources required to improve them)
3. Entirely new goods and services — as new ways were found to satisfy human wants (or new wants were discovered and developed) either through wholly novel products or new varieties of existing ones

Different goods and services, and different parts of the economy, have experienced different combinations of these three effects. Some everyday items have become materially cheaper; others have become much better; and many have done both. All the while, the introduction of new goods and services has fundamentally re-shaped the economy. In each of these three ways, productivity growth has increased the typical worker's purchasing power — a smaller number of hours of work is required to achieve any particular level of material living standards (which encompasses the quality, quantity and variety of goods and services).

Productivity growth often involves finding ways to produce goods and services with fewer inputs. This in turn means that the goods and services become cheaper over time to purchase. One way to measure this is by the number of hours the typical employee (receiving the average wage) needs to work in order to buy particular goods and services. In fact, on this measure, the 'labour cost' of many everyday items has indeed fallen consistently over time as productivity has improved (see table below). For example, a double bed with a mattress, a blanket and pillows in Australia in 1901 cost the equivalent of 3 weeks of work at the average weekly wage, compared with 1 week in 1980, and just 2 days in 2021. Even housing rental costs, which have risen in inflation-adjusted terms over the past 40 years, have fallen (on average, across the country) in terms of their labour time cost — the average person needed to work about 20 hours per week to rent a three bedroom house in 1901, while in 2021 the same person would only need to work for about 9 hours. A more dramatic example is the bicycle, which, in 1901 would require several months of work to afford, but now requires less than a day of work.

Australians need to work fewer hours to afford most goods and services [Hours of work to pay for goods and services]					
	Hours	Hours	Hours	Hours	Hours
Good or service	1901	1990	2000	2010	2019
Double bed, mattress, blanket and pillows	185	41	37	24	18
Bicycle	473	-	14	8	6
Rent	20	12	11	10	9

...The bicycle became cheaper through improved manufacturing efficiency — cheaper energy, better materials and mass production. The rise of global trade also made the bicycle cheaper to Australian consumers by allowing access to products that are more efficiently produced overseas. In contrast, the cost of housing — measured by rent — has seen a much less spectacular fall, because it has proven more difficult to adopt technological innovations which would reduce the real cost of housing, including by getting the most out of available land.

Source: Productivity Commission '5-year Productivity Inquiry: Key to Prosperity', Interim Report, August 2022 (edited)

Questions:

1. Define productivity.
2. Explain how higher productivity can lead to lower prices, better quality and new goods and services.
3. Explain how productivity increases the typical worker's purchasing power. Describe how this is supported by the evidence presented in the table in this activity.

Some other aspects of AS policies

Aggregate supply policies to fight stagflation

Aggregate supply policies are particularly important when an economy experiences **stagflation** - where high inflation and low levels of economic growth require a unique policy approach. Traditional AD policies are insufficient, on their own, to deal with this scenario. On the one hand, expansionary AD policies would help to lift growth, but serve to exacerbate the inflation problem. On the other hand, contractionary AD policies would help to control inflation, but only worsen economic growth. Governments therefore recognise the value of AS policies that could create conditions that are more conducive to low inflationary economic growth.

Aggregate supply policies to alleviate capacity constraints and tackle cost inflation

Aggregate supply policies are also important when an economy experiences **capacity constraints**, where the nation's productive capacity is stretched to the limit and output cannot keep pace with the growth in AD. For example, during the boom period leading into the global financial crisis of 2008, the rate of growth in AD was excessive, manifesting in container ships queuing at ports, road congestion and electricity supply constraints during hot days. More recently, over 2022, the growth in AD that was fuelled by expansionary monetary and budgetary policies during a time when capacity constraints emerged from tight labour markets (and skills shortages across various industries) as well as global supply chain disruptions flowing from ongoing COVID-19 restrictions in countries like China, pointed to a need for supply side initiatives to lift the economy's supply potential and ease capacity constraints. Specifically, the government has increasingly focused on those supply side reforms that are related to boosting **productivity, participation and population** - also known as the 'three Ps'. This means that the government continues to maintain a focus on productivity (of both labour and capital), labour force participation, and population growth (particularly the role of skilled immigration) as means of boosting productive capacity and achieving more sustainable rates of economic growth into the future.

Addressing short term supply shocks and cost inflationary pressures

Aggregate supply policies are also useful to counteract the effects of a short-term **supply side shock** to an economy. For example, during 2022, Australia experienced a large but temporary increase in the price of oil, which had negative implications for the economy as the costs of production increased for most firms, exerting upward pressure on inflation (to more than 7% over 2022), and made it more difficult to achieve strong and sustainable rates of economic growth. To counter this problem, the government can, and did, use its control over the tax system to provide temporary relief to businesses and households, in the form of cuts to petroleum excise taxes or short-term tax concessions. For example, the excise on fuel was temporarily halved during 2022 (between March and September) which reduced cost inflationary pressures and helped to relieve cost of living pressures for households. Yet another example is rising energy prices during 2023 and 2024 and the government's decision to provide an electricity rebate tagged as 'energy bill relief' (effectively a subsidy) of \$300 for every household and \$325 for eligible small businesses. This rebate lowered the cost of electricity for households and businesses, easing cost of living pressures.

Other recent Australian examples can be used to highlight the value of AS policies in dealing with temporary supply side shocks to the economy, such as cyclones and floods. Typically, state and Commonwealth governments provide a number of assistance measures that ultimately help to reverse some of the effects of the initial supply shock. This helps to reduce production costs, push the supply curve back towards the right, and prevents the decline in production levels that would otherwise occur. Government

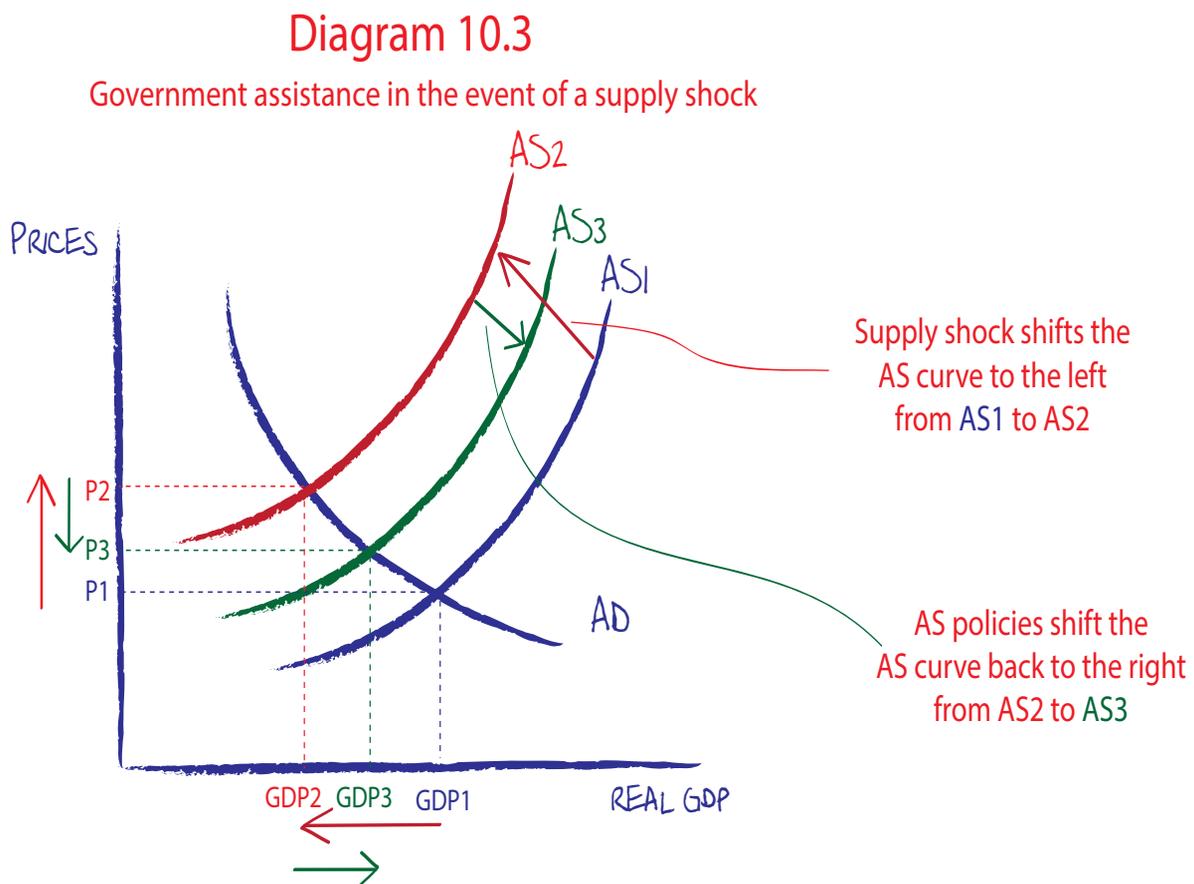
initiatives, like low interest loans or cash grants to producers affected by the 2022 floods, helped to protect AS levels in the economy, reducing pressure on inflation and preventing larger falls in output.

Similarly, drought relief assistance given to farmers in the past is another example of an AS policy that is designed to deal with a negative supply shock to the economy. Some Australian farmers (such as those in inland NSW) experienced poor supply conditions owing to lack of rain and governments sought to ensure that viable farms were provided with adequate financial assistance. This helped to keep costs of production at a low enough level to encourage those farmers to remain on the land throughout the 'hard times.' This helped to both improve supply conditions (justifying further investment by farmers) and achieved better macroeconomic outcomes for prices, employment and production.



The most recent obvious example of a very serious supply side shock to the Australian economy was the **COVID-19 pandemic**. During much of 2020, measures designed to contain the virus spread (and the havoc that would wreak on Australian society) resulted in a collapse in Australia's productive capacity and ability to supply goods and services. Firstly, via the shutdown of the Chinese economy in the early stages of the virus' spread, it restricted the ability of Australian businesses to source key inputs from China, reducing AS. Once the virus spread, the government responses to the crisis, combined with the threat of the disease caused by the virus itself, restricted the ability of Australian businesses to source key labour inputs or to continue operating at all. The Federal and State governments both took action to support producers – through initiatives such as the generous provision of wage subsidies (e.g. JobKeeper and JobMaker), the delivery of business tax concessions (e.g. the expanded instant asset write off provisions), as well as direct support payments to specific industries.

The value of supply side support from governments is highlighted in Diagram 10.3. A short-term supply shock reduces AS from AS1 to AS2, creating pressure for the general level of prices to increase to P2 and for output to fall from GDP1 to GDP2. The temporary AS policy (such as the cut in fuel excise explained above), reduces production costs and keeps prices down at P3, which then helps to prevent output from falling to GDP2, instead resting at GDP3.



Review questions 10.6

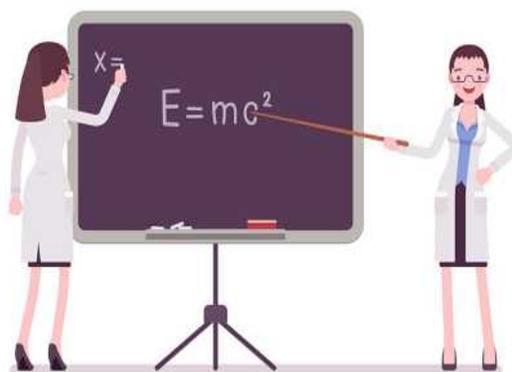
1. Explain how AS policies are expected to impact upon the goal of strong and sustainable economic growth.
2. Explain how AS policies are expected to impact upon the goal of price stability. Illustrate your answer by drawing a fully-labelled AD/AS diagram, showing the effect of AS policies in helping to contain inflation.
3. Explain how AS policies are expected to impact upon the goal of full employment.
4. Explain how AS policies can improve living standards. In your answer, clarify if all AS policies achieve higher living standards by boosting AS or productive capacity.
5. Discuss how some AS initiatives might boost productive capacity and improve material living standards, but have negative implications for non-material living standards.
6. Define stagflation.
7. Explain how AS policies are more suited to tackling the problem of stagflation compared to AD policies.
8. Define 'capacity constraints' and provide an example of how these constraints might become evident.
9. Explain what is meant by the three Ps.
10. Explain what is meant by a supply shock. Provide a recent example to illustrate.
11. Explain how AS policies were used to counteract the effects of supply side shocks during 2022.

10.7 Budgetary policies to influence aggregate supply and economic goals

While budgetary policy is generally considered to be a demand management policy, it is often used to boost productive capacity (or increase AS) in an effort to maximise longer term economic growth and boost national living standards. Common budgetary policy supply side initiatives include spending on training and education, the provision of research and development grants, investment in infrastructure, as well as the provision of subsidies.

Spending on training and education

An increase in the quality and/or quantity of training and education is ultimately designed to improve the quality of **human capital** in Australia by enhancing the contribution that workers can make to production. More training/education courses and/or the provision of better-quality courses will help to improve the skills of current or future members of the labour force, which in turn increases average labour productivity levels in the economy and boosts the nation's AS or productive capacity. Better quality training and education will also contribute to more **dynamically efficient** labour markets, helping to ensure that the supply of labour (e.g. workers) better matches the demand for labour by businesses or employers. In other words, people will be able to move more easily and readily from one type of work to another when the market



conditions change. This will therefore not only help to reduce the incidence of **structural unemployment**, but also serve to reduce the length of unemployment for many people who have lost their jobs in an ever-changing economy.

The importance of education (and training), in boosting human capital, lifting national productivity and achieving better living standards can be summed up as follows:

'Providing a world-class education is fundamental to Australia being an innovative and fair country by 2030. Education determines the capability of workers and entrepreneurs, and therefore the economy's productivity and innovation capacity. Education also shapes Australians' life opportunities. Governments have a key role to play in realising this vision because they design, fund and regulate many aspects of the Australian education system.'

Source: 'Australia 2030 Prosperity through Innovation, A plan for Australia to thrive in the global innovation race' (2017)

Federal Government spending on education represents 7% of total government expenses and includes spending on higher education institutions (e.g. universities), vocational education and training providers (such as technical and further education institutions), as well as public (government) and private (independent) schools in Australian states and territories.

A sample of recent specific budgetary policy initiatives relating to education and training are listed below.

- **Investing in skills for priority industries and reforming higher education** to deliver a future workforce (\$1.6 billion over 5 years, then \$2.7 billion from 2028 to 2035). The goal is to drive higher levels of attainment, broaden access and support a more integrated tertiary education system that is 'responsive and adaptable to skills needs.'
- \$88.8 million for **20,000 new training places in the construction industry**, and \$55.6 million to support **women's careers in clean energy**.
- **Commonwealth Prac Payments (CPP)** for students undertaking mandatory placements (as part of their qualifications) e.g. nursing, teaching, midwifery and social work. From July 2025, 73,000 eligible students will receive \$319.50 per week during their placements. This supports eligible students in completing their studies.
- Investing \$72.4 million to **build and support the skills of the early childhood education and care workforce**. This should lead to better educational outcomes for pre-school children, benefitting them in later years of schooling.
- Negotiating a new 5-year National Skills Agreement which commenced in January 2024, including funding **300,000 further TAFE and vocational education training (VET) places to become fee free** – in critical and emerging industries like the care, clean energy and digital industries.

- Redesigning **Apprenticeship Support Services** to provide more support for completions, including helping remove barriers for women in male-dominated trades and strengthen support for First Nations apprentices and those with disability.
- **Reinvigorating foundation skills programs** to expand access to basic skills training – helping more Australians develop the language, literacy, numeracy and digital skills needed to participate successfully in education, the community and work.
- **Increased support for the teacher workforce**, investing \$9.3 million extra for the National Teacher Workforce Action Plan – to attract, train and retain people in the teaching profession, which is critical given the shortage of teachers.
- \$46 million for Aboriginal Community Controlled Organisations to deliver **foundation skills training for First Nations people**. This measure is essential in increasing labour force participation among First Nations people and reducing unemployment.
- \$350.3 million to deliver **FEE-FREE Uni Ready courses** to prepare post-school students for university. These courses will focus on providing underrepresented groups with a pathway to a university degree.
- Increasing federal funding to **WA and NT public schools** to \$785.4 million and \$736.7 million respectively, over the next 5 years.
- \$630 million to scale up Australia's **clean energy workforce** by funding training programs and apprenticeship placements.



To the extent that these government spending initiatives help to boost skills and labour productivity in the economy, beyond that which would have occurred without government intervention, we can expect that the government's domestic macroeconomic goals will become easier to achieve. A better skilled workforce will typically result in fewer skills shortages and/or capacity constraints that ordinarily place an upper limit on the rate of economic growth. Specifically, better quality human capital will be reflected in higher productivity growth, lower average costs of production and a larger AS or productive capacity. As discussed earlier, this helps to achieve the goal of low inflation and enables stronger and more sustainable rates of economic growth to occur. In addition, we can expect the demand for labour to increase as a result of a more competitive and stronger economy (i.e. a larger derived demand for labour) as well as the fact that the skills of labour force participants have increased on average making them more attractive to employers.

Review questions 10.7a

1. Explain what is meant by training and education. In your answer, make reference to 'human capital'.
2. Outline how increased budget funding for training and education programs can help to boost productive capacity.
3. Describe the link between training and education, dynamic efficiency, and structural unemployment.
4. Outline how the provision of 300,000 fee-free TAFE places may improve the employability of workers.
5. Describe how the Investing in Skills for Priority Industries and Reforming Higher Education package can help to improve dynamic efficiency.
6. Identify two separate recent budget spending measures, apart from the provision of 300,000 fee-free TAFE places and Investing in Skills for Priority Industries, that are designed to increase the quality of human capital in Australia.
7. Describe how increased funding for foundational skills for First Nations people can address long-term unemployment among First Nations communities.
8. Explain how greater spending on education and training is expected to impact upon each of the goals of low inflation and strong and sustainable economic growth.
9. Explain how greater spending on education and training is expected to impact upon the goal of full employment.

Activity 10c: University funding reforms

The impact of COVID-19 on the economy, along with major changes in technology have led to changes in the types of jobs expected to become more common in the post-COVID recovery phase.

In a March 2020 speech about skills, technology and the future of work, Alex Heath, an economist at the RBA, spoke about the changing nature of work – highlighting that the strongest growth in recent years has been in jobs requiring the highest skills. Employment in such occupations has increased from 15% of total employment in the mid-1960s to above 30% today. Lower and middle-range skilled jobs have fallen as a share of employment, as automation and technological advances have replaced many of these jobs. There has also been a shift in Australia away from manufacturing and into more service industry jobs. Over the past ten years, the health care & social assistance, information media and telecommunications and construction industries have experienced particularly significant upskilling.

In 2020, the then Federal Government passed a series of reforms to higher education funding through the parliament, called the 'Job-ready Graduates' legislation. In announcing the changes, the government said projections before COVID-19 showed that over five years to 2024, almost half of all new jobs would go to someone with a bachelor's degree or higher, and that 62% of employment growth was expected to come from healthcare, science, technology, education and construction.

The changes had two major aims:

- To steer enrolments towards courses with good employment prospects
- To get the higher education system ready for the large birth cohort resulting from Costello's 'baby boom' of mid-2000s (a series of budget reforms under the then-Treasurer Peter Costello, that encouraged increased birth rates). These babies will reach university age in the mid-2020s.

Students affected by these changes have been and will still be able to choose what to study, but the pricing of many degrees has changed dramatically. For domestic students with funded places, the cost of a degree is a combination of what the government funds and what the student contributes. Until the new legislation was passed, student contributions (what students paid as fees), were roughly based on the earnings prospects of someone with that qualification. Under the old system, law and medical graduates earned (on average) high incomes, so they paid the highest student contribution – fees of \$11,115 a year. Because Arts graduates earned less on average, their contributions were in the lowest band – fees of \$6,684 a year.

Under Job-ready Graduates, the link between student contribution and earning prospects was abandoned, and fees are based on encouraging or discouraging enrolments based on what the government perceives as graduate job prospects and the 'national priorities.' In addition to the changes to fees paid by students, the government also changed the amounts paid to universities, in many cases reducing the per-student funding paid. Sydney University estimated that universities would get around 6% less for each new student from 2021. Regional universities received extra funding on the basis of promoting 'equity', while a number of city-based universities with large enrolments of students from lower socioeconomic backgrounds lost considerable funding. The changes to funding may also lead to universities having less surplus funding – funding that they have traditionally used to support their considerable research programs.

One final change was introducing a requirement that students maintain a 50% pass rate in order to qualify for a government funded place. All of these reforms were taking place in the shadow of a collapse of international student numbers due to COVID-19 restrictions. The changes to fees was the centrepiece of the funding reforms. The table below shows the fees paid in 2021 for some well-known courses. The fees are shown with a change and with no change.

In 2024, the Federal Government announced some changes to the funding and fees model, but confirmed that the Job-ready Graduates program would remain in place.

Course	2021 fee (\$) with no change	2021 fee (\$) with change	Percentage change	Increase or decrease?
Humanities	6,804	14,500		
Teaching	6,804	3,950		
Law	11,355	14,500		
Creative Arts	6,804	7,950		
Engineering, Science, IT	9,689	7,950		
Maths	9,689	3,950		
English, Languages	6,804	3,950		
Economics	11,355	14,500		
Clinical Psychology, Nursing	6,804	3,950		
Medicine, Dental, Vet Science	11,355	11,300		

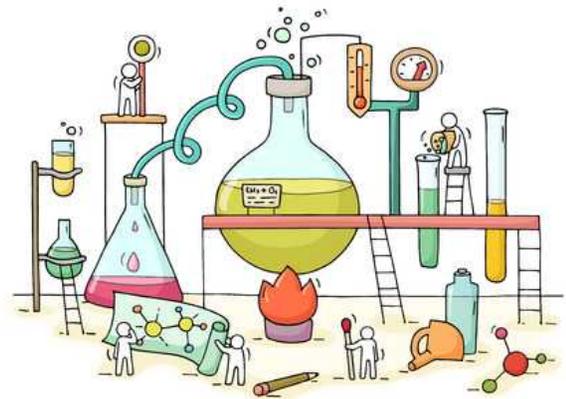
Questions:

1. Complete the table of course fees, by calculating the percentage change in fees for each of the courses listed and identifying if the fee change is an increase or a decrease.
2. Choose one course that has risen in fees and one course where fees have fallen, and explain, based on the information provided, why this has happened.
3. Explain the government's justification for the changes to the structure of fees for degrees at Australian universities.
4. Explain how the fees are designed to affect AS (hint: think about education, training, and skills shortages.)
5. Explain how, if successful, the changes to university fee structures will help to support the achievement of the goals of full employment and strong and sustainable economic growth.
6. Outline two possible unintended (negative) consequences of the changes to university fees.
7. Consider your own circumstances. Will the change to course fees influence your choices about what you study? Why or why not?

Research and development grants

Research and development (R&D) is a key component of the innovation process that businesses will typically undertake in order to ensure that they better meet the needs of consumers and remain competitive in a dynamic global marketplace. The research component of R&D involves businesses spending time and money (or using scarce resources, such as labour) to investigate and discover new or better products, improved ways of producing products, or more efficient means of distributing products to consumers. While the research component of R&D can simply be the willingness to explore an idea (which could involve minimal effort), it is more common for the research phase to involve considerable sums of money and use of resources in developing new technologies. The development component of R&D goes one step further and builds upon the research that is already being undertaken. For example, computer companies like Apple and Microsoft will spend millions of dollars on research into new technologies, some of which will yield benefits, but some of which prove to be non-viable. If the project is not viable, the companies will stop injecting money into the particular research initiative and begin to explore other possible means of innovation. However, if the research indicates that the technology is feasible and potentially viable, the company will then move into the next phase of innovation, which is to develop the research into something of value to the business. This might include new methods of production, improvements to the existing product range, and/or new products altogether.

Given the high rate of technological change that takes place every year, businesses will typically spend a portion of their annual budget on R&D expenditure. High-tech businesses, such as those in manufacturing, computer hardware or computer software, will often spend up to 10% of revenue on R&D expenditure every year. Others will spend even more, such as businesses within the pharmaceutical industry, which will spend upwards of 15% of their revenue on R&D expenditure.



R&D is risky and underprovided by the market

R&D expenditure is inherently **risky** for two important reasons.

- Firstly, there is no guarantee that the millions of dollars of research (and development) spending will result in any concrete benefits for the business in terms of new/better products or methods of production. In this respect, some of the investment in R&D will fail to generate an economic return for the business.
- Secondly, there is always a possibility that rival companies will seek to copy the new innovations and therefore 'piggyback' off the research and development successes without contributing any expenditure in the process.

In Economics, R&D expenditure is often used as an example of **positive externalities in production** as a market failure. Without government intervention, there would be an under-allocation of resources to the production of R&D. Businesses would be reluctant to take the risk of investing in R&D, particularly given that the fruits of their investment might be stolen or exploited by rival businesses. This is one reason why governments have developed intellectual property laws and patents to prevent other businesses from effectively stealing the benefits of R&D spending undertaken by other entities.

In addition, the benefits of R&D will 'spill over' to positively impact upon third parties or society more generally. For example, the R&D expenditure by a manufacturing business into new robotics might help to raise productivity for that business, reduce production costs and raise profits. However, the new robotics might have applications across the manufacturing industry and elsewhere (even the military) which will provide wider economic benefits and higher living standards for Australians. In this respect, the government needs to *internalise the positive externality* by providing financial incentives (such as tax concessions or grants) to businesses in order to increase R&D spending in the economy. This will help to ensure that a more socially optimal level of R&D expenditure takes place, which leads to a more efficient allocation of resources and ultimately maximises living standards. [See Activity 10d below regarding the benefits of government funding of R&D into alternative forms of pest control.]

Activity 10d: Bugs for Bugs – An R&D success story

For many years, the agriculture, forestry and fishery industries have used pesticides. They use pesticides to control weeds, pests, insect infestations, and disease carriers. Many feel that pesticides have increased world food security and standards of living. Without pesticides, Australian growers would have produced far fewer products.



Although pesticides have been important to agriculture, there are some concerns about their safety. Pesticides may have long-term effects on the environment, ecosystems and human health. People take in small amounts of pesticide from their food, air and water. According to the World Health Organization, pesticides are linked to some negative health effects in humans, such as cancer, effects on reproduction, immune or nervous systems. Pesticides also have some negative impacts on the environment. For example, over-using pesticides could lead to the destruction of biodiversity. Pesticides threaten many species on the land and in the sea. This makes pesticides a concern for environmental sustainability.

Pesticides also cause weeds and insects to become resistant to insecticides and herbicides. This leads to people using more pesticides. For example, in the early 90s, the cotton bollworm became resistant to insecticides and put the global cotton in industry in danger. Today, scientists are looking at environmentally sustainable ways of managing pests. A solution called Integrated Pest Management (IPM) might allow us to reduce our dependence on pesticides.

Bugs for Bugs is a Queensland-based company that has specialised in IPM for over 35 years. They are one of Australia's leading suppliers of non-toxic alternatives to chemical pesticides. The company's aim is to help Australian growers to use IPM to reduce their use of chemical pesticides. Bugs for Bugs offers a wide range of non-chemical solutions for crops. These crops include citrus, cotton, tomatoes, sweet corn and greenhouse crops like cucumber and capsicum. Bugs for Bugs' customers are mostly commercial growers looking for a better way of doing things. Recently, the company has also started working in the animal production industries and producing products to target nuisance flies.

The company's product range includes a variety of bio-control agents. These are insects that are natural enemies to pests. They are either native or naturalised and include ladybird beetles, tiny parasitic wasps, predatory mites, and many more. The company also offers a range of environmentally friendly fruit fly control products, and other pest management tools including insect traps and pheromones. Entomologist Dan Papacek is the company's founder and co-director. He has been developing IPM solutions for more than 40 years. When Mr Papacek first started Bugs for Bugs, their focus was on providing a consulting service on pest management practices. But since the late 90s, the company has been producing bio-control agents. The company has invested a lot of resources into research and development. They started by producing bio-control agents for citrus, and have since diversified into other crops to meet growing demands.

Mr Papacek said that as a science-based company, large research and development projects have been essential to his business. He describes R&D as an ongoing process. His company is continuously improving its processes and solving problems. It takes years to turn the idea of a new biological control agent into a commercially viable product for growers. The company has focused some of its R&D efforts on improving the reliability of production. In a recent six-year R&D project, Bugs for Bugs tried to improve the mass rearing production system for montdorensis predatory mites. Mr Papacek said that the company was having contamination issues with this product. "When our growers cannot get these valuable tools on demand they revert to pesticides and lose confidence in our product." The R&D project identified weaknesses in the system and helped the company to minimise the risk of contamination. Growers now use these mites to control thrips and whiteflies, especially for greenhouse vegetable crops. Bugs for Bugs is one of two companies worldwide researching this organism. In Australia, the company is one of four that is mass rearing beneficial insects.

According to Mr Papacek, investing into R&D used to be risky for Bugs for Bugs. The company faced financial difficulties when investing in R&D, because it took years to make financial gains and the outcome was uncertain. Mr Papacek believes that without the R&DTI, Bugs for Bugs would not have survived. "If we weren't getting any type of financial relief during these times, I don't think we would be here today," he says. Bugs for Bugs' diverse range of IPM solutions has many positive effects on the Australian ecosystem and human health. Reducing the use of pesticides leads to more sustainable food production. It also leads to less pesticide-related threats to food supply and the environment. Increasing the use of natural pest control products reduces the need for chemical pesticides. In this way, growers can use smaller amounts of chemical pesticides for a longer time, reducing the risk of resistance. By making crop production more sustainable, growers can maintain a viable business.

Bugs for Bugs products also act as 'import replacement' products. Chemical pesticides are mostly imported from overseas, while Bugs for Bugs' products are produced in Australia. Mr Papacek said that his company also partners with many IPM consultants who advise farmers on pest management. The company's products help IPM consultants improve their clients' pest management by giving them non-toxic alternatives to chemical pesticides. The R&DTI program has helped universities, government departments and other organisations to work together. Bugs for Bugs has worked directly with Departments of Agriculture, the CSIRO and the Queensland Museum. The R&DTI has helped Bugs for Bugs develop intellectual property and new skills. In this way, the R&DTI has enabled Bugs for Bugs to support other organisations in their research projects.

Source: <https://business.gov.au/grants-and-programs/research-and-development-tax-incentive/how-the-rdti-has-helped-other-companies/bugs-for-bugs>

Questions:

1. Describe the role of pesticides in food production.
2. Explain why a reduced reliance on pesticides might have positive effects for society.
3. Use the cotton bollworm example to illustrate how a growing resistance to insecticides can negatively impact on aggregate supply.
4. Define a bio-control agent and give an example of how one of these agents can impact on agricultural production.
5. Explain how R&D efforts in improving the reliability of production can assist aggregate supply and Australia's international competitiveness.
6. Explain the role of R&D tax incentives in the invention and commercialisation of Bugs for Bugs products.
7. Explain how the R&D tax incentives that were taken advantage of by Bugs for Bugs can have a favourable impact on aggregate supply and strong/sustainable rates of economic growth.
8. Outline how the R&D tax incentive helps to replace imports and examine the impact on the current account balance and economic growth. Use the Bugs for Bugs example to illustrate.

The most recent figures available from the Productivity Commission (Trade & Assistance Review released in July 2024, for 2022/23) highlights that support for R&D made up \$5 billion (or 33%) of the total \$15 billion provided in federal budgetary assistance to Australian businesses. The current R&D tax incentives (detailed below) are equivalent to a grant given by the government, in that they reduce the cost and risk of undertaking R&D activities by allowing eligible businesses to reduce their tax liability (i.e. pay less tax). The government notes that the tax incentive aims to ‘...boost competitiveness and improve productivity by encouraging industry to conduct R&D that might not otherwise have been conducted.’

R&D tax incentives

The R&D tax incentives currently in place in Australia, both at a federal and state level, are designed to boost competitiveness and improve productivity across the Australian economy by encouraging industry to conduct R&D that may not otherwise have been conducted. The current tax incentive in place has two core components:

- a 43.5% tax offset for businesses with turnover of less than \$20 million per annum, which is crudely equivalent to a 150% tax deduction for all R&D expenditure. This means that eligible businesses are legally permitted to ‘write off’ (claim) as an expense 150% of the value of the R&D spending that has occurred. For example, if a business spends \$100,000 on R&D, it will be able to write off \$150,000 as an expense, which works to reduce both taxable income and any tax payable to the government. [Businesses with turnover of more than \$20 million per annum will receive a slightly smaller tax concession.]

Box 10.1 R&D tax concessions a grant?

Tax concessions of this kind are equivalent to a grant because they result in less money being paid to the Australian Tax Office (ATO) and therefore more money remaining in the business. For example, a smaller company that spends \$400,000 on R&D might record a profit figure of \$1,000,000. It would ordinarily be required to pay 25% (the company tax rate for smaller companies) of that \$1 million to the ATO tax, which yields a figure of \$250,000 in tax. However, the ability to write off approximately 150% of the R&D expenditure means that an additional \$200,000 can be written off as an expense. This reduces the profit to \$800,000 and leads to a smaller tax bill of \$200,000 (i.e. 25% of \$800,000). This \$50,000 saving is equivalent to the company receiving a \$50,000 cash grant for spending \$400,000 on R&D expenditure.



GRANT

- The Australian government is also committed to investing directly in Australian research capacity within Australian tertiary educational institutions as well as other research organisations. These grants are ultimately designed to encourage innovation and increase competitiveness within Australian industries.

Examples of the recent budgetary policy initiatives relating to industry R&D grants are contained below:

- The maintenance of the generous **R&D tax concessions** available every year, where businesses can deduct up to 150% of eligible R&D expenditure or take advantage of tax offsets up to 43.5%.
- A **Technology Investment Boost** for small businesses through a 120% tax deduction on business expenses that support digital uptake.
- \$1 billion in tax credits and grants to manufacturers in the solar panel supply chain, through the **Solar Sunshot scheme**. This scheme aims to encourage research and development, innovation and ultimately production in the Australian solar panel manufacturing industry.
- \$523.3 million over 7 years for the **Battery Breakthrough Initiative**, providing tax credits for local manufacturers of battery products to support the transition to net zero by 2050.
- The creation of a \$2.2B **University Research Commercialisation Action Plan** devoted to research in clean energy, medical products, defence and other high priority manufacturing areas.
- Investing \$124.1 million to further develop Australia’s **AI capabilities**, including by helping small and medium sized businesses with medium-high digital capability to adopt AI.
- Tax incentives to encourage companies to develop and apply their **medical and biotechnology innovations** in Australia. This incentive will tax corporate profits from Australian developed and patented medical and biotechnology innovations at a concessional 17 per cent effective corporate tax rate.

Like government expenditure on training and education, incentives for businesses to invest in R&D expenditure should accelerate productivity growth beyond that which would have occurred without government intervention. This should help to boost AS and assist with the achievement of the government's domestic macroeconomic goals. An increase in productivity growth helps to reduce the average costs of production and lifts productive capacity. As discussed earlier, this contributes to the achievement of low inflation and enables stronger rates of economic growth to occur without the constraint of high(er) inflation. In addition, we can expect the derived demand for labour to increase as a result of a more competitive and stronger economy, making it easier for the government to achieve its full employment goal.

Review questions 10.7b

1. Explain what is meant by research and development (R&D) as part of the innovation process. In your response distinguish 'research' from 'development'.
2. Explain why pharmaceutical companies typically spend a greater proportion of revenue on R&D.
3. Describe why R&D expenditure is risky for businesses, particularly if there was no government intervention to support R&D activities.
4. Explain why, in the absence of government intervention, there would be an under allocation of the nation's resources to the production of R&D activities.
5. Describe how the government attempts to incentivise R&D expenditure.
6. Explain why R&D tax incentives can be equivalent to a cash grant.
7. Outline how R&D tax incentives or grants can help the government to achieve its domestic macroeconomic goals.
8. Identify two recent budget initiatives that are designed to stimulate investment in R&D and explain how each measure can boost productive capacity of the economy and contribute to the achievement of Australia's macroeconomic goals.

Investment in infrastructure

The government can manipulate AS levels in the economy via its direct control over the level and composition of infrastructure spending. **Infrastructure** refers to the key physical or organisational structures within an economy that provide the 'building blocks' around which economic activity takes place. Infrastructure items like roads, telecommunication networks, ports, dams, electricity networks and airports will facilitate the provision of goods and services around the country and indeed the world. Former Federal Treasury Secretary, John Fraser, highlighted the importance of infrastructure investment as follows:



Infrastructure is a crucial input into strong, sustainable, long term growth. The right infrastructure can lift incomes, create opportunities, support economic development and help alleviate poverty... many economies – including Australia – would not have the high living standards they currently enjoy without past investments in nation-building infrastructure... investment in high-quality infrastructure can lead to a healthier, better-educated and more productive workforce. It can provide communities with market access for agriculture and other produce; open corridors for domestic and international trade and help businesses reap economies of scale.

Source: Keynote address given by John Fraser at the conference on building capability managing risks and enhancing efficiency (Shanghai) 26 February 2016

While much of the infrastructure investment in Australia is directly provided by governments, there has been a general move away from this direct government provision and toward the '**contracting out**' of government infrastructure projects, such as road building where the private sector is encouraged to undertake investment in public infrastructure projects for profit. For example, private construction companies have built infrastructure assets such as tollways and airports either on behalf of the government, or in partnership with the government. In those cases where the private sector provides infrastructure assets, the government will tend to subsidise the project in order to account for any positive externalities and therefore avoid under-investment, ultimately leading to an optimal allocation of resources to these infrastructure assets. Accordingly, budgetary policy supply side support for infrastructure projects can take the form of:

- direct provision by governments
- subsidies for the production of private infrastructure
- tax concessions for investment in private infrastructure.

The government established the independent statutory body, **Infrastructure Australia (IA)**, to advise governments and other possible infrastructure providers (e.g. road construction companies) on the infrastructure projects and reforms that Australia should implement. Infrastructure Australia develops a 15-year rolling plan (Australian Infrastructure Plan) which is designed to act like a ‘roadmap’ for Australia. It includes an **infrastructure priority list** that is designed to inform governments about which infrastructure projects are of national significance and therefore have the highest priority in terms of maximising the benefits for the economy. Infrastructure Australia defines nationally significant infrastructure as those infrastructure projects that will ‘materially improve national productivity’.

Infrastructure Australia publishes a ‘priority’ list (latest was for October 2024) which lists more than 100 priority infrastructure projects in various stages of approval and development. Some of these include:

- Eastern Freeway and CityLink connection
- Melbourne intermodal terminal capacity
- Melbourne to Adelaide freight rail improvements
- Freight rail access to Port Kembla
- Melbourne–Geelong rail capacity enhancement



The report also includes a list of high priority initiatives – proposals that IA has determined have the potential to address a nationally significant problem or opportunity. They are included to indicate that further development and rigorous assessment of the proposals is a national priority. Examples from the 2022 list include:



- Western Sydney Airport
- M80 Ring Road upgrade in Melbourne
- North East Link (Melbourne)

There are a number of key areas of infrastructure spending that the government has focused on in budgets in the past decade, the most high-profile being the ongoing investment in the **National Broadband Network (NBN)**, which was first announced in 2009. See Activity 10e for more discussion of the significance of NBN as national infrastructure supporting Australia’s economy through improving aggregate supply. Examples of infrastructure investment announced in recent budgets are outlined below.

Recent infrastructure initiatives

The Government has committed \$120 billion to an infrastructure pipeline to deliver transformative and productivity-enhancing infrastructure projects over the next ten years. These include:

- \$1.9 billion to plan and build **roads and rail** to support Western Sydney’s rapidly growing population. For example, enhancing public transport connectivity in Western Sydney by allocating \$100 million to rapid bus infrastructure and \$20 million in additional funding to extend the rail line from Aerotropolis to Macarthur. Additionally, the government will allocate \$500 million to upgrade Mamre Road and \$400 million to upgrade priority sections of Elizabeth Drive.
- A further \$302.6 million to ensure that **Western Sydney International (Nancy-Bird Walton) Airport** is ready to handle travellers and freight from 2026.
- \$1.4 billion for a **direct rail line between Brisbane and the Sunshine Coast** to enhance connectivity and reduce travel times.
- \$3.1 billion allocated to the **Melbourne Intermodal Terminal** package to provide an efficient ‘congestion busting’ freight interface with the Inland Freight Corridor at its southern end. Once completed this piece of infrastructure will be able to accommodate 1,800 metres of double-stacked freight trains and will enable more freight to be moved between Melbourne and other state capitals.
- An extra \$3.3 billion committed to Victoria’s **North East Link project**, bringing the total contribution to \$5 billion. Victoria’s North-East Link includes 6.5 km of new tunnels connecting Melbourne’s northern and eastern suburbs through an upgraded Eastern Freeway and M80 Ring Road.
- The allocation of \$174.6 million from the National Water Grid Fund to deliver new **water infrastructure projects** that will enhance water security, boost agricultural production and help drought-proof regional communities.
- Spending \$7B in **‘transformational infrastructure’** to help Australia push into new frontiers of production and growth’, including infrastructure that unlocks the Northern Territory’s exports through Darwin’s gateway to Asia,

- \$1.7 billion for water infrastructure and supply chain projects in North and Central Queensland. This is in addition to the \$5.4 billion the Government is providing for the **Hells Gates Dam**.
- \$750.0 million for the Hunter region for transport and **port infrastructure projects** that will improve supply chain efficiency and boost exports.
- Spending an additional \$812M on the new **Connecting Regional Australia initiative** that is designed to address mobile blackspots and improve the overall resilience of Australia telecommunications infrastructure
- An investment of \$480.0 million in **telecommunications infrastructure** via the upgrading of NBN Co's Fixed Wireless Network
- Investment of \$2 billion to help deliver a **fast rail connection** between Geelong and Melbourne as well as co-funding five business cases with state governments for fast rail in other regions (e.g. Melbourne to Albury Wodonga and Melbourne to Traralgon).
- \$2.0 billion for the Great Western Sydney Highway Upgrade – Katoomba to Lithgow in New South Wales and other **road and rail commitments** such as, \$480.0 million in additional funding for the Bruce Highway in Queensland, \$380.0 million for the Pakenham Roads Upgrade in Victoria, and \$237.5 million for the METRONET to support grade separations and elevation of stations in Western Australia.

Activity 10e: The ongoing investment in the NBN

The NBN – National Broadband Network – was announced in 2009. Its aim was to provide advanced broadband services to all regions in Australia, which was designed to boost Australia's long-term economic prosperity. The government argued that without such an investment, businesses in Australia would suffer in the future. Given the rapid changes in technology, an inefficient broadband service might mean that certain products (yet to be invented) may not be usable in Australia. In addition, the NBN could cut production costs for businesses. For examples, it becomes more enticing for firms to hold teleconferences via high quality Web X, Teams and Zoom facilities rather than pay for expensive travel and accommodation. Since COVID-19 and the risks of future pandemics, combined with the changes that have taken place in the way workplaces are now structured, the importance of a high-speed broadband network has become even more important.



A high-speed network makes it easier for some skilled Australians living in remote regions to provide their services to the business sector, and for services to be provided in those remote areas, without a skilled practitioner (e.g. a medical specialist) being located there. Businesses may also be able to better market and sell their products all around the world - especially those in regional areas who currently do not have access to high-speed internet. Businesses will also be in a better position to take advantage of cheaper and more efficient services (e.g. IT services including web and App development) that might be provided in the global marketplace.

Following its announcement in 2009, the plan was costed at \$37.4 billion by NBN Co (the government owned entity undertaking the roll out). A change of government led to a change to the plan, to move from a more expensive fibre-to-the-premises (FTTP) model to a relatively cheaper fibre-to-the-node (FTTN) model, that relied on the existing copper cabling (used for telephones) to connect households to the NBN nodes in their area. The price of the modified NBN was at the time predicted to deliver a cheaper and faster NBN. By the time the rollout was close to finalisation in June 2020, it was announced the total cost would be \$51 billion, and recent figures suggest that this has increased further (perhaps to \$57 billion).

The COVID-19 pandemic has highlighted the significance of reliable and fast broadband internet access, and at times our network has been tested. With millions of workers and students attempting to conduct their lives via the internet, the capacity of our NBN was stretched in terms of dealing with the increased demands placed on it. NBN Co announced it had to undertake a number of adjustments to service delivery to ensure that the network could cope with the extra traffic. Nevertheless, having internet access allowed many businesses to continue operating, even if in a reduced capacity, as they 'pivoted' to online offerings. It allowed their employees to continue to offer services from the employees' homes, including teachers remote teaching, call centres diverting calls to customer service workers' homes, and doctors providing telehealth appointments.

In the 2022-23 Budget the government injected a further \$480 million investment into the NBN in order to assist with the funding of Fixed Wireless 5G network designed to deliver faster wholesale internet speeds for regional Australia, benefiting thousands of homes and businesses. The government and NBN note that the investment in 5G technology will 'make it easier to work remotely, access digital services as well as connect with loved ones and access entertainment. For businesses, faster speeds will enhance and expand participation in the global digital economy and benefit from innovative technology such as the Internet of Things and smart farming.

Questions:

1. Explain three ways in which a fast and reliable broadband network can help increase productivity and aggregate supply, providing examples.
2. Explain how a fast and reliable broadband network can improve Australia's international competitiveness.
3. Explain the nature of the recently-announced upgrades to the NBN and how these can boost aggregate supply.
4. Explain how a reliable broadband network can help to achieve the three goals of low inflation, strong and sustainable economic growth and full employment.
5. Think back on your own experience of being a student during the COVID-19 pandemic. Identify three ways in which broadband internet access supported your learning, or kept you connected to your school.
6. Extending on your answer to question 5, explain how access to the NBN helped Australia deal with the 'supply shock' of COVID-19.
7. Overall, the cost of the NBN has been a considerable investment and expense for Australian taxpayers. Based on those costs, consider if the NBN can still be considered a 'good investment'. In your answer, refer to positive externalities, net benefits and opportunity cost.

Spending on many infrastructure projects, such as improving rail networks or expanding highways, is designed to boost productivity and **reduce bottlenecks**. Bottlenecks occur when key infrastructure becomes congested and transportation of products within or beyond Australia takes longer than it should. If road and rail networks are expanded and improved, then commute times fall and transportation of goods becomes more efficient (e.g. lower fuel costs and faster delivery times). This will reduce costs of production, paving the way for lower prices and an increase in international competitiveness. This should then generate more demand, create additional employment and lift Australian living standards. Similarly, expansion of ports is necessary for Australia to expand its export growth into the future and to facilitate the efficient distribution of imports (most of which are currently capital or intermediate goods) to their intended destination.

The infrastructure investment referred to so far is primarily funded or undertaken by the federal government. However, state and territory governments around Australia also invest heavily in state-based infrastructure projects. For example, the Metro Rail Project in Victoria is funded primarily by the Victorian state government, with a minority of its funding coming from the Federal Government via the release of money from the **Asset Recycling Fund (ARF)**. [The ARF was established in 2014 and provides infrastructure funds for state government who have undertaken to privatise some state government-owned assets.] For example, the Federal Government decided to release money from the ARF to fund part of the Metro Rail Project on the basis that Victoria sold a 50-year lease of the Port of Melbourne to the private sector.

The government has also recognised the need to invest in healthcare infrastructure. While much of this is in response to an ageing population, there is some aspect of the spending which might help to improve Australia's rate of economic growth. If spending in this area is successful in reducing the incidence of disease and time lost in sick days, then it could be argued that productivity will increase, and business costs will decrease.

In attempting to summarise the economic benefits of its infrastructure investment in the transport area, the previous government noted that:

Greater connectivity between Australia's rural and urban centres, improved transit times and greater rail efficiency will help unlock critical supply chains and reduce landside bottlenecks at Australia's ports, thus improving the international competitiveness and efficiency of Australia's land transport network including a number of flow-on environmental and fuel efficiency benefits.

Source: www.budget.gov.au

It is these types of economic benefits that governments seek to extract from investment in infrastructure, helping to boost the nation's AS and productive capacity, and therefore assisting with the achievement of the domestic macroeconomic goals of strong and sustainable economic growth, low inflation and full employment.

Review questions 10.7c

1. Define infrastructure and explain why infrastructure investment is vitally important to the Australian economy.
2. Provide two examples of infrastructure items and outline how they help to facilitate economic activity.
3. Explain how the government provides budgetary policy supply side support for infrastructure spending.
4. Outline the role of Infrastructure Australia in determining what infrastructure investment is undertaken on a national level.
5. Explain how the Melbourne Intermodal Terminal can increase Australia's international competitiveness.
6. Describe how greater investment in the North-East Link project can reduce bottlenecks and increase productivity.

The provision of subsidies

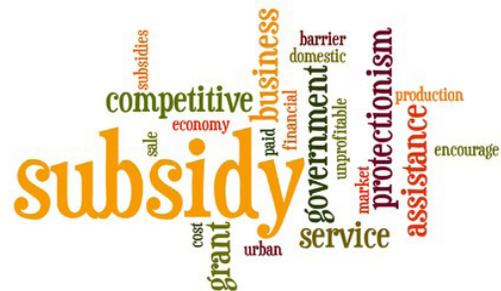
Governments have tended to promote the development of local industries over time via the provision of subsidy support. Any government policy that supports businesses or industries typically comes under the banner of industry policy. The direction and scope of industry policy in Australia has shifted significantly over the past 30 years. Historically, industries were targeted for special assistance in the form of subsidies (and tariffs) as there was a widespread view that net economy-wide benefits would be achieved in terms of higher output and employment. Increasingly, government policy makers were subject to increasing amounts of business lobbying and the level of assistance grew, particularly within the textile, clothing, footwear and motor vehicle industries.

Since the 1970s, however, research emerged that suggested any selective industry assistance actually created longer term net costs to the economy because industries became increasingly reliant on government support. Protection from competition only served to stifle efficiency and delay large scale restructuring that was desperately needed if Australia was to become internationally competitive. In particular, studies showed that the support provided to selective industries imposed real costs on the rest of the economy. As a consequence, successive governments sought to remove many forms of assistance in acknowledgement of the net gains to be made from this approach.

Despite the increasing incidence of global protectionist measures in recent years, Australian industry policy is generally limited to the provision of government support to the business sector in situations where there are clear longer term economy wide benefits. Importantly, there has been a general move away from support to specific industries to more general industry support, despite some obvious exceptions (see Activity 10f). Typically, this support is provided in situations where there is a demonstrated market failure (see Chapter 3) that inhibits valuable investment from taking place. In other words, if businesses make decisions based on 'market signals' (or relative price changes) that are distorted by government intervention, this can result in sub-optimal investment or production decisions. This point was made by Martin Parkinson, the former Head of Commonwealth Treasury, when he was referring to changes in industry policy over time:

'It has long been a fact of life in Australia that industry policy has often favoured producer interests at the expense of consumers. Over time, however, governments have been increasingly wary of helping unprofitable firms to remain in the marketplace, instead shifting their focus to assisting with the economic adjustment process — the current government's response to the threat of exit of automobile manufacturers from Australia being the most marked manifestation.' Dr Martin Parkinson, Address to the European Australian Business Council 5 December 2014, Sydney

The government **Department of Industry, Science and Resources** seeks to improve the international competitiveness of Australian businesses by supporting innovation, stimulating investment and streamlining regulations. The government recognises that globally competitive industries are important for both productivity and economic growth and continues to provide financial support that foster growth in the international competitiveness of Australian businesses and industries more generally. In this respect, subsidies that lead to greater innovation and competitiveness will ultimately help to boost AS or productive capacity, which in turn can contribute to the achievement of low inflation, strong and sustainable economic growth and full employment in the long run.



Some examples of industry support to address market failures have already been discussed. This includes funding to alleviate negative economic effects of a drought or to promote the 'spill over' benefits (i.e. positive externalities) that are enjoyed when investment in R&D takes place. With respect to climate change initiatives, assistance is also given to renewable energy producers to promote the production and consumption of 'green' or renewable energy. In addition, the government has (since 2014) also provided subsidies to businesses investing in projects that reduce their 'carbon footprint'. These subsidies are provided through the government's Emissions Reduction Fund (part of the Direct Action Plan that replaced the carbon tax) which targets intertemporal efficiency. [Market based initiative to address climate change is covered in Section 10.11]

With respect to **drought funding**, governments will provide support to the agriculture sector when it is clear that normal '**market signals**' could lead to the closure of otherwise '**viable**' farms. The 2017-2019 drought which afflicted farmers in south-eastern Australia, resulted in large financial losses. In the absence of government financial support some farmers would be forced to abandon the land. The continued operation of 'viable' farms provides the community with substantial positive externalities (or social benefits), such as guaranteed food supply and environmental benefits. Accordingly, their survival during drought or other natural disasters may depend upon government industry support.

Subsidies or industry support to encourage the production of goods and services containing **positive externalities in production** (or consumption) will clearly help to achieve greater allocative and intertemporal efficiency. In other words, the subsidies should lead to a more optimal allocation of resources in the economy. With respect to the impact on AS and productive capacity, they should also have a favourable impact on productive capacity in the long run. This is because the effective implementation of subsidies which help to reduce CO₂ emissions for example, should help to address climate change and reduce the likelihood of natural disasters or other climate related events (e.g. rising sea levels) that have the potential to reduce future levels of AS. With respect to drought relief funding, it should help to keep farmers on the land and therefore also contribute to higher levels of AS than would otherwise be the case.

Subsidies have also been used by the government to directly boost productive capacity by increasing the labour force participation rate (LFPR).

- The government provides **child care subsidies** for working families that are designed to reduce the cost of childcare and encourage stay at home parents to return to the workforce in some capacity. In the 2022-23 Budget the government announced an increased investment of \$4.6 billion to increase Child Care Subsidy rates to make early childhood education and care more affordable for eligible Australian families. It noted that the reforms are expected to increase the hours worked by women with young children by up to 1.4 million hours per week in 2023-24, which is equivalent to an extra 37,000 workers.

- The provision of taxpayer funded **paid parental leave** can be considered a subsidy for parents of newborn babies. It provides eligible working parents with up to 18 weeks of pay at the rate of the national minimum wage and is partly designed to boost productivity and participation. In the 2022-23 Budget, the government announced changes to modernise the scheme by increasing the number of weeks available to families to 26 weeks in 2026. A new investment of \$531.6 million to expand the **Paid Parental Leave Scheme** will provide additional support to families and 'further support productivity and participation'.

In addition, **wage subsidies** have been provided to employers who hire, train, and retain eligible jobseekers into sustainable jobs. This includes the **Restart initiative**, where businesses were provided a \$10,000 incentive to employ older Australians (e.g. over fifty years of age), as well as the initiatives introduced since 2020 as part of the government's COVID-19 response. This included:

- the **JobKeeper wage subsidy** that was designed to keep Australians in jobs and was open to businesses that experienced a significant drop in revenue (more than 30%) caused by the coronavirus. The payment was designed to ensure that eligible employers could afford to retain employees and remain viable businesses until the pandemic passed
- the **JobMaker Hiring Credit** package, designed to further support growth and jobs during the pandemic.

One further area of industry support worth exploring relates to the Government's provision of **export development grants** as part of the government's 'trade policy'. The scheme is administered by 'Austrade' and funded through the budget. The grants are provided to exporting businesses to enable them to penetrate export markets and involve the provision of a 50% reimbursement of expenses that are related to export promotion activities. Like other AS policies, these grants work to reduce the business costs, increasing AS (pushing the AS curve to the right) and promoting growth in AD via an increase in export sales.

The Productivity Commission's latest annual industry review (released in July 2024) reveals the budgetary outlays assistance to industry over 2022/23, including subsidies, grants and loans (but excluding tax concessions). Chart 10.1 highlights that the services industry received most support, with \$3.8 billion provided in financial assistance, a significant proportion of which goes to the following industries

- Property, professional and administrative services (\$1.45b)
- Construction (\$0.5b)
- Information, media and telecommunications (\$0.3b)

The manufacturing industry received the next highest level of support at \$1.2 billion, with businesses in the following sectors receiving the most support:

- Petroleum, coal, chemical and rubber products (\$286m)
- Machinery and equipment manufacturing (\$259m)
- Food, beverages and tobacco (\$137m)

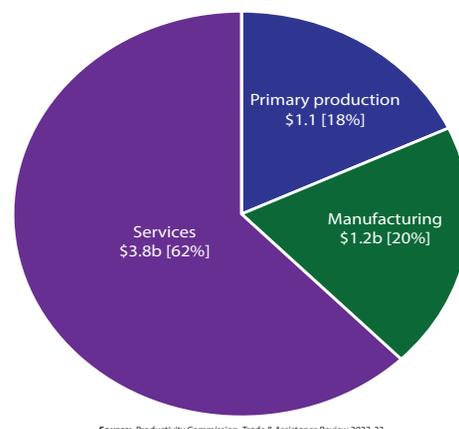
Primary industries received the third highest level of support at \$1.1 billion, with businesses in the following sectors receiving the most support:

- Sheep, beef cattle and grain farming
- Horticulture and fruit growing
- Aquaculture and fishing

Some recent examples of specific subsidies or assistance that have been announced include:

- As part of the Government's '**Investing in a Future Made in Australia**' initiative:
 - \$1.5 billion to strengthen **battery and solar panel** supply chains through production incentives
 - \$466.4 million to advance Australia's **quantum computing** capabilities
 - \$4 billion for the **Hydrogen Headstart program**, which will provide support for renewable hydrogen projects. Successful projects will receive subsidies from the government to support the production of

Chart 10.1
Provision of budgetary outlays on industry assistance



renewable hydrogen. This program aims to reduce the cost of hydrogen in Australia and encourage its use.

- \$566.1 million to map Australia's **geographical potential** to support the net zero transition
 - \$1.7 billion to promote net zero innovation, including for **green metals and low-carbon fuels**
 - \$268 million to support the development of **defence industries** and skills
 - \$519.1 million from the **Future Drought Relief Fund** for farmers and rural communities.
- A \$3.5 billion **energy bill relief package** which will provide eligible businesses \$325 in rebates (effectively a subsidy) to reduce their energy bills. Treasury estimate that 1 million small businesses will receive this rebate in the 2024-25 financial year. Further, 10 million households will receive a \$300 energy rebate to ease cost of living pressures.
 - An increase in the **Childcare Subsidy** (CCS) rate from 85 per cent to 90 per cent for families on their first child in care.
 - Investing a further \$328 million in the previously announced **Modern Manufacturing Strategy** that supports high-value and high-priority areas involving the adoption of innovative and new technologies.
 - Investing \$200 million in the Regional Accelerator Stream of the **Supply Chain Resilience Initiative** that will assist regional businesses to address supply chain vulnerabilities.
 - The provision of an additional \$600 million to improve productivity in the agricultural, fisheries and forestry sectors. Which includes **assistance to farmers** to help diversify income streams and better protect the environment.
 - An additional \$2.7 billion to extend and expand the **Boosting Apprenticeship Commencements (BAC) wage subsidy** which is expected to benefit 170,000 apprentices.
 - Subsidies in the form of **concessional loans and cash grants** to rural producers who were impacted negatively by recent drought and bushfires in Australia.
 - **Wage subsidies** provided to employers who hire, train, and retain eligible job seekers into sustainable jobs i.e., jobs that will last when the subsidies run out. This includes a \$10,000 incentive to employ older Australians (50+), the long-term unemployed (unemployed for 12+ months) and/or indigenous Australians.
 - **Manufacturing subsidies** of over \$1 billion to specific industries ranging from the petroleum industry to manufacturers of machinery and equipment.
 - **Primary production subsidies** consisting of the provision of \$6.3 billion of assistance and concessional loans to support growers and graziers affected by drought, and \$3.3 billion to support those affected by flood.
 - **Service industry subsidies** of approximately \$1.7 billion provided across a range of industries, including Arts and Recreation and financial services.
 - **The Australian Carbon Credits Unit (ACCU) scheme**, which involves offering Australian businesses financial incentives to adopt smarter, greener practices that ultimately reduce the amount of greenhouse gases (CO₂ emissions) that are emitted. These businesses will earn ACCUs for any reductions they achieve, which enables them to earn income from selling these ACCUs to other businesses that have less success with pollution abatement. This should promote inter-temporal efficiency, sustainable development and stronger rates of economic growth into the future.



Review questions 10.7d

1. Explain what is meant by industry policy.
2. Outline why, historically, industries were provided with subsidies and/or tariff protection.
3. Explain how protection in the form of subsidies may impose costs on the economy.
4. Discuss how the government's approach to industry policy has changed over the past 20 years.
5. Describe the current types of subsidy assistance provided to firms in Australia.
6. Discuss how current types of subsidy assistance can help to improve efficiency in the allocation of resources and/or impact on aggregate supply.
7. Outline what is meant by export development grants and outline how this might improve AS in the economy.
8. Compare the budgetary outlays (grants, loans and subsidies) provided to the manufacturing industry, relative to that provided to the services industry.

Activity 10f: Reducing assistance to Australian industries

Following several decades of reform, tariff assistance is now almost negligible and is far outweighed by direct budgetary assistance. The latter can have various effects on economic efficiency — while it can be motivated by a desire to address market failures, it distorts resource allocation and encourages rent seeking behaviour [e.g. when a company lobbies the government for grants or some other concession as a means of generating wealth] which has its own direct costs and undermines innovation and productivity growth.



While the primary role of the Review has been to keep a record of assistance, an equally important role has been to view assistance in the context of the economic landscape of its time. These tasks are as vital and as challenging as ever, owing to three key developments.

First, the COVID 19 pandemic created a sudden and enormous disruption to the global economy and society. The Australian policy response has included major supports to businesses, which in 2020-21 were of an unprecedented scale. While the justification for these expenditures is well understood, they are not without risks: the discriminatory design of some assistance measures may have implications for resource allocation; and measures intended to provide temporary support risk outlasting their purpose and result in long term costs.

Second, Australia's policy response to climate change has evolved over the past two decades, as has a global consensus, culminating in 2021 in adoption of the policy objective of reaching net zero emissions by 2050. The justification for measures associated with the consequent energy transition are also well understood, but they will nonetheless entail ongoing risks in terms of both efficacy and efficiency, largely related to the design and choice of measures.

Third, global trade policy has seen a resurgence of protectionist sentiments, influenced by geopolitical volatility and national security concerns. While trade agreements continue to proliferate, there have been challenges to trading institutions, unilateral trade bans and tariff hikes, and increases to non-tariff barriers — all of which contribute to an uncertain environment. Many countries, including Australia, have moved toward more restrictive foreign investment regimes. Progress on the implementation of carbon border tariffs in Europe will also introduce further complexity in trade and risks to the free trade of goods and services across borders.

These changes in the global environment call for careful responses as Australia approaches full employment. In this phase, it is vital for Australian policy to aim to improve productivity, in part by minimising distortions to efficient resource allocation. It will also be important to leverage the benefits of open global trade and investment, including increased competition in product markets, reduced input costs, and the diffusion of innovation. Sound and transparent policy design and its implementation will be critical.

Source: Productivity Commission, Trade and assistance review 2020-21

Questions:

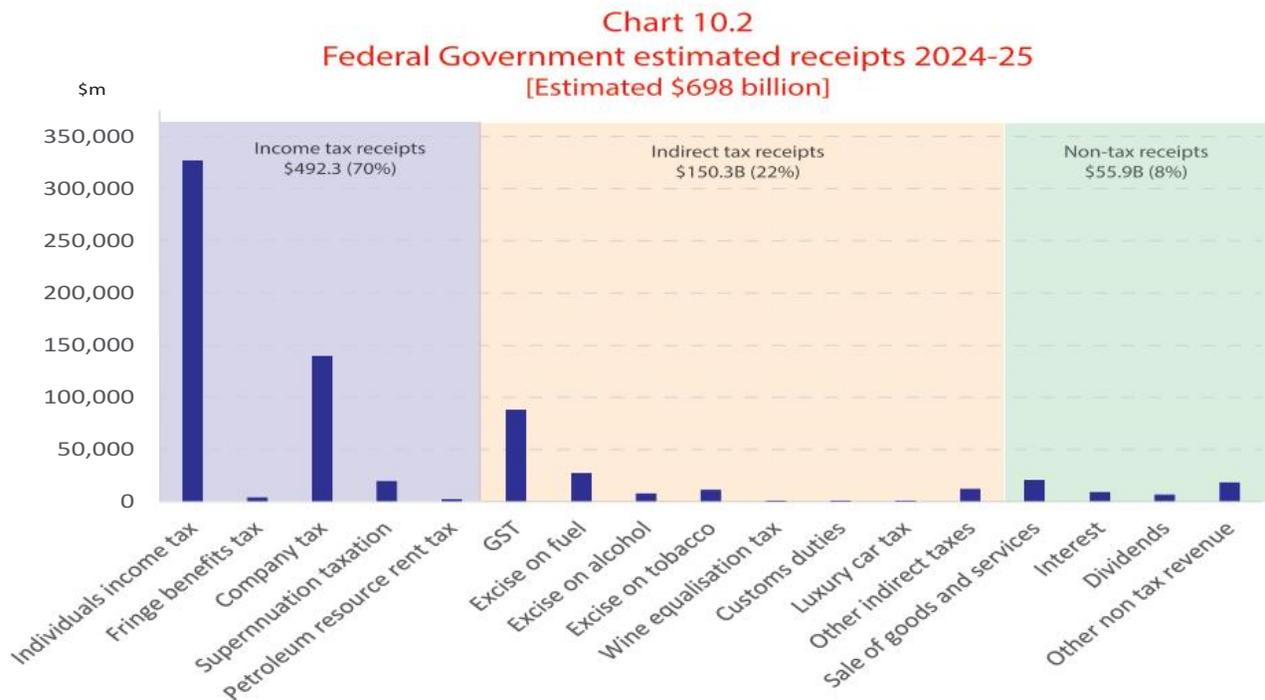
1. Explain how rent seeking behaviour can undermine innovation and productivity growth.
2. Explain how the support provided during COVID-19 (e.g. the generous wage subsidy known as JobKeeper) is justified during a time when the government is trying to reduce subsidy support to businesses.
3. Explain the implications for subsidies or taxes that stem from:
 - a. the adoption of the policy objective of reaching net zero emissions by 2050; and
 - b. the resurgence of protectionist sentiments across the globe.
4. Describe how the ongoing provision of subsidies to some industries might create 'distortions to efficient resource allocation' and reduce aggregate supply.
5. Explain how the use of AS policies in Australia might contribute to a more open global trade and investment environment and describe how this can contribute to an increase in aggregate supply and achieve low inflationary economic growth.

Tax reform policies

Chapter 8 discussed how the government can use its control over the tax system to manipulate levels of AD in order to assist with the achievement of its goals. Similarly, the government will often manipulate the levels or rates of taxes (the tax mix) in order to boost AS and achieve numerous supply side benefits that have been discussed earlier. In particular, tax incentives are often designed to encourage entrepreneurial behaviour and innovation and further investment in capital in order to lift the nation's productive capacity (such as R&D tax concessions covered in Section 10.5) as well as provide motivation for economic agents to increase effort and productivity (such as personal tax cuts).

Chart 10.2 provides a breakdown of the main sources of government revenue from the \$698 billion estimated to be collected over 2024-25, with tax revenue (both direct and indirect) making up the vast majority (i.e. 92% of total revenue). The manipulation of each of these taxes will have important implications for resource allocation and economic activity over time and the government regularly alters the tax mix to help improve supply conditions for businesses and therefore assist with the achievement of the government's goals. These changes have included the provision of tax

concessions or tax cuts (provided under the banner of industry policy as described earlier) as well as changes to the administration of the tax system in order to improve its efficiency and transparency and reduce compliance costs for businesses.



There are several ways for the government to change or reform the tax system in order to improve productivity and technical efficiency. With respect to many indirect taxes, these are typically not designed to boost technical efficiency or productive capacity. Instead they are largely designed to achieve a more efficient allocation of resources (i.e. achieve **allocative** or **intertemporal efficiency**) by changing relative prices and encouraging both consumption and production to move towards activities that are in the national interest. For example, excise taxes on alcohol and tobacco are designed to reduce demand for these demerit goods (as their relative price increases) which therefore results in fewer resources being allocated to their production. However, the government is able to manipulate a host of other taxes in order to increase productivity and/or boost aggregate supply. This includes tax concessions or exemptions, changes to direct taxes, efforts to reduce tax compliance costs as well as reforms to ensure that the interaction between the tax system and the welfare system does not discourage entrepreneurial behaviour or workforce participation.

Tax concessions

Tax concessions are typically provided in the form of rebates or allowances, where businesses are able to reduce their effective tax liability by claiming inflated tax deductions for investment in specific assets or activities. These concessions enable the government to focus on particular assets or investments, and they are particularly powerful in influencing resource allocation. A common example is the R&D tax concession (examined earlier) that is designed to encourage business investment in innovative products, processes and services, such that Australia can benefit from an increase in productive capacity and international competitiveness. Other examples relate to tax concessions provided to some businesses operating in export markets, capital gains tax exemptions for small businesses and tax offsets provided to businesses in the film industry.

Rebates are sometimes referred to as tax breaks and work just like an R&D tax concession. The government will offer businesses an additional tax deduction on top of the already allowable deduction to encourage business investment in specific assets. Again, when well targeted, these rebates encourage greater business investment, boost productive capacity and provide the range of AS benefits referred to in earlier sections.

Accelerated depreciation allowances can also be used to encourage business investment in ‘high tech’ capital equipment. Recent examples relate to the budget initiatives to further extend the ‘asset write-off scheme’ (also referred to as ‘temporary full expensing’) which is effectively an accelerated depreciation allowance. Businesses with a turnover of up to \$5 billion (99 percent of Australian businesses) were able to deduct the full cost of eligible depreciable assets of any value in the year they are installed. The eligible assets must be installed by the end of the relevant tax (fiscal) year and it was expected to bring forward capital investment of approximately \$200 billion as businesses sought to deduct the full

purchase price of any newly-purchased assets and more quickly adapt to the latest technology. This would help to raise productivity, reduce production costs over time and ultimately contribute to an increase in AS and productive capacity. Significant changes were made to this scheme from June 2023. Now only small businesses with annual turnover of less than \$10 million can write off assets up to the value of \$20,000 in a given financial year.

In addition, the government has been keen to deliver more favourable tax treatment of investment that helps to achieve net zero emissions by 2050. This includes the lower tax rates applying to domestic production of renewable energy sources such as ethanol and biodiesel as well as more favourable tax treatment of investment in clean technologies, such as hydrogen fuel, solar electricity generation and low emissions materials.

Alterations to direct taxes

Tax cuts can also refer to tax concessions (because a business' tax liability is effectively cut), but they ordinarily involve a reduction in the **rate of tax**. Tax cuts tend to be more permanent in nature and, unlike tax concessions, are generally not used to focus on particular types of investments. For example, the cuts to the rate of company tax (for smaller companies) in recent years should encourage companies to increase investment in all types of assets, whereas the 150% R&D tax concession will only apply to a much narrower band of investment (i.e. investment in research and the development/commercialisation of that research).

A reduction in **company tax rates** could provide a significant boost to investment and also attract significant foreign direct investment into Australia. As businesses invest more in a whole range of assets, such as plant, machinery and equipment, we should expect there to be an increase in AD, followed by a boost to productive capacity once the investment is fully operational within industries (indicated by a shift to the right in the AS curve). The lower company tax rate should also act to effectively lower costs of production for firms and increase their willingness and ability to supply. Treasury research indicates that a 1% reduction in the company tax rate would indeed lead to a small (0.2%) increase in real GDP in the long run (perhaps 20 years).



The 10-year **Enterprise Tax Plan** announced in the 2016-17 Budget saw the company tax rate lowered from 30 per cent (30 cents for every \$1 of profit) to 25% (25 cents for every \$1 of profit) for small and medium sized incorporated businesses with a turnover (sales revenue) of less than \$50 million in a financial year from July 1, 2021. An equivalent benefit was offered to unincorporated businesses such as sole traders. The 10-year Enterprise Tax Plan also proposed a reduction in the company tax to 25% for large incorporated businesses but this was rejected by the Senate (upper house of Parliament).

While changes in **personal income tax rates** will have powerful effects on AD, the government emphasises the ability of lower income tax levels to increase AS. Such reductions can work to increase AS and productive capacity via a number of related avenues, which are outlined below.

- Lower income tax rates may create additional **incentives to work** longer and/or harder. With a higher after tax (disposable) income, workers may decide to increase their effort in those occupations where wages are closely linked to performance (such as sales), and some individuals will have a greater incentive to improve their skills through education or training to improve their earning potential, resulting in a boost to labour productivity and AS levels.
- Lower income tax rates can lead to a higher **labour force participation rate** (or larger labour supply) as those out of the labour force may decide to offer their labour because employment becomes more financially rewarding. In addition, lower tax rates can attract an increase in immigration as Australia is likely to have a more competitive income tax environment. These factors exert additional pressure on those in employment to increase effort or work intensity, resulting in higher labour productivity and increases to aggregate supply over time.
- To the extent that they encourage increased participation, lower income tax rates place downward pressure on **labour costs** as a larger labour supply tends to 'loosen' the labour market by reducing any labour shortages and/or increasing (creating) labour surpluses. With lower real unit labour costs, there is downward pressure on production costs, supply conditions for businesses improve and we would expect higher AS levels.
- Lower income tax rates cause some unincorporated businesses (such as sole traders) to see income tax cuts in the same way that a company views a cut in the company tax rate. When rates are lowered, this provides the owner with a greater incentive to expand the business via investment and/or exert additional effort, thereby helping to boost productivity and decrease production costs.

The previous government announced its '**Personal Income Tax Plan**' in the 2018-19 Budget, and it involved a reduction in the tax burden for all households, to be delivered in three stages. All three stages have been passed into law, with the third and most controversial modified in response to concerns about equity and the need to provide further cost of living relief to low- and middle-income households. Stage 1 and 2 involved an increase in low- and middle-income tax offsets, as well as changes to income tax rates and thresholds, that collectively favoured low and middle earners. These stage 1 and 2 changes reduced average rates of tax paid by taxpayers and lifted average disposable incomes, which has the potential to provide the AS benefits referred to earlier.

The original Stage 3 tax cuts were controversial because they were set to exclusively reduce the taxable income of those earning more than \$45,000, with the largest beneficiaries being those on the highest incomes (e.g. those earning more than \$100,000). In addition, the Stage 3 tax cuts were expected to cost the federal government (in terms of foregone revenue) approximately \$30 billion per year, which led economists to question the viability and sustainability of these cuts given the huge increases in the budget deficits (and growth in government debt) since the COVID-19 pandemic. Further, the high levels of inflation over the past few years have placed considerable strain on household budgets, disproportionately impacting low- and middle-income earners.

In response, the newly elected government announced changes to the Stage 3 tax cuts, with more of an emphasis on reducing the tax burden on low- and middle-income households. The government scaled back the cuts, which were ultimately enshrined in law and came into effect on 1 July 2024. Numerous reasons were cited for making the changes to the previously-legislated tax cuts package for Stage 3, including:

- By enabling low-and middle-income households to retain more of their incomes, this change will help to ease cost of living pressures for these households.
- The revised tax cuts would provide low-and middle-income earners with greater protection from the effects of bracket creep.
- There is expected to be an increase in participation in the labour force by low- and middle-income earners, and in particular women because of the improved financial rewards from participating in the labour force.
- The changes would help address the concern that the earlier structure of the Stage 3 tax cuts made the personal income tax system less progressive.

The changes brought about by the Stage 3 tax cuts that have been in place since 1 July 2024 are as follows:

- Reducing the 19% tax rate to 16% on the \$18,201-\$45,000 income threshold
- Reducing the 32.5% tax rate to 30% on the \$45,000 - \$135,000 income threshold
- Retaining the 37% tax rate but increasing the income threshold from \$120,000 to \$135,000
- Retaining the 45% tax rate but increasing the income threshold from \$180,000 to \$190,000

These changes mean that everyone on an income of less than \$150,000 a year will now retain more income than in the original Stage 3 tax cuts proposal. Those on incomes above \$150,000 still receive a tax cut but it will be less than originally intended. This measure will increase the disposable incomes of all 13.6 million Australian taxpayers, with the average size of the personal income tax cut being \$1,888. The impact that the tax cuts will have on a person receiving the full time average weekly earnings of \$1,925 (or \$100,000 per year) were summarised in Chapter 8 and repeated in Table 10.1 below.

OLD		\$100,000 Income		NEW		\$100,000 Income	
	Income	marginal rate	tax payable		Income	marginal rate	tax payable
First	\$18,200	0.00	\$-	First	\$18,200	0.00	\$-
Next	\$26,800	0.19	\$5,092	Next	\$26,800	0.16	\$4,288
Next	\$55,000	0.33	\$17,875	Next	\$55,000	0.30	\$16,500
Total	\$100,000		\$22,967	Total	\$100,000		\$20,788
Average rate of tax			23%	Average rate of tax			20.8%
				Tax saving			\$2,179

Activity 10g: Stage 3 Tax Cuts and Tax Reform

A key feature of the political and economic debate over the past few years has been whether the Albanese Government would honour its pre-election promise to implement the former government's Stage 3 Personal Income Tax cuts as laid out in the seven-year Personal Income Tax (PIT) Plan. The answer finally came just before the 2024-25 Budget was unveiled. The Albanese Government pressed ahead with the tax reform albeit with some significant changes. These changes saw higher income earners; that is, those earning \$200,000 or more per year getting \$4546 less than originally proposed under Stage 3. This allowed the government to redistribute these funds to lower and middle-income earners, with those earning between \$50,000 and \$130,000 getting \$804 more than originally proposed. The Albanese Government argued that this was necessary to provide cost of living pressure relief for lower and middle-income earners given the high levels of inflation that have plagued Australia in the post-COVID period. For context, it should be noted that low- and middle-income earners were the main beneficiaries of Stage 1 and Stage 2 of the PIT.

However, according to some pundits, modifying the Stage 3 Personal Income Tax cuts are a backward step in terms of tax reform especially given Australia's poor productivity performance. The slowdown in productivity growth from 2.2% per year in the 1990s to 0.8% per year over the last 10 years means that after a 10-year period annual GDP will be 13% (or \$350 billion) less than otherwise, which means lower material living standards than otherwise. This underscores just how important productivity growth is to securing high living standards. According to prominent economist, Paul Krugman... 'a country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.'

The original version of Stage 3 Personal Income Tax cuts were seen by some as an important step in meaningful tax reform to lift Australia's ailing productivity growth. This is because it sought to address the issue of 'bracket creep' or 'fiscal drag' where taxpayers move into higher tax brackets never intended for them. 'Bracket creep' is a phenomenon linked to inflation and the progressive nature of Australia's personal income tax system. When inflation rises taxpayers seek an increase to their nominal incomes (money wages) to protect their real incomes (purchasing power) from the corrosive effects of inflation. However, this can push taxpayers into a higher tax bracket where they are subjected to a higher marginal tax rate. The original version of Stage 3 of the PIT sought to mitigate the effects of 'bracket creep' by abolishing an entire tax bracket and creating a new tax bracket stretching from \$45,000 to \$200,000 (see table). Taxpayers, the majority of whom fall into this tax bracket, would be subject to a marginal tax rate of 30 per cent or 30 cents in every dollar of income between \$45,000 and \$200,000. So how does eliminating an entire tax bracket and making the personal income tax system less progressive, improve productivity or more specifically labour productivity as measured by real GDP per hour worked? Income tax is essentially a tax levied on work and therefore can be viewed as a disincentive to work and/or lift work intensity. By eliminating an entire tax bracket and by extension a marginal tax rate, taxpayers can retain more of their income or the 'fruits of their labour'. This incentivises people to work or more importantly to work harder (lift productivity) as they get to keep more of the income they earn.

Table: New personal income tax rates and tax thresholds (income bracket \$)

MRT (%)	Pre-PIT Plan: Tax thresholds (income brackets \$)	Stage 1 of the PIT Plan: Tax thresholds (income brackets \$) from July 1, 2018	Stage 2 of the PIT Plan: Tax thresholds (\$) from July 1, 2020	MRT (%)	Stage 3 of the PIT Plan: Tax thresholds (\$) from July 1, 2024	MRT (%)	Stage 3 of the PIT Plan: Tax thresholds (\$) from July 1, 2024
				ORIGINAL		REVISED/CURRENT	
Nil	\$0-\$18,200	\$0-\$18,200	\$0-\$18,200	Nil	\$0-\$18,200	Nil	\$0-\$18,200
19%	\$18,201-\$37,000	\$18,201-\$37,000	\$18,201-\$45,000	19%	\$18,201-\$45,000	16%	\$18,201-\$45,000
32.5%	\$37,001-\$87,000	\$37,001-\$90,000	\$45,001-\$120,000	30%	\$45,001-\$200,000	30%	\$45,001-\$135,000
37%	\$87,001-\$180,000	\$90,001-\$180,000	\$120,001-\$180,000	-	-	37%	\$135,001-\$190,000
45%	\$180,001 +	\$180,001 +	\$180,001 +	45%	\$200,001 +	45%	\$190,001 +

Changes in italics and excludes the temporary Low and Middle Income Tax Offsets and the Medicare Levy

Another issue with Australia's tax system is its overreliance on direct taxes such as personal income tax and company tax as opposed to indirect taxes such as the GST. Direct taxes account for 62 per cent of total tax revenues compared to an average of 34 per cent among OECD nations. The argument goes that relatively high marginal tax rates on personal income unduly distort decisions to work and/or to work hard, while relatively high rates of company tax undermine business decisions to invest. Thus, in order to reduce these distortionary effects, Australia needs to reduce its reliance on direct taxes and increase its reliance on indirect taxes such as the GST. Indirect taxes such as the GST do not have the same distortionary effects on the decisions of households to work and businesses to invest, thus are seen as being more efficient or better for driving productivity growth.

Another issue is Australia's ageing population. The consequences of this are well documented. As the median age of the population grows, health and aged care costs will rise, placing immense strain on the government's finances, and by extension young workers. Therefore, another argument for tax reform is one of intergenerational equity. That is, it is unfair to overburden younger workers with high taxes in order to support older Australians. Besides having an overreliance on direct taxes, Australia's income tax system is highly progressive. The current top marginal tax rate is 47 per cent (including the Medicare levy). This is above the median for comparable countries and kicks in at a relatively low multiple of average weekly earnings. This is reflected in the fact that the top 3.6% of taxpayers contribute around 32% of income tax, while the top 10% of taxpayers pay nearly 50% of income tax. In summary, some tax reforms to drive growth in productivity might include:

- Indexing tax brackets to inflation to counter the effects of 'bracket creep' or 'fiscal drag.'
- Lowering marginal tax rates and lifting the tax brackets or the income thresholds to which these marginal tax rates apply. In short, making the personal income tax system less progressive.
- Lifting the rate of the GST from the current 10% to perhaps 12.5% or 15% and applying the GST to a broader range of goods and services.

Source: Heavily edited extract of an article written by AMP Economist Shane Oliver at 'Oliver's Insights' 5 February 2024

Questions:

1. Outline the changes made to the Stage 3 personal income tax cuts from their original form.
2. Explain the rationale for modifying the Stage 3 personal income tax cuts.
3. Explain 'bracket creep' or 'fiscal drag' and its impact on the collection of tax revenue.
4. Explain the importance of productivity growth to living standards.
5. Analyse how the original Stage 3 personal income tax cuts sought to address the issue of 'bracket creep' while also supporting stronger productivity growth.
6. Assess the claim that Australia has an overreliance on direct taxes and the implications this may have for each of the following: (i) decisions to work and invest, (ii) productivity and international competitiveness, and (iii) economic growth
7. Assess the claim that Australia's personal income tax system is too progressive.
8. Explain why the ageing population couple with the need for intergenerational equity are arguments for tax reform.
9. Explain the benefits of altering the 'tax mix' or reducing the reliance on direct taxes and increasing reliance on indirect taxes.

Review questions 10.7e

1. Identify the two largest sources of tax revenue for the federal government.
2. Explain how excise taxes can help to achieve a more efficient allocation of resources.
3. Outline how tax concessions for R&D activity and accelerated depreciation allowances can contribute to the growth in AS or productive capacity.
4. Explain why tax reform might be necessary in order to improve Australia's living standards.
5. Describe how a cut in company tax rates might expand productive capacity.
6. Describe how lower personal income tax rates can expand productive capacity. In your answer refer to labour productivity, labour force participation, and labour costs.
7. Explain why the government chose to modify Stage 3 of the Personal Income Tax Plan.
8. Explain what is meant by tax compliance costs and describe how a reduction in these 'costs' can expand aggregate supply.

10.8 Skilled immigration policy

Immigration occurs when people enter and settle in a country where they are not a native. Australia is often referred to as a country of immigrants because most of the population immigrated here at some point in history. A large-scale immigration program began after World War II. There were large numbers of people displaced around the world and Australia faced shortages of labour. The government at the time also believed that a larger population was needed to maintain national security. At the end of World War II, Australia's population was a little over 7 million, compared to just over 27.1 million today.

The latest *Intergenerational Report* (2023), subtitled 'Australia's future to 2063', highlighted that Australia's average annual population growth rate is projected to slow to 1.1 per cent over the next 40 years, compared to 1.4 per cent for the past 40 years. Australia's population is projected to reach 40.5 million in 2062–63. This has negative consequences for future rates of economic growth (and living standards) because:

- Labour force **participation rates** fall, as with a rising average age of the population, there will be fewer and fewer Australians of working age, which negatively impacts on labour costs and labour productivity
- The likelihood of skills shortages increase, causing capacity constraints to set in earlier than otherwise
- Government finances will be under added pressure to support the **ageing population**, which results in higher taxes and/or an increased budget deficit (and higher interest rates). The government predicts that around 40% of the projected increase in budget expenditure over the next 40 years will be due to demographic ageing.



For example, as the size of our labour force shrinks, Australia will face a rising 'dependency ratio'. The dependency ratio is, technically, the ratio of population aged 0-14 and 65+ (i.e. generally too young or too old to be in the labour force) per 100 people in the population aged 15-64 (i.e. of working age). This figure gives us a sense of approximately how many people of working age will be available to support those who are not of working age. Since the mid-1970s, this number has fallen sharply and is currently around 4.5, and by 2060-61 is predicted to be as low as 2.7. This means that, for every person older (or younger) than working age, there will only be 2.7 people of working age in the Australian economy.

In recognition of the effects of an ageing population, the *Intergenerational Report* predicted that the average annual growth of real GDP is projected to be 2.2 per cent over the next 40 years – 0.9 percentage points lower than the average of the past. This translates to slower growth in material living standards with the average annual growth in real GDP per person, projected to be 1.5 per cent over the next 40 years compared with 1.6 per cent over the past 40 years.

It is in the context of a long-term slowdown of population growth and an ageing population that immigration policy is seen as an essential part of the federal government's strategy to increase the supply side of the economy and boost '**sustainable rates of economic growth**'. Consequently, over the last twenty-five years, there has been a substantial shift in immigration policy in response to these changing demographics of the country. By adding to the pool of available (skilled) labour, businesses will be able to expand their levels of production, capacity constraints can be avoided, and the fiscal (budgetary) position of the federal government can be protected.

Skilled immigration and the 3 Ps

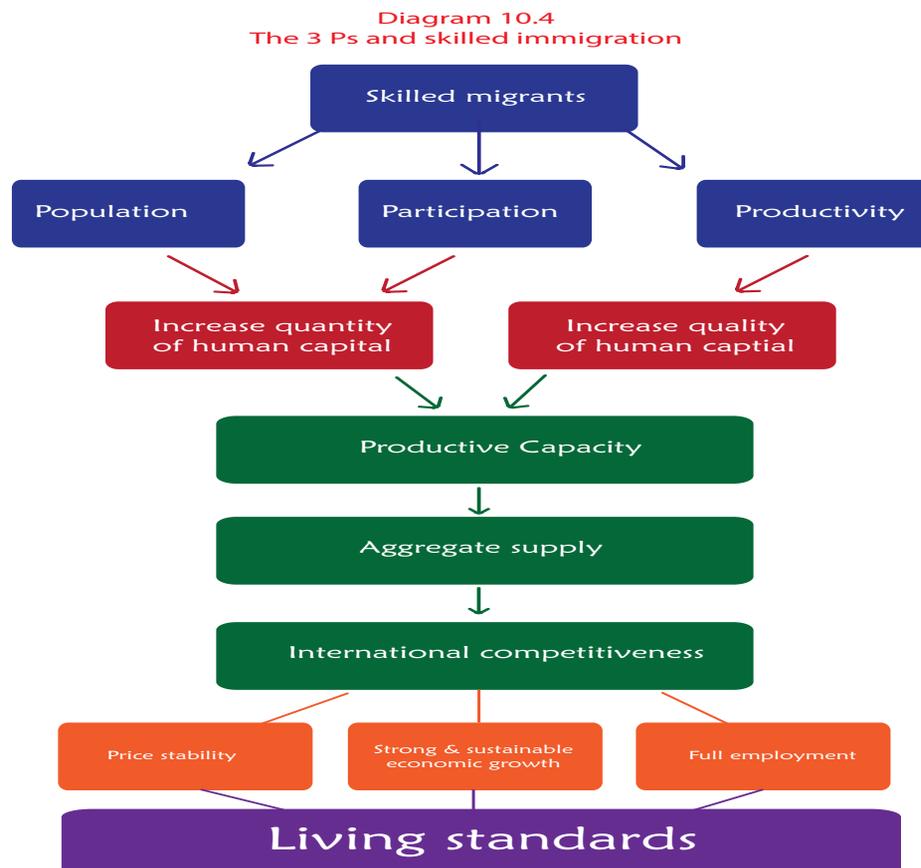
The Intergenerational Report highlights that the three Ps of Population, Participation and Productivity are considered the key drivers of sustained economic growth and improvements in longer term living standards. These three Ps impact on the quality and quantity of resources available for production and hence our productive capacity and AS.

Skilled immigration, population and participation

Between 2000 and 2010, Australia's labour force participation rate increased from 63.1 per cent to 65.9 per cent, with 94% of the increase accounted for by the arrival of skilled migrants. Since then, it has remained at an historical high (currently 67.1%) due largely to the continuing high rates of skilled immigration (up until early 2020), alongside a number of government policies that have been designed to encourage greater workforce participation. This highlights the importance of immigration in helping to cushion the impact of an ageing population. Without immigration there is little doubt that Australia's participation rate would reach 63.8% long before 2063 as forecast in the 2023 Intergenerational Report. This would accelerate the decline in economic growth and budget pressures that are anticipated in the future

Skilled immigration and productivity

Skilled migrants will tend to have a positive influence on Australian rates of productivity growth because, on average, they are more likely to be higher skilled than the average Australian worker and arrive with the experience and flexibility of having worked in different environments, conditions and circumstances. By definition, their entry into Australia is primarily based on their ability to 'fill a gap' in the economy that has been created by a skills shortage. This of course helps to boost productivity if the role they perform would otherwise be left unfilled or undertaken by workers with an inferior skills set. Increasingly, foreign entrepreneurs are attracted to countries like Australia which have a relatively stable political and economic environment, as well as an enviable record of dealing with health pandemics, such as COVID-19. To the extent that incoming entrepreneurs help to foster growth in innovation and creativity, this further helps to boost productivity growth. Diagram 10.4 depicts the relationship between the 3Ps, aggregate supply, the achievement of economic goals and living standards.

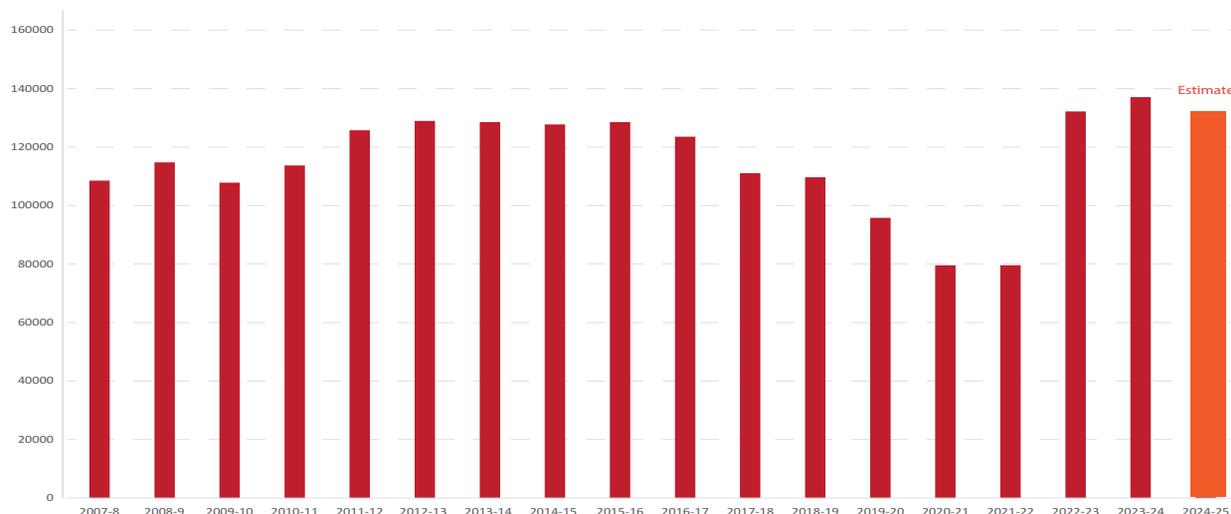


Australia's permanent skilled migration program

Immigration into Australia is overseen by the Department of Home Affairs. Each year the government sets immigration targets and bases entry on a number of criteria that are determined to meet Australia's needs and interests. Australia's permanent migration program includes three streams: Skilled, Family and Special Eligibility, alongside Humanitarian migration. (It is important to note that Humanitarian immigration is based on entirely unique criteria and these migrants are not counted in the main Migration Program.) For 2023-24, the Migration Program was set at 190,000 places. The **Skilled program** represents the largest intake (approximately 68%) of all non-humanitarian permanent immigrants. In recent years, the Australian Government has cited three main focuses of the migration program: building resilience, boosting productivity, and supporting the economy as it transitions to net-zero emissions.

The Australian skilled migration program is designed to target migrants who have skills or outstanding abilities that will fill skill shortages in the labour market and improve the productive capacity of the country. Ordinarily, the skills component of Australia's total migration program makes up approximately two thirds. However, during COVID-19, the government scaled back the skilled component so that it only represented one third of all permanent migrants. This can be inferred from the data shown in Chart 10.3 below, where skilled migrant numbers fell significantly between 2020 and 2022. The rise in skilled migration numbers since 2022 has largely been a result of the need to address the tight labour market conditions and skills shortages that were constraining the growth of many businesses and accelerating inflation in recent years.

Chart 10.3: Australia's permanent skilled migration outcomes



Skilled permanent migrants are required to be qualified and have working experience in one of the occupations (profession or trade) that is recognised as being in need of workers in Australia. They need to apply through an online skilled migration selection register which gives the Australian Government control over the composition and quality of skilled migration. The government considers applications based on a set of criteria, including their age, English language proficiency, qualifications and skilled employment experience. According to the recent government data, the top three largest categories of permanent skilled migrants to Australia in 2023-24 were Registered Nurses, Accountants and Software programmers.

With the assistance of temporary skilled migration programs (see below), the ability of the government to tap into foreign labour markets and access skills that are in short supply domestically is an important AS tool that can be switched on and off as required - by industries and the economy more generally.

To supplement the permanent (skilled) migration program outlined above, the government also enables skilled workers to enter the country on a temporary basis. Up until March 2018, the primary visa used to facilitate this inflow of migrants was the section 457 visa. They allowed foreign skilled workers to work in an Australian business for up to four years provided it could be demonstrated that the business wasn't able to find an Australian citizen or permanent resident to fill the role (achieved by labour market testing). The section 457 visa program was designed to be uncapped and totally driven by the needs of the Australian labour market, and workers on these visas were legally meant to receive the same market rates of pay applicable to their occupation as Australian workers. However, over a number of years, there were widespread reports of businesses 'gaming the system' by attracting migrant workers on section 457 visas and paying them below market rates of pay for these occupations. Surprisingly, use of the visas was increasing in industries that experienced 'flat wages growth', such as cooks in the hotels/restaurant industry and shop assistants in the retail sector.

Unions claimed that employers were increasingly using section 457 visas to source cheaper foreign labour as a means of cutting costs and improving competitiveness. In response, the government tightened up the scheme to reduce the possibility of 'rotting' by employers (e.g. undertaking routine inspections of workplaces). However, despite this, complaints about section 457 visas continued, with unions arguing that there was no obligation on the part of many employers to 'test the local market' and advertise the job before accessing section 457 visas.

The government then initiated an independent Senate Inquiry into the scheme, which ultimately saw section 457 visas being replaced in March 2018 by a new scheme: **Temporary Skill Shortage (TSS)** visa (Subclass 482) scheme. The new scheme was designed to tighten up the conditions upon which foreigners could be granted these temporary skilled visas. For example, there are more than two hundred fewer eligible occupations, they are valid for only two years for applicants (instead of four years) and there is no path to permanent residency, unlike the section 457 visas. In addition, sponsorship from an Australian business is required.

Despite the new scheme, there are arguably few substantive changes that impact on the ability of Australian businesses to access skilled labour that is in short supply. In fact, the union movement claims that the new scheme is essentially the old scheme with a new name and the rotting of the system will continue. Former ACTU Secretary, Ged Kearney noted that:

'On the face of it, it looks like a cynical attempt to rebrand a wildly unpopular policy ... It is unlikely Malcolm Turnbull's proposal will do anything to remedy the chronic exploitation of our work visa system ... Where workers can come to Australia and do entry-level jobs like retail shop assistants or kitchenhands, we still have a broken system'.

Source: www.actu.org.au

In contrast, employer groups welcomed the scheme, arguing that the new TSS visas provided a good opportunity for Australia to regain confidence in the temporary skilled migration program. The Chief Executive of the Business Council of Australia, Jennifer Westacott said that:

'The capacity for businesses to hire temporary workers to fill genuine skill shortages has been an overall boon for Australia, allowing the economy to ride out volatile economic cycles including in the mining industry'.

Source: www.bca.com.au

The TSS visa currently allows foreign skilled workers to work in an Australian business for up to two years for the short-term stream (or four years for the medium-term stream) provided it can be demonstrated that the business can't find an Australian citizen or permanent resident to fill the role. The business must prove that a genuine skills shortage exists in their workforce and the scheme contains safeguards to prioritise Australian workers and reduce the chances of rotting that plagued the section 457 visa scheme.



It is fair to say that the TSS scheme, appropriately managed, helps to reduce both capacity constraints and costs for Australian businesses, which in turn boosts Australia's AS and/or productive capacity. However, they also help to constrain wages growth and slowdown the rate of reduction in the unemployment rate that might otherwise have occurred (specifically in the short term).

Importantly, discussions around temporary and permanent migration highlight the labour market effects of allowing an increasing number of foreign workers into Australia. At the extreme, a totally unregulated global labour market would result in lower wages and lower costs for businesses (which has in recent years played out in the slow growth of Australian wages despite very low rates of unemployment). This helps to reduce inflation, increase international competitiveness, and promote stronger and more sustainable economic growth. While this can then help to raise the demand for labour, increase employment growth and exert downward pressure on unemployment over time, it can also have consequences for equity/fairness. Not only can it prolong periods of unemployment for some groups, it can also lead to generally lower average wages over time. The impact of Australia's skilled immigration program on the key domestic macroeconomic goals is considered in more detail below.

Skilled immigration policy and the achievement of macroeconomic goals

Immigration and Aggregate Supply

As discussed, immigration is needed to assist in boosting population growth in order to offset the projected declines in labour force participation over the next 40 years. The benefits of immigration were then introduced in the context of the 3Ps framework, with clear links between immigration and population, productivity and participation. Skilled immigration can therefore help to boost the nation's AS levels and the productive capacity of the nation in a number of ways. For example, a well targeted immigration program can:

- increase the **supply of labour** and increase the labour force participation rate, which exerts downward pressure on wage rates, boosting employment and output
- alleviate **capacity constraints** (or skill shortages) and help to maintain labour productivity levels above levels that would otherwise occur
- further **enhance productivity** via the intake of young skilled professionals to replace the ageing population and retirees
- result in '**economies of scale**' benefits being enjoyed by some firms as a larger population (with the accompanying improvement in demand) adds to output growth
- lead to lower average costs of production and lower prices, boosting **international competitiveness** and contributing to growth in net exports
- further increase the connectedness with overseas markets, helping to facilitate even stronger **export growth** over time.

Strong and sustainable economic growth

Expansion of the supply-side of the economy is important for increasing the speed limit of the economy and helping to promote **sustainable economic growth**. This is because higher demand levels can be facilitated more easily without causing excessive price increases or excessive spending on imports. As mentioned, a shortage of skilled labour means that businesses who wish to expand may find it difficult to attract suitable labour. An inability to attract a valuable resource, such as labour, to the production process means that it is difficult for a firm to increase their productive capacity and hence their volume of production from year to year. The government's focus on attracting skilled immigrants in short supply helps to alleviate some of the problems in this area. The median age of skilled immigrants of approximately 37 means that they are expected to have many working years ahead of them. Accordingly, immigration helps to expand the supply side of the economy, which alleviates inflationary pressures and helps to facilitate extra demand in the economy (e.g. as international competitiveness improves). Immigrants also tend to have a higher labour force participation rate. This again adds to the pool of people who are available to facilitate production of goods and services.

Immigrants can also bring with them their acquired skills and knowledge of capital. For Australian firms that are seeking to gain a **competitive advantage**, some immigrants may be able to facilitate the growth in ideas and innovation that will result in productivity gains. This is particularly evident in the Business Skills Migration category where immigrants have a record of business success. This could result in positive externalities being experienced throughout the Australian economy. Immigrants may have also worked for organisations that have engaged in World's Best Practice. They may therefore be able to help implement these ideas in Australian firms, helping to boost productivity, increase aggregate supply and facilitate growth in real GDP.



Price stability

The discussion in the previous section highlighted the importance of expanding the supply side so that any capacity constraints can be reduced during times of excessive AD, thereby minimising **demand inflationary pressure**. In addition, immigration may help to keep **cost inflationary pressures** down during times of skills shortages and wage pressures. By adding to the supply of (skilled) labour, immigration helps to reduce labour shortages and prevent wage pressures and inflation from accelerating. If there are productivity increases that eventuate because immigrants introduce new production techniques and/or introduce new capital, then this can also lower the per unit costs of production and help to contain inflationary pressures. By allowing more immigrants to set up businesses in Australia it will help to create a more competitive environment in the economy, placing downward pressure on prices.

The overall impact on inflation that stems from immigration more generally is open to debate. When new immigrants arrive in Australia, not all will add to the pool of labour (e.g. family members). This opens up the possibility of growth in AD matching or outstripping the growth in aggregate supply, thereby creating added inflationary pressures in the economy. However, the overall effect on inflation will therefore depend on the number of skilled migrants relative to those that have entered via another migration scheme (e.g. the family or humanitarian programs). The higher is the ratio of skilled to unskilled migrants, the more likely it is that immigration will have a favourable impact on the achievement of price stability over time. As was clear in the discussion of Australia's migration program earlier in this section, the focus on skilled immigration helps to reduce the risk that immigration will contribute to AD without also adding to AS and helping to offset rising price pressures.

Full employment

Many economists and politicians are regularly promoting immigration as a way to sustain Australia's rates of economic growth. Some commentators, however, argue that increased immigration leads to higher rates of **unemployment**. The common quote may be something along the lines of "they are stealing our jobs". Given that the unemployment rate for immigrants is generally lower than the population-wide unemployment rate, and the government has strict guidelines about the skill areas under which people can apply for residency, these arguments do not usually get very far. The government is unlikely to approve a skilled immigration application when there is high unemployment in a particular field. Furthermore, the increase in immigration also adds significantly to the level of aggregate demand in the country thereby creating additional need for labour in the production process.



Some commentators, however, have suggested that the government's reliance on immigration to fill **skills shortages** does little to help those who are structurally unemployed, especially those who have been unemployed for extended periods. Some may therefore argue that the lack of spending on vocational education and training and the preference for the 'quick fix' of skilled immigration may actually be slowing the decline in the unemployment rate. In September 2022, during questioning at the House of Representatives Standing Committee on Economics, the RBA Governor highlighted how immigration will have both positive (demand side) and negative (supply side) effects on the unemployment rate. In rejecting the assertion that the proposed increase in the immigration program for 2022-3 would increase the unemployment rate, he said:

I'm not sure that higher immigration has much effect on the unemployment rate. If you think about it from the perspective of an individual business, it's pretty clear. You can't undertake investment and you can't hire a worker, so you get a worker from overseas and things look better for you, and the labour market constraints ease. But when that worker has finished working for you they go home. They've got to live somewhere. They've got to eat. They go to the doctor. They go out and entertain themselves. Maybe their children need to get educated. And when they do all those things, that creates additional demand for labour. So the worker comes in and supplies more labour for the firm, but when they go home they create extra demand for labour in the economy. At an aggregate level, I don't think immigration really is going to have that much of an effect on the overall dynamics in the labour market or the unemployment rate. But it's incredibly important in delivering skills to people for businesses and for the longer run prospects for the country. I don't think it really has much effect on inflation or unemployment in the short run, other than the extent it can ease the supply bottlenecks because you get people with the right skills.

Skilled immigration and international competitiveness

As noted previously, Australia's permanent migration program is targeted towards attracting highly-skilled migrants who can fill gaps in the labour market, reducing wage inflationary pressures. By assisting in containing wage growth and cost inflationary pressures, skilled migration can also support improved **international competitiveness** by allowing Australian producers to keep costs of production in check, and contain price rises to enable them to compete in the global marketplace.

However, immigration also has a number of negative impacts that make it important that the government carefully manages the size of (skilled) immigration numbers over time. Specifically, it can be argued that (skilled) immigration tends to contribute to:

- the strain on the nation's physical and natural capital, such as infrastructure like education, health and transport and natural resources, adding to congestion (especially in Melbourne and Sydney where most migrants settle) and additional resource depletion
- the housing affordability problem in Australia as the demand for housing further increases in a climate where supply of housing cannot keep up with existing demand
- potential pressure on social cohesion (e.g. due to the difficulties/delays associated with assimilation of some migrant groups)
- the possibility of a decline in Australian working conditions and/or rates of pay as migrants enter Australian labour markets (e.g. those entering under the Temporary Skills Shortage Visa scheme and accepting below market rates of pay)
- the potential loss of important social infrastructure over time, such as reduced land use for parks and recreation;
- downward pressure on wages growth during periods (such as the period leading into 2022) when many are concerned about low wages growth
- a reduced need to train up low skilled Australian workers, or the potential 'de-skilling' of Australian workers in general as employers instead 'import' skilled labour to fill those positions. This can potentially make it harder for the structurally unemployed to return to work, boosting the potential for a rise in long-term unemployment.

Given the ongoing embrace of (skilled) immigration by Australia and most developed countries, it no doubt reflects the general view that the net benefits of immigration, and skilled immigration in particular, are overwhelmingly positive. This view was articulated by the RBA Governor in late 2021 in the following way, when responding to questioning at the Standing Committee on Economics:

'...the fact that Australia has been able to draw people from right around the world is one of Australia's great advantages. We are the great immigrant country of the post-World-War-II period. The fact that people have come here and wanted to improve their lives has brought a dynamism to our economy we otherwise wouldn't have. It's boosted our connections with the rest of the world because we have people here who come from elsewhere. Their business and personal connections elsewhere are to our advantage. It's helped improve the nation's human capital. It's also delayed the ageing of the population'

Review questions 10.8

1. What is meant by the term immigration?
2. Distinguish skilled immigration from unskilled immigration.
3. Explain what is meant by the three Ps.
4. Describe how skilled immigration can influence the three Ps and both the quantity and quality of human capital.
5. Explain how skilled immigration can boost aggregate supply and/or productive capacity.
6. Distinguish the permanent skilled migration program from the temporary skilled migration program.
7. Explain why the government increased the permanent skilled migration intake over 2022-23.
8. Explain how skilled immigration can assist with the achievement of strong and sustainable rates of economic growth and price stability.
9. Explain the impact that skilled immigration might have on the achievement of full employment.
10. Explain how skilled immigration can help improve Australia's international competitiveness.
11. Construct an AD/AS diagram to illustrate the effects that immigration can have on the macroeconomy.
12. Compare the costs and benefits associated with skilled immigration..



Activity 10h: Immigration, population growth and benefits for Australia

During the House of Representatives Standing Committee on Economics (17 August 2018), the RBA Governor, Dr Philip Lowe, was asked to comment on the relationship between population growth and the economic development of Australia. Read the Governor's response below and answer the questions that follow:



Population growth has had a significant effect on our economy. It's having an effect on our society as well. I'm not advocating particularly for strong population growth or weak population growth. My job is to try to understand the effects of population growth on the economy. It's a first-order variable that's affected how the Australian economy performs. What I was trying to do was to outline for the community some of those effects. They would include stronger economic growth. We've had 27 years without a recession. There are a lot of reasons for that, but one of those reasons is that the population has been growing, on average, 1½ per cent a year. If our population had been growing at 0.2 per cent a year, as many other advanced economies have, we would have had less growth over that period. It's one of the first-order considerations in how the Australian economy has grown over recent times.

The fact that we've had a lot of population growth has added to the country's human capital. Most of the migrants who come to Australia come because they have jobs here and they have skills we need or they're studying at Australian universities. One-sixth of those who come to study at our universities tend to stay afterwards and contribute to our society. That has helped our human capital. It's changed our demographics quite a lot. We are now one of the youngest of the advanced economies and we're going to stay one of the youngest countries for the next 20 years because of the immigrants. ...

The median age of Australians is 37. The median age of new immigrants is somewhere between 20 and 25. We've been doing this for a decade and it's affecting the rate at which our country's ageing. We used to be ageing in the middle of the pack with other countries. The ageing over the next 20 years is going to be noticeably less than most other advanced economies. In 20 or 30 years, there'll be an echo effect of this. For the next 20 or 30 years, we're ageing quite slowly and that will help government finances. It helps the government budget. They're some of the effects that the strong immigration has had.

I also talked about the pressure that it's put on infrastructure, on housing. It took a long time for housing construction to adjust to stronger population growth. In fact, it took the better part of a decade. Population growth picked up and the rate at which we were building houses or dwellings didn't pick up. That speaks to the problems in the planning process, probably at the local and the state level. That pushed up housing prices, I'm sure. But, for a number of years, we have been adding to the dwelling stock at quite a fast rate, and that's one reason that the housing price dynamics have changed in the country for the better.

... I think another benefit we've got from immigration is that our society is more dynamic and more diverse, and that diversity is positive from the long-term perspective. In the most recent census, nearly 50 per cent of us either were born overseas or have one parent who was born overseas. So half the population have some direct connection to families and businesses living in other countries, and often they speak another language as well. I see that as one of Australia's huge assets. That diversity, those business connections and those overseas connections that we have are one of the country's great assets, and a slower rate of population growth over time would not build on that asset at the rate that we've been building on it.

[Source: https://www.aph.gov.au/Parliamentary_Business/Committees/House/Economics/RBAAnnualReport20172/Public_Hearings]

Questions

1. Identify Australia's average annual population growth and outline two separate ways it has helped to prevent Australia experiencing a recession over the 27 years leading up to 2020.
2. Define human capital and explain how migration has contributed to Australia's stock of human capital.
3. Explain how immigration is helping to address the problems associated with an ageing Australian population.
4. Discuss the impact of immigration on infrastructure and housing.
5. Describe how immigration makes society more diverse and dynamic.

10.9 Trade liberalisation

Trade liberalisation is the process of phasing out or reducing restrictions or barriers to trade with other countries over time. The ultimate aim of trade liberalisation is free trade. The antithesis of trade liberalisation is **protectionism**, which refers to any government policy initiative that imposes restrictions on trade with other countries. Protectionist policies include barriers or impediments to trade such as:

- Tariffs: taxes on imported goods
- Import quotas: restrictions on the volume of imports
- Subsidies: cash payments to domestic producers
- Local content rules: where certain goods must contain a specified percentage of home-grown content
- Preferential treatment: domestic producers receive favourable treatment when bidding for government contracts (government procurement policies)

These protectionist policies can be removed unilaterally, bi-laterally or multilaterally, and this will be considered in further detail later in this section.

The arguments for trade liberalisation/ the arguments against trade protection

There is a general consensus among economists and Australia's political leaders that protectionist policies are misguided, hence the gradual movement to free trade through the process of trade liberalisation over many years. This conviction is because protection from foreign-made goods (imports) reduces competition, which ultimately results in:

- higher prices
- lower quality, and
- a less efficient allocation of resources.

The reason for this is quite simple. Protected industries are under much less pressure to adopt the latest technology and the lowest cost methods of production, which negatively affects productivity and productive (technical) efficiency. Another way of thinking about this is that protected industries have a captive market and thus lack the necessary incentives (provided by competition) to innovate, improve and minimise costs. Further, protected industries are far less likely to be dynamically efficient as they are under far less pressure to be responsive to the changing needs of consumers or the market. This was the case for Australia's now defunct car manufacturing industry, which is summarised in Activity 10i.



Box 10.3 Is protection always a bad thing?

While protection still exists in some Australian industries, such as film and television, the grounds for continuing support are typically based on non-economic factors. For example, in the case of film and television, the argument for protection is one based on a need to preserve Australia's culture and identity, and less on the need to protect production and jobs. Similarly, the protection afforded to the Australian shipbuilding industry (e.g. via subsidies and the mandating of a certain percentage of any build to take place in Australia) is partly based on strategic defence imperatives rather than economic imperatives.



The COVID-19 pandemic, and the threat of future pandemics, resulted in the Australian government ramping up its support for parts of the manufacturing industry. Importantly, this is less about the need to protect Australian businesses from the threat of global competition, and more about the need to develop and maintain a capability to produce a wider range of products that will ensure that Australia is able to navigate through the next pandemic without the supply constraints that threatened our ability to deal with the threat of the coronavirus. For example, Australia was exposed to shortages of medical equipment and personal protective equipment owing to the fact that the bulk of these products are manufactured offshore. COVID-19 highlighted the importance of nurturing parts of the manufacturing industry to ensure that we are less exposed in the future.

The 2024-25 Budget allocated more than \$20 billion in support to the renewables sector, part of which is a commitment to provide subsidies (up to \$1 billion) for the manufacturing of solar panels in Australia. From an efficiency point of view it makes little sense given that China has a comparative advantage in the production of solar panels. However, the government claims that the subsidy is partly designed with sovereign capability in mind. That is, it wants to provide Australia with the security of having this capability in the event that there is a deterioration in diplomatic or economic relations with countries such as China.

Trade liberalisation and comparative advantage

The economic argument for international trade and by extension trade liberalisation is based on the work of the economist, David Ricardo (1772-1823) namely his theory of comparative advantage.

Absolute and comparative advantage

Absolute advantage occurs when a country can produce more of a good than other countries, using the same amount of resources. That is, a country should concentrate on producing those goods where it is more efficient than other countries. Despite a country having an absolute advantage in the production of many different goods it can still make good economic sense for it to specialise in the production of a narrower range of goods. The key to understanding this argument is the theory of **comparative advantage**, which dictates that a country should specialise in the production of those goods where the opportunity cost is lower than other countries. That is, produce those goods that it is relatively more efficient at producing compared to other countries. The benefits of specialisation in this way was recently summarised by the Productivity Commission in the following way:

Comparative advantage, when each country specialises in the things they do 'best', results in higher levels of production, income and consumption across all trading partners than would otherwise occur. 'Best' does not mean that a country needs to produce the good or service at a lower cost than all other countries. In fact, even a country that does not have such an absolute advantage in any activity, still has a comparative advantage in producing something for export. 'Best' here means that a country could not be doing anything better with its resources. That is, it is focused on the production of those things with the lowest opportunity cost.

Comparative advantage example: boats and bicycles

Assume that two countries possess the same resource endowments and have the capability to produce both boats and bicycles. The table below describes the production possibilities for both countries assuming they devote 50% of their resources to the production of boats and 50% of their resources to the production of bicycles.

Scenario 1: 50% of resources devoted to the production of each good in both countries		
	Boats (million)	Bicycles (million)
Country A	4	2
Country B	1	1

Country A has an **absolute advantage** in both boats and bicycles because it can produce both goods more efficiently – producing 4 million boats and 2 million bicycles while Country B can only produce 1 million boats and 1 million bicycles. However, Country A only has a comparative advantage in the production of boats. It does not have a **comparative advantage** in the production of bicycles.

Country A has a comparative advantage in the production of boats because for every boat it produces it only gives up the production of $\frac{1}{2}$ a bicycle. (Note, to simplify the discussion, the 'million' goods reference has been removed, since the ratios remain the same.) Whereas when Country B produces a boat, it gives up the production of 1 bicycle. That is, the opportunity cost for Country B is higher because it needs to give up more bicycles in order to produce each boat.

However, Country B has a comparative advantage in the production of bicycles because for every bicycle it produces it only gives up 1 boat. In contrast, when Country A produces a bicycle, it needs to give up the production of 2 boats. Country A's opportunity costs associated with bicycle production are therefore higher than Country B's. This means that, despite having an absolute advantage in the production of both boats and bicycles, Country A only has a comparative advantage in the production of boats.

Based on the assumed production volumes in the table, the combined output of both countries would be 5 million boats and 3 million bicycles. Therefore, the total output of goods would be 8 million – a combination of boats and bicycles.

Let's now assume that each country decides to specialise in the production of that good in which they have a comparative advantage. Country A specialises in boat production by allocating 100 per cent of its resources to the production of boats, and Country B specialises in bicycle production by allocating 100 per cent of its resources to the production of bicycles. The outcome would be far better in terms of total output, as illustrated in the table below – Scenario 2.

Scenario 2: Specialisation – Country A produces boats and Country B produces bicycles		
	Boats (million)	Bicycles (million)
Country A	8	0
Country B	0	2
Total production	8	2

The total boat output would be 8 million and total bicycle output would be 2 million, delivering a total production of goods of 10 million. It therefore makes sense for Country A to produce only boats and import bicycles from Country B, and for Country B to produce only bicycles and import boats from Country A. Taken together, more goods and services being produced (i.e. increased global output) translates into a higher level of real GDP and all of the benefits this provides.

Conclusions based on the theory of comparative advantage

The theory of comparative advantage dictates that a country should specialise in producing those goods or services where the opportunity costs are relatively lower than other countries. Specialisation in areas of comparative advantage is likely to lead to a country fully utilising its productive capacity and reaching productive efficiency, which raises output and living standards. Countries stand to gain from specialising in areas of comparative advantage and then trading with each other. The income generated from exporting the production that results from focusing on comparative advantage can then be used to purchase imports of goods/services where they do not have a comparative advantage. In the context of a country like Australia, we have a comparative advantage in the production of goods/services like tourism and education compared to a country like China, which has a comparative advantage in the production of manufactured goods. Hence, it explains the nature of Australia's trading relationship with China, where we are a net exporter of tourism and education and a net importer of manufactured goods.

Activity 10i: The demise of car manufacturing in Australia

In 2016 Ford ceased manufacturing cars in Australia, and this was followed by GM Holden and Toyota in 2017. The demise of Australia's struggling car manufacturing industry has been attributed to the following factors:



- The decision by the government to withdraw production subsidies that had been 'propping up' Australia's ailing car manufacturing industry for many years. Production subsidies were criticised as being a form of 'corporate welfare' and a waste of taxpayers' money.
- The high value of the Australian dollar (during the 'Mining Boom'), which made imported cars relatively cheaper than Australian-made cars, while making Australia-made cars destined for export markets too expensive and uncompetitive.
- Changing tastes and preferences, with many consumers opting for small fuel-efficient cars such as diesels and hybrids rather than the large six-cylinder family sedans manufactured by the likes of Ford, GM Holden, and Toyota at their plants in Victoria and South Australia.
- The inability to achieve economies of large-scale production because of the relatively small size of the domestic market. The Australian market has roughly 27 million consumers, which is quite small by global standards. To achieve economies of scale, businesses need to be producing large volumes. A larger market, and demand for larger volumes allows manufacturers to spread the fixed costs of production (such as plant and machinery) across a larger volume of output, in order to drive down per unit fixed costs and enable them to reduce the prices of the cars rolling off the assembly line.
- The gradual removal of tariffs (tax on imports) on imported cars, which has resulted in even lower prices for imported cars placing Australian-made cars at a disadvantage in terms of their price. This factor also accelerated the shift of car manufacturing to low-cost countries in Asia.
- The shift of manufacturing to low-cost countries in Asia.
- An inward-looking car manufacturing industry with a lack of focus on export markets (or export orientation) instilled by decades of protectionist policies.

Questions

1. Explain how Australia's relatively small population (and therefore market) contributed to the demise of the country's car manufacturing industry.
2. Explain how the Mining Boom of the 2000s is considered by some to be a 'final blow' to the Australian car industry.
3. Explain how decades of protectionist policies for the Australian car manufacturing industry are an example of protectionism ultimately 'backfiring.'
4. Define dynamic efficiency.
5. Explain which factor from the case study illustrates a lack of dynamic efficiency by the Australian car manufacturing industry

Trade liberalisation and the allocation of resources

Trade liberalisation and productive (technical) efficiency

Lowering barriers to trade such as tariffs, subsidies and import quotas whether unilaterally or through **Free Trade Agreements (FTAs)** exposes a country's industries to more competition from foreign-made or imported goods. For example, a reduction in tariffs can make imported goods relatively cheaper than domestically produced import-competing goods. This increased competition imposes a discipline on domestic industries that are in direct competition with imports to lower their costs of production to be able to compete on price. Accordingly, domestic industries might implement new technologies (capital equipment) and new work practices to increase productivity or the amount of output from inputs. Such an increase in productivity (possibly leading to productive efficiency) will lower average costs of production permitting domestic import-competing industries to lower their prices, which ultimately enhances their international competitiveness or ability to compete on price.

Trade liberalisation and allocative efficiency

Lowering barriers to trade facilitates a reallocation of resources to the most productive sectors (the most efficient) of the economy, and in doing so, promotes the achievement of allocative efficiency. Tariffs encourage resources to flow to protected industries, which are typically the least efficient industries within the economy.

Phasing out tariffs in protected industries forces these industries to adapt to survive. Some commentators refer to this as '**Economic Darwinism**' or 'the survival of the fittest.' While some businesses within these industries might successfully implement the necessary reforms to improve efficiency to ensure their viability over the long-term, other businesses might struggle to remain viable.



As these businesses go into decline, resources will be 'freed up' and redeployed to those industries, where Australia has a comparative advantage or is most efficient. For example, industries such as mining, agriculture, tourism, education and biotech (e.g., genetic engineering, drug development etc.). By redeploying resources to the most efficient industries, the economy's capacity to supply goods and services expands, thus output from our scarce resources or factors of production can be maximised. Further, any surplus output can be exported to foreign markets, and the income generated from these exports can be used to purchase those goods and services that cannot be produced efficiently in the Australian economy. That is, we can just import these goods and services at a relatively low cost from our trading partners. This represents the most efficient allocation of resources as it enables the greatest number of needs and wants to be satisfied, and thus living standards to be maximised.

Trade liberalisation and dynamic efficiency

The presence of tariffs and other barriers to trade generally creates inertia among businesses, where protected domestic industries are less responsive to shifts in consumer preferences or changing market dynamics. Put simply, the lack of competition means that businesses are less in tune with the needs of consumers. This stifles business innovation and hinders the reallocation of resources from one market to another in response to changing consumer preferences. The decline of Australia's car manufacturing industry considered in Case Study 10i above is an example of just this issue. Hence, it follows that exposing domestic industries to foreign competition makes these industries more responsive to changes in consumer preferences and thus dynamically efficient.

Trade liberalisation and intertemporal efficiency

A key driver of an economy's productive capacity is the quantity and quality of capital resources. Tariffs and other impediments to trade generally lead to too many resources flowing to consumption at the expense of investment. This is because the absence of competition means that domestic industries are under less pressure to invest in new capital equipment and state of the art technologies to improve efficiency, drive down costs and prices, in order to maintain their competitiveness and economic viability. This lack of investment in capital hinders growth in the economy's productive capacity meaning its ability to support future consumption is lower than it otherwise could be, undermining the achievement of inter-temporal efficiency. Therefore, opening up the economy to intense competition from foreign goods should lead to greater intertemporal efficiency.

Examples of trade liberalisation

The Australian government is keen to see our scarce resources allocated to those areas where we have a comparative advantage and away from those areas where comparative advantage lies with other countries. Trade liberalisation encourages resources to flow to areas of comparative advantage, which should ultimately result in higher living standards for Australians (higher GDP, employment and incomes).

As flagged earlier, trade liberalisation can take various forms. It can be achieved unilaterally, where a country chooses to remove or gradually phase out forms of protection on foreign-made goods (imports) entering the country. This includes policy initiatives such as:

- Tariff reductions
- Scrapping import quotas
- Removing subsidies

Another form of trade liberalisation is where two countries negotiate and voluntarily enter into a FTA. Australia has aggressively pursued FTAs over a number of decades now. These are examples of bilateral trade agreements. The FTAs that Australia has with other countries are listed below.

- CERTA with NZ (1983)
- SAFTA with Singapore (2003)
- TAFTA with Thailand (2005)
- AUSFTA with the United States (2005)
- ACFTA with Chile (2009)
- MAFTA with Malaysia (2013)
- KAFTA with South Korea (2014)
- Japan/Australia Economic Partnership Agreement (2014)
- ChAFTA with China (2015)
- AHKFTA with Hong Kong (2020)
- PAFTA with Peru (2020)
- Indonesia/Australia Comprehensive Economic Partnership Agreement (2020)
- A-UKFTA with the United Kingdom (2021)
- AI-ECTA with India (2022)



The term Free Trade Agreement (FTA) is somewhat of a misnomer.

These FTAs are really **Preferential Trade Agreements (PTAs)** as countries often still maintain some restrictions on the movement of goods between each other. Rather, they give each other better access to each other's markets compared to other countries that they do not have such agreements with.

Trade agreements can also be between multiple countries and often involve countries from the same geographical region. These agreements are referred to as **multi-lateral trade agreements** or **regional trade agreements** if they are made up of countries from the same geographical region. Some examples include:

- The *Comprehensive and Progressive Agreement for Trans-Pacific Partnership* or CPATPP is between Australia, Brunei Darussalam, Canada, Chile, Japan, New Zealand, Malaysia, Mexico, Peru, Singapore and Vietnam.
- *Regional Comprehensive Economic Partnership Agreement* (RCEP): Australia, Brunei Darussalam, Cambodia, China, Indonesia, Japan, Laos, Malaysia, New Zealand, Republic of Korea, the Philippines, Singapore, Thailand and Vietnam.
- *Pacific Agreement on Closer Economic Relations* (PACER) Plus: Australia, Cook Islands, Kiribati, New Zealand, Niue, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu and are parties to the Agreement. Nauru has signed the agreement but has not ratified.
- *ASEAN-Australia-New Zealand* (AANZFTA): Australia, New Zealand, Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

Box 10.4 A recent example of tariff removal: 'nuisance tariffs'

From 1 July 2024, the Australian Government unilaterally abolished tariffs on 457 items. (This is referred to as 'unilateral' trade liberalisation – where a country decides to remove trade protection without any reciprocal agreement with other countries.) When consulting on the abolition, the government cited the expected benefits of boosting productivity, reducing compliance costs and easing the cost of living for Australians – with an expected benefit of \$120 million over the next four years. Items on which tariffs have been abolished include household necessities such as toothbrushes, tools, fridges, dishwashers and clothing.



At the time of announcing the change, the government noted that the tariffs imposed 'unnecessary administrative costs and compliance burdens' while doing nothing to protect Australian businesses. Indeed, many businesses were spending time and money proving their imports were eligible for existing tariff preferences and concessions. In addition, removing tariffs on menstrual and sanitary items will align tariff policy settings with changes made to the GST and put further downward pressure on the price of these goods.

Trade liberalisation and international competitiveness

As already discussed, international competitiveness refers to the ability of Australian businesses (exporters and import-competing businesses) to compete in domestic and global markets based on price and non-price factors such as quality and service.

The removal of protective barriers, such as tariffs, will in the short-term lead to a reduction in Australia's international competitiveness given the immediate fall in the price of imports. [See Trade liberalisation and price stability below.] In particular, the prices of goods and services produced by import competing producers will be relatively higher, leading to lower sales volumes and declining profits. However, by exposing Australian businesses to more intense foreign competition, it imposes a discipline on them to increase their productivity (output from inputs) to lower their costs of production to be able to compete on price. In doing so, this should help to increase Australia's international competitiveness in the long-term.

Given that protectionist measures, such as subsidies, can act as tax on other Australian producers (e.g. government taxes will be higher than otherwise to pay for the subsidies) it stands to reason that trade liberalisation has the reverse effects in the long-term. Australian producers should be burdened less by business taxes, helping to maintain downward pressure on prices and boosting international competitiveness. [See Activity 10k titled 'Why protection can be a self-defeating strategy']



Additionally, reducing tariffs on capital goods reduces the costs of production for businesses who use imported capital goods in the production process. Recall, capital goods account for about 50 per cent of Australia's imports and they are vital to Australian industry. Lowering such tariffs reduces the costs of production, enabling businesses to lower their prices without sacrificing profit. Lowering the cost of imported capital goods encourages greater investment in these goods, which raises capital productivity, driving down average costs of production as more output can be extracted per capital hour used. In short, reducing tariffs on capital goods enhances Australia's international competitiveness.

Further, free trade agreements provide Australian exporters with better access to foreign markets, enabling them to reap the benefits of **economies of scale**. The Australian market is very small by global standards given our population is only 27 million people, whereas the global market is far bigger, with the world population being a little over 8 billion people. By being able to sell into the much bigger global market, Australian exporters can produce much larger volumes of goods, allowing them to spread their fixed costs of production such as plant and machinery more thinly over more units of output. This enables them to lower their average fixed costs of production and hence prices, in the long-run raising their ability to compete in the global market place. The rise in international competitiveness will stimulate net export demand through lower prices, supporting strong economic and employment growth.

Trade liberalisation and aggregate supply

The argument has been made that trade liberalisation should increase the productivity of Australian businesses (import-competing businesses) over time. That is, by exposing Australian businesses to greater foreign competition it will incentivise them to increase productivity or the amount of output of goods and services that can be extracted from available inputs such as labour and capital. Therefore, it stands to reason that if businesses can produce more goods and services, aggregate supply or the total volume of goods and services available for sale will increase too.

Further, by encouraging resources to flow to those industries where Australia possesses a comparative advantage our scarce resources or factors of production will be deployed in the most efficient way possible, enabling the economy to realise its full economic potential. That is, be operating at its productive capacity. Accordingly, this will lift its supply potential resulting in an increase aggregate supply or the total volume of goods and services available for sale. Diagrammatically, this can be visualised as a shift of the whole aggregate supply curve to the right, which results in more output as measured by Real GDP accompanied by a lower general price level.

However, in the short-term, aggregate supply might be negatively affected if Australian production is replaced with foreign-made goods and services.

Trade liberalisation and strong and sustainable economic growth

As noted earlier, in the short-term, the removal of protection (e.g. tariff cuts) can lead to some import-competing producers closing down because of their inability to compete with cheap imports, resulting in lower rates of economic growth. However, lower tariffs on inputs in the production process (e.g. capital equipment), lowers the costs of production for Australian industries reliant on imported capital. This enhances the international competitiveness of Australia's tradables sector (exporters and import-competing industries), which supports stronger rates of economic growth.

Over the long-term, tariff cuts can result in some businesses in Australia's import-competing industries successfully restructuring operations to compete with foreign-made goods (imports), leading to improved international competitiveness, an increase in Australia's share of global trade, and stronger rates of economic growth.

Further, the reallocation of resources from the least efficient industries to the most efficient industries (i.e. to where Australia has a comparative advantage) helps to ensure the economy's productive capacity is fully utilised, resulting in higher levels of output and stronger rates of economic growth. Moreover, the signing of free trade agreements improves the access that Australian exporters have to foreign markets. This should enable Australian exporters to sell more exports, which supports higher rates of economic growth.

In conclusion, trade liberalisation enhances productivity, which increases the willingness and ability of Australian businesses to supply goods and services in both domestic and foreign markets. This increase in aggregate supply (shift of the AS curve to the right) promotes the achievement of non-inflationary economic growth.

Trade liberalisation and full employment

Trade liberalisation can have mixed effects on the macroeconomic goal of full employment. In the **short-term**, some domestic producers might fold or go bankrupt because of the inability to compete with more cheaply priced imported goods. This can lead to an increase in structural unemployment and consequently long-term unemployment, which can jeopardise the macroeconomic goal of full employment. Over the **longer term**, those domestic producers that have been able to successfully restructure their operations and reduce their costs will be internationally competitive. This will enable them to boost their market share and expand their operations, leading to more job opportunities. With more jobs being created the full employment goal is more likely to be achieved.



Further, the decline of inefficient businesses will release or 'free up' resources for the most efficient businesses and productive sectors in the economy, where Australia possesses a comparative advantage in international trade. With access to more resources these businesses and sectors will be able to expand and provide job opportunities, yet again supporting full employment.

Trade liberalisation and price stability

As noted earlier, the removal of protective barriers, such as tariffs, will lead to a reduction in the price of imports which immediately helps to reduce the rate of inflation and assist with the achievement of price stability (low and stable inflation). This short-term beneficial impact is supported by the long-term impact that relates to the improvements in productivity/efficiency that result from more intense price competition from imports. Increased efficiency, through more outputs from inputs, lowers average costs of production, which permits domestic producers to lower their prices without sacrificing profit margins. To the extent that trade liberalisation leads to greater efficiency and lower prices, it should support the attainment of the price stability goal, which is to maintain increases in the general price level to between 2 to 3% as measured by the CPI, on average, over time.

Trade liberalisation and living standards

As noted, trade liberalisation should improve Australia's international competitiveness, supply potential and efficiency in the allocation of resources over time. Thus, in the long-term, trade liberalisation supports the achievement of the macroeconomic goals, which ultimately raises Australia's living standards. For example, it should boost Australia's Real GDP per capita.

However, as noted, in the short-term, trade liberalisation can lead to structural unemployment as some industries go into decline because of their inability to make the necessary changes or adjustments to thrive in the new, more competitive business environment. Therefore, trade liberalisation can harm both material and non-material living standards in the short-term. For example, the structurally unemployed are often destined to join the ranks of the long-term unemployed (be unemployed for more than 12 months) because of the amount of time it takes to re-train to develop the new skills required by the economy. Older workers may never work again. An assembly line worker involved in the now defunct car manufacturing industry will not be able to step into growth industries immediately, where job opportunities are plentiful. When these people lose their jobs, they will move from a relatively high factor income such as a wage or salary to a much lower transfer income such as unemployment benefits (JobSeeker payments), reducing their capacity to purchase goods and services. Consequently, they will suffer a decline in their material living standards. Moreover, they are likely to experience a decline in their non-material living standards. This is because being unemployed particularly for a long period of time can lead to feelings of despondency and helplessness resulting in stress, anxiety, and depression. Poor mental health diminishes people's quality of life.

Activity 10j: Tariffs - TCFs and PMVs

Consider the changes to Australia's tariff rates for textiles, clothing and footwear (TCF) and passenger motor vehicles (PMVs) over time, shown below.

	1990	1992	1994	1996	1998	2000	2005	2010	2015	2023
Apparel and finished textiles	55%	51%	43%	37%	31%	25%	17.5%	10%	5%	5%
Footwear	45%	41%	33%	27%	21%	15%	10%	5%	5%	5%
Woven fabrics	40%	37%	31%	25%	19%	15%	10%	5%	5%	5%
Sleeping bags, table linen	25%	23%	19%	15%	12%	10%	7.5%	5%	5%	5%
Passenger motor vehicles	40%	35%	30%	25%	20%	15%	10%	5%	5%	5%

Source: adapted from The Centre for International Economics, 'Australian trade liberalisation: Analysis of economic impacts', report, CIE <thechie.com.au>

Questions

1. Outline the movement in tariffs pre 2000 and post 2010.
2. Describe one implication stemming from the changing rate of decline in tariffs as outlined in Question 1.
3. Explain how the overall change in tariffs on footwear are likely to have affected the allocation of resources in Australia. In your answer, distinguish the short-term impact from the long-term impact.
4. Explain how the overall change in tariffs on motor vehicles are likely to have influenced the achievement of one of the government's macroeconomic goals and living standards.

Activity 10k: Why protection can be a self-defeating strategy

As discussed, while protection can have benefits for some groups, particularly in the short term, it is generally accepted that it tends to result in negative outcomes for the economy in the longer term. This is primarily because higher levels of protection reduce competition for local import competing producers and results in less pressure to minimise costs and prices. Accordingly, there is less incentive to improve efficiency and protection can also work to act as a tax on other Australian industries and therefore consumers. Over time, foreign producers tend to become relatively more efficient as they are exposed to greater competitive pressures. They are then able to reduce prices further and eventually gain a foothold in the Australian market. Local producers, again under threat, once more seek the protection of government policies and ask for an increase in tariffs to protect Australian jobs. This process becomes destructive as the inefficiency of local import competing producers becomes entrenched, raising the cost structure of the Australian economy and increasing the likelihood that foreign governments will retaliate and protect their local producers from those Australian exporters that have a comparative advantage, such as our mining and agricultural sectors.



As a consequence, Australia has pursued the path of trade liberalisation in line with most other developed economies around the world to exploit the benefits that free trade provides. Despite some reasonable arguments in support of protection, and the current increase in protectionist sentiment around the globe, most countries agree that protection should be removed over time in order to enhance (global) growth and lift living standards. Ultimately, the pursuit of free trade in Australia encourages a reallocation of resources towards those sectors or industries where Australia has a comparative advantage.

The following arguments are typically used to support the notion that protection should be removed as it misallocates resources to the production of goods and service that could be made more efficiently elsewhere.

- By shielding local producers from competition, protection reduces the incentive to be efficient. Essentially, protection 'props up' relatively inefficient industries at the expense of more efficient industries.
- Assuming the protected industry is a producer goods industry (i.e. producing those goods that are inputs in the production process), protection raises input costs, increases prices and reduces the competitiveness of other producers.
- The increased profitability of the protected industry in the short term gives it increased purchasing power over resources relative to other industries (e.g. can pay more for certain raw materials) which increases the cost for all firms. Protection can therefore act like a tax on local producers.
- Protection can contribute to inflationary pressure both in the short term (via higher import prices) and the longer term (via a reduction in efficiency and an erosion of competitiveness).
- The inflationary impact of higher tariffs or quotas will tend to cause a depreciation of the AUD over time. This further penalises some Australian producers as a result of higher cost of capital imports.
- Once protection has been introduced, it can become extremely difficult, first, to prevent the call for protection from other industries, and second, to dismantle protection at some later stage.

Questions/tasks

1. Explain why protection reduces the incentive for businesses to maximise efficiency.
2. Discuss whether protection is successful in protecting Australian jobs.
3. Outline what is meant by the phrase 'free trade encourages a reallocation of resources towards those sectors where Australia has a comparative advantage'.
4. Explain how tariffs can raise input costs for some businesses.
5. Outline how protection can act like a tax on local producers.
6. Describe the relationship between protection and the exchange rate.
7. Explain why it can be difficult to remove protection once it has been provided.

Review questions 10.9

1. Define trade liberalisation.
2. Outline three different forms of trade protection.
3. Explain why protectionist policies lead to sub-optimal outcomes in the long run.
4. Outline a few exceptional cases where protectionist policies are warranted.
5. Distinguish between absolute advantage and comparative advantage.
6. Outline the recommendations for countries based on the theory of comparative advantage.
7. Analyse how trade liberalisation leads to a more efficient allocation of resources. Break your response down as follows:
 - (i) Productive (technical) efficiency
 - (ii) Allocative efficiency
 - (iii) Dynamic efficiency
 - (iv) Intertemporal efficiency
8. Distinguish between bilateral and multilateral trade agreements and provide examples of each.
9. Discuss the short-term and long-term effects of trade liberalisation on Australia's international competitiveness.
10. Discuss the short-term and long-term impacts of trade liberalisation on the macroeconomic goal of strong and sustainable economic growth.
11. Discuss the short-term and long-term impacts of trade liberalisation on the macroeconomic goal of full employment.
12. Explain how trade liberalisation supports the achievement of the macroeconomic goal of low and stable inflation (price stability).
13. Discuss the impact of trade liberalisation on living standards over the short-term and long-term. Distinguish between the impacts on material and non-material living standards.

10.10 Environmental policies

Environmental policies are deliberate actions by the government to protect Australia's long term economic prosperity by developing laws and regulations that seek to manage the impact that human activity has on the physical environment. Currently, the most talked about environmental policies are those that seek to address global warming and climate change. However, numerous environmental policies have been developed over time with a view to preserving our natural environment and helping to ensure that human activity (in particular, the production of goods and services) occurs in a sustainable way. These policies range from those designed to prevent the extinction of endangered species, to those related to the management of waste and toxic substances and to those that attempt to minimise pollution levels across the board.

Contemporary environmental policies in Australia centre around the need to:

- respond to global warming and **climate change**
- reduce emissions of pollutants into the atmosphere
- reduce waste and landfill
- reduce the use and depletion of natural resources such as forests and fisheries.

The Study Design requires students to know one **market-based environmental policy** and its short-term and long-term effects on Aggregate Supply (AS), intertemporal efficiency and living standards. Market based policies include government interventions that seek to influence the behaviour of economic agents via the use of 'market forces', which ultimately involves the manipulation of prices to impact on producer and/or consumer behaviour. The most common examples of market-based policies are taxes and subsidies. For example, the establishment of a carbon tax or an emissions trading scheme are market-based policies because they work to place a price on pollution (e.g. carbon emissions) and rely on 'the market' (buyers and sellers) to achieve pollution abatement. In contrast, non-market-based policies do not involve the manipulation of 'prices' to achieve environmental outcomes, but rather involve the use of regulations, including the setting of standards and/or prohibitions, as well as government investment in research and general monitoring or control of an environmental issue.



Climate change and global warming

Climate change involves changing weather patterns and more specifically an increase in severe weather events. A related concept is that of global warming or the rise in the general temperature levels throughout the world. Australia (and the world more broadly) has seen evidence of climate change and global warming in recent years through extreme weather events such as floods and bush fires in the eastern states that have destroyed resources and had catastrophic impacts on the lives and livelihoods of many Australians. In the last Federal election, climate change was identified as not only the number one environmental issue, but the issue that voters were most concerned about.

Study tip

It is useful to note that the government has a range of environmental policies that do not necessarily have an obvious or meaningful impact on AS. This includes those initiatives designed to restore natural habitats, protect endangered species or preserve sacred Indigenous sites. While these are indeed environmental policies, they are not technically implemented with a view to fostering long term sustainable economic growth via the protection of Australia's long term productive capacity/AS.

As noted by the Intergovernmental Panel on Climate Change (IPCC), the UN agency responsible for advancing knowledge on climate change:

'Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages to nature and people. ... Vulnerable communities who have historically contributed the least to current climate change are disproportionately affected.'

Climate change is caused through the utilisation of fossil fuels, energy sources that are found in the Earth's core, that produce emissions when burned to generate energy. These emissions create a layer of gases around the Earth's surface (in the atmosphere) that maintain heat and thereby cause global warming and, as a flow on effect, adverse weather events. The gases are referred to as 'greenhouse gases' (the most common and plentiful of which is carbon dioxide or CO₂) and the warming as the 'greenhouse effect'. The emissions from burning fossil fuels also release particles into the atmosphere, thereby polluting it, and reducing air quality for current generations.

Responding to, and reducing the impacts of, climate change improves both short term and long-term prosperity for Australians. Australia, along with other countries, have seen an increase in the frequency and severity of severe weather events in recent years. Such events have detrimental impacts on the productive capacity of the economy in the following ways:

- Reducing the amount of natural resources available, for example, by destroying agricultural crops and forests
- Diverting the use of resources, such as labour and capital, to responding to events rather than generating output
- Channelling government funding into disaster response rather than other areas that could potentially create greater output and employment opportunities.



Responding to the challenges of the impact of climate change will involve enormous costs in 'mitigation' (fixing up the problems) and 'adaptation' (adjusting our lifestyles to the changes).

In reality, climate change is already reducing the productive capacity of the country and thereby negatively impacting both output and material living standards. In addition, those that are in areas impacted by severe weather experience stress and loss, thereby decreasing their non-material living standards. It is also the case that it is expected that those most impacted by the effects of climate change will be those least able to respond effectively to those effects (including the world's poorest and most vulnerable people). In the medium to long term, if climate change is not addressed, global warming will continue to accelerate, causing a higher level of, and more severe, extreme weather events. These will continue to have the impacts previously described on future generations. Additionally, government spending in responding to such events will reduce the government's ability to fund infrastructure and other initiatives that improve AS in the long term and enable the economy to grow at a more rapid rate.

In response to the threats posed by climate change, and in an attempt to curb the most extreme impacts, Australia, alongside more than 190 other countries, has signed up to the Paris Agreement - a legally binding international treaty on climate change that seeks to lessen global warming. As part of the Paris Agreement, each country submits a statement every five years regarding their emission reduction targets. These statements are known as Nationally Determined Contributions (NDCs). Australia's most recent NDC commits Australia to reducing emissions by 43% below 2005 levels by 2030, and net zero emissions by 2050. This target or objective is underpinned by specific policies designed to achieve the target.

Australia's initial NDC statement in 2015 referred to a technology led approach to tackling climate change, and initiatives in recent budgets have been aligned with this. Other countries have taken a more direct approach and implemented taxes on emissions, often referred to as carbon taxes or carbon pricing. This type of action to reduce carbon emissions will typically have a negative impact on AS and economic activity in the short term, as carbon intensive producers experience higher costs of production (e.g. from a carbon tax) and are forced to pass on these higher costs in the form of higher prices. This adds to the cost structure of the economy, negatively impacting on AS (shifting the AS curve to the left) and reducing the rate of economic growth.

Study tip

Australia had a carbon tax for only two years, from 2012 to 2014, and it was repealed because it was politically unpopular due to the costs it imposed on Australian businesses and households

The main policy the Australian government has relied on to address climate change since the repeal of the carbon tax in 2014 is the 'Direct Action Plan', the centrepiece of which is the **Emissions Reduction Fund**.

Emissions Reduction Fund (ERF)

The ERF is a budget allocation of an amount that businesses can apply for a part of to spend on projects that reduce greenhouse gas emissions or which capture and store carbon. The idea of the latter is that by capturing and storing carbon dioxide before it enters the atmosphere, greenhouse gas levels in the atmosphere are reduced. This not only reduces current pollution levels but also lessens the greenhouse effect and global warming. The types of projects that can be funded through the ERF include introduction of new technologies, upgrading of equipment or changing business practices. Only certain industries and activities are eligible and these include business in sectors such as agricultural, coal mining, gas production and transport.



Participants in the ERF scheme earn what are referred to as **Australian Carbon Credit Units (ACCUs)**. One ACCU represents the avoidance or removal of the equivalent of one tonne of carbon dioxide. ACCUs can be sold back to the government through an auction scheme, or to other businesses to generate income. The scheme is administered by the **Clean Energy Regulator**, a government body. In the 2024-25 Federal Budget \$2 billion was allocated to the scheme (0.27% of government expenditure). The total spending on environmental policies in the 2024-25 Federal Budget amounted to 3% of expenditure and focused on reducing emissions, promoting renewable energy, advancing sustainability efforts and protecting natural habitats. There was a similar allocation to the ERF scheme in the previous federal budget and spending on environmental policies.

Essentially, the ERF provides subsidies to certain businesses in order to incentivise the uptake of new technologies or business practices that improve energy efficiency and/or contribute to a reduction in carbon emissions. While the subsidies, such as incentives to upgrade commercial buildings using energy efficient materials, do indeed help to incentivise and expand production, the purpose of the subsidies is not to expand AS in the short term, but rather to protect the rate of growth in AS over the longer term. This is an acknowledgement that policies designed to reduce carbon emissions should, to some extent, help to address climate change and reduce the incidence and/or severity of extreme weather events that impair productive capacity in the future.

Study tip

Students are reminded that they are only required to demonstrate an understanding of 'one market-based environmental policy'. Accordingly, a focus on the ERF is sufficient in isolation. The information contained below in relation to carbon pricing and alternative methods can be treated either as extension or as an additional choice to refer to in the examination. Importantly, students must be able to explain how the policy is related to the operation of the market mechanism, and how it will serve to address a relevant form of market failure and improve intertemporal (or another type of) efficiency.

Improvements in **productive capacity** or AS enable higher levels of aggregate demand to be met without bottlenecks in production due to capacity constraints, and therefore a higher level of production should occur in the economy in the long term. This will increase material living standards, provided the rate of growth in production exceeds the population growth rate. By lowering the rate of pollution and reducing greenhouse gas emissions, air quality will also be improved, which favourably impacts on non-material living standards.

Intertemporal efficiency refers to the balance in resource use between current and future generations. If there are fewer fossil fuels being consumed through the projects introduced, then intertemporal efficiency is likely to be improved as more non-renewable fuel resources remain for future generations. Containing extreme weather events and the destruction of resources these cause also contributes to the achievement of intertemporal efficiency, because it enables future generations to achieve a standard of living that is not significantly impaired by the actions of current generations.

Box 10.5 The safeguard mechanism

The abolition of Australia's carbon tax scheme led to the removal of the option of its transition to an emissions trading scheme (which had been planned for 2015). It also resulted in years of political inaction on climate change policies in Australia. At the time of its election in May 2022, the federal Labor government committed to achieving net zero emissions by 2050, with an interim target of cutting national carbon emissions 43% by 2030 (compared to 2005 levels). This is Australia's 'NDC' as part of its commitment to the Paris Agreement (briefly explained earlier in this section). In March 2023, the Parliament passed a reform to the 'safeguard mechanism' – which is the country's most significant emissions reduction legislation in more than a decade (since the abolition of the carbon tax in 2014).



From 1st July 2023, many of Australia's 215 major polluting facilities (including fossil fuel operations, mines, refineries and smelters, who together are responsible for about 30% of Australia's emissions) needed to cut emissions intensity by 5% a year (either through absolute cuts to their own emissions or through buying carbon offsets). At the time of the legislation passing, the federal climate change minister stated that it would lead to a '205 million tonne reduction in emissions by 2023', which he described as 'the equivalent of taking two-thirds of the nation's cars off the road.'

While individual companies can buy an unlimited number of offsets (purchasing certificates that verify that the party from which they have bought them have reduced emissions by the specified amounts), total emissions under the scheme cannot increase and must come down over time. According to the Department of Climate Change, Energy, the Environment and Water, the safeguard mechanism:

'... sets legislated limits—known as baselines—on the greenhouse gas emissions of these facilities. These baselines will decline, predictably and gradually, on a trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.'

The emitters are required to keep their emissions within a limit (called a 'baseline'), which is gradually reduced over time. If an emitter succeeds in reducing its emissions below the baseline (its target) it receives credits that can then be traded with other emitters to cover their excess emissions. Emitters will face penalties if they fail to comply with the mechanism, but in general they use the purchase of carbon offsets and credits (the 'market' element of the scheme) to manage their excess emissions. Similar to a carbon tax, the safeguard mechanism operates by enforcing a price for something that has previously been largely unpriced – the carbon emissions of large polluters.

A price on carbon is designed to 'internalise' the negative externalities associated with carbon intensive production methods, by forcing the producers to either reduce emissions to meet their target, or to pay for emitting something that they were previously able to emit for free (buy paying for offsets or credits). It increases the cost of production for these carbon emitters, which reduces their ability and willingness to supply. As a result, they are likely to pass on some or all of the costs to consumers. This causes an increase in both the absolute ('ticket') price of the product, and the relative price of carbon-emissions intensive products. The higher relative price will affect both consumer and business behaviour. Producers will have an incentive to change methods of production to emit less carbon (and incur less need for buying permits), or they will seek alternative types of production (for example they may choose to begin producing using renewable energy). Consumers will also be encouraged to substitute into relatively cheaper products (contraction in demand in response to a higher price).

For example, new gas fields opened for export projects (LNG exports) must offset all CO₂ emissions, which will increase the cost for companies seeking to develop new gas exports and will influence the allocation of resources by the use of the price signal. It will increase the relative price of gas production (a major source of greenhouse gas emissions), discourage investment in the sector and ultimately reduce carbon pollution as resources flow into the production of more environmentally friendly sources of energy.

It is important to note that the safeguard mechanism is not a tax, in that it does not generate revenue for the government. Rather, it requires the polluters to either reduce their emissions or purchase offsets to meet their legislated baseline. It is, however, still a carbon pricing mechanism.

Modern Manufacturing Fund (MMF):

The MMF is another program funded within the Federal Budget. This initiative allows businesses to receive funding for investments that improve environmental outcomes. There are six categories within the MMF that align with the priorities that the government has for manufacturing and one of these is **recycling and clean energy**. The MMF was initially launched in 2020 and has been funded in subsequent budgets. In the 2024-25 Budget, \$1.5 billion was allocated to the scheme. As with the ERF, the MMF provides subsidies to businesses, thereby providing them with financial incentives to undertake certain production activities – in this case activities that contribute to greater recycling capabilities and the development of cleaner energy alternatives, by decreasing the cost to businesses, therefore encouraging increased supply.

The MMF therefore has the potential to improve intertemporal efficiency and future living standards to the extent that it helps to reduce the depletion of natural resources and contributes to carbon pollution abatement.

While the objective of the MMF is to increase the capacity of Australian businesses to produce/manufacture in the medium to long term, it was developed during a time (i.e. the COVID-19 pandemic) when Australia experienced critical shortages in the production of goods of strategic importance, such as medical equipment and supplies. The Fund was therefore partly designed to foster self-sufficiency in Australia and prevent an over-reliance on other countries during times of future crises. To the extent that the MMF supports the production of those goods and services that can feasibly be produced more cheaply overseas, it has the potential to have a negative impact on AS/productive capacity.

Recycling Modernisation Fund (RMF)

The RMF was launched in 2020 with the aim of reducing waste and avoiding recyclables from entering land fill. Greenhouse gases are released from landfill and, in reducing landfill, more greenhouse gas emissions are avoided, which lessens global warming and has similar impacts to those described for the ERF in terms of the impact on living standards and intertemporal efficiency. Reducing landfill also results in more usable land for future generations and in this way contributes to increased intertemporal efficiency and higher living standards. In addition, more precious and scarce resources can be retrieved and reused or repurposed, rather than disposed of through waste. Material living standards are improved through the land being available for productive purposes, and non-material living standards are improved through the enjoyment of a less damaged and more preserved natural environment. In the 2024-25 Budget, approximately \$60 million was allocated to the RMF. Past initiatives within the RMF have included \$18.2M allocated to improving awareness of correct recycling techniques and developing a new 'ReMade in Australia' brand to give consumers confidence in buying products that have been re-manufactured in Australia. As with the ERF and MMF schemes, there are subsidies for businesses to undertake projects or activities, increasing the willingness and ability to supply, and boosting AS. Although these market-based policies are designed primarily to influence the behaviours of households, they improve the supply side conditions in the long run by enabling more land and resources to be available for businesses to use in the production of goods and services. The RMF also includes funding for private sector projects that reduce waste.

Future Made in Australia

The 2024-2025 Federal Budget allocated \$19 billion for investment in 'Future Made in Australia' priority industries, all of which involve more sustainable energy sources. Development of these energy sources will reduce reliance on non-renewable energy sources, which will leave more of these resources for future generations and reduce emissions into the atmosphere. Initiatives within this allocation include subsidies in the areas of:

- production and commercialisation of renewable hydrogen
- production of green metals that generate lower emissions
- manufacturing of clean energy technologies, particularly in the solar and battery sectors.

In addition, a Critical Minerals Production Tax Incentive has been introduced to encourage the processing and refining of essential minerals like lithium and cobalt (which are important inputs to the production of the sorts of technologies required for renewable energy creation, including batteries). The Government has also promised regulatory reforms to better attract and deploy investment in sustainable energy industries.

Carbon pricing as a means of reducing CO₂ emissions

Carbon pricing refers to any initiative that forces producers to incur higher costs when producing carbon emissions intensive products such as coal fired electricity. This is designed to force these producers to internalise the negative externalities associated with the burning of fossil fuels (imposing the costs and negative effects of climate change on future generations), by increasing the cost of producing energy by this method and discouraging supply. Generally, there are two commonly accepted means of pricing carbon: a carbon tax and an emissions trading scheme (ETS).

Study tip

The role of changing costs of production on relative prices and the reallocation of resources in the case of the imposition of a carbon tax in Australia was examined in detail in Chapter 2 (Box 2.4) earlier in the text. Students are encouraged to return to that example for further detail on how this type of tax can influence resource allocation through the operation of the market (price) mechanism.

A carbon tax package

A carbon tax requires carbon emitters to pay a set amount of tax per tonne of carbon released into the environment. It effectively places a price on carbon and causes a substitution away from dirtier production methods to cleaner and more renewable ones. Australia's carbon tax was repealed in July 2014 and the government described the carbon tax scheme in the following way:

'Approximately 500 of the biggest polluters in Australia will need to buy and surrender to the government a permit for every tonne of carbon pollution they produce. For the first three years, the carbon price will be fixed like a tax, before moving to an emissions trading scheme in 2015. In the fixed price stage, starting on 1 July 2012, the carbon price will start at \$23 a tonne, rising at 2.5 per cent a year in real terms. From 1 July 2015, the carbon price will be set by the market. The carbon price will be accompanied by assistance supporting households, jobs, businesses and communities, to help them adjust, lower their carbon pollution and to protect our international competitiveness.'

An Emissions Trading Scheme (ETS)

It is generally accepted that an ETS is the most efficient method of combating the threat of climate change. An ETS involves a government determining a base level of carbon emissions it will tolerate in the economy. The government then provides or sells a certain number of permits to businesses allowing them to release CO₂ into the atmosphere and enforces penalties for polluting without permits. Once the permits are held by businesses, they can sell some of these to other businesses (or polluters), and a 'carbon market' develops, with a demand for, supply of, and price for carbon.

The least efficient polluters will demand more permits compared to those businesses that are more successful at pollution abatement (who can then supply permits in the carbon market). If CO₂ levels are too high, the price of permits rise, (i.e. the costs of polluting for businesses will be higher), providing incentives for businesses to reduce their demand for permits (or increase their potential supply). Businesses will seek to achieve a reduction in pollution in various ways, such as employing the latest pollution abatement methods (or technologies), investing in alternative energies or purchasing carbon offsets (such as investing in forest plantations).



Over time, the government reduces the number of permits in existence (effectively reducing supply), forcing up the price of CO₂ permits, and providing even further incentives for businesses to reduce their CO₂ emissions. The relative price competitiveness of other 'renewable' forms of energy (such as wind and solar) will increase, creating greater investment and innovation in that sector. Overall, pollution levels drop in line with the reductions in permits, and any existing level of CO₂ emissions is achieved in the most efficient way.

The price will increase for those goods and services relying heavily on non-renewable energy (such as coal fired electricity) relative to the price of other goods and services. In this respect, an ETS effectively works like a tax, adding to the costs of production for those producers and raising prices (forcing businesses to internalise the costs of their negative externalities of production). Consumers will then tend to switch to the consumption of those goods and services not subject to the tax (i.e. goods or services that are now relatively cheaper and cleaner for the environment).

An ETS could allow for the global trading of 'carbon credits/offsets' so that producers in Australia could buy the right to emit more CO₂ by buying the 'savings' of CO₂ created overseas. In principle this is fine, and does create an incentive to cut emissions (e.g. if a party cuts their emissions to a level below what their permits allow then they can sell 'credits' to a third party and make a profit). However, in reality, this type of trading can lead to fraudulent credits being created if countries have poor regulations and 'policing'. This means that parties may be paying for a CO₂ saving that actually might not happen. For example, in recent months in Australia, there has been some controversy over the merits and effectiveness of some 'carbon offset' programs, highlighting the potential risks of such a scheme if it is poorly regulated and policed ineffectively.

A Carbon Tax versus an ETS

Both the carbon tax and the ETS help to reallocate resources to the use of alternative forms of energy, resulting in cleaner production over time. However, a major difference between the tax and the ETS is that the carbon tax directly targets the price of carbon (via the imposition of the tax), with the market determining the volume of CO₂ emissions that will occur. In contrast, the ETS directly targets the volume of CO₂ emissions (and issues permits consistent with this volume) and then allows the market to determine the price. Fundamentally, the ETS has the advantage of greater control over the actual level of carbon pollution. Once the government sets the legally permissible level of carbon emissions, it allows the 'market' to determine the most efficient means of achieving these levels. The carbon tax, on the other hand, will reduce emissions levels, but there is less certainty about the actual level of pollution abatement that would occur. In this respect, the quantity of CO₂ emissions is variable under a carbon tax, unlike the ETS, where the price is variable and level of CO₂ emissions is 'fixed' by the government.

While the carbon tax provides greater certainty for businesses about the costs of polluting, its inability to accurately control the actual level of CO₂ emissions leads to a sub-optimal level of pollution abatement if the tax is not set at the correct level. For example, a carbon tax of \$24+ per tonne of CO₂ emissions results in affected industries increasing their prices. If consumers are unresponsive to the price increases (e.g. because consumers have a low price elasticity of demand for carbon intensive products, such as coal fired electricity) then the carbon tax results in a minimal reduction in carbon emissions. [However, as the carbon tax increases over time, the relative price attractiveness of alternative energy increases, thereby helping to reduce emissions this way.]

A quick comparison of climate policies: stick vs carrot approach

In Economics, it can be shown that for a government to create disincentives for certain types of behaviour, whether it be smoking tobacco, illicit drug taking or polluting the environment, subsidies or taxes can achieve comparable results. It is a bit like the 'carrot and stick' approach to modifying behaviour. On the one hand, the tax is like 'the stick' that raises the cost of 'behaving badly' and therefore creates an incentive to reduce this bad behaviour. On the other hand, the subsidy is like the 'carrot' in that it rewards good behaviour, that raises the relative cost of behaving badly (or of not behaving in a good way), which therefore creates incentives to behave well.

In terms of climate mitigation policies, carbon pricing via an ETS, or a carbon tax or even the Safeguard Mechanism, is like a 'stick'. They are designed to disincentivise the production of carbon emissions by raising the costs of production and consumption of carbon intensive goods and services. For example, the carbon tax raised the costs for electricity producers who then had an incentive to produce energy more efficiently (with fewer carbon emissions). The resulting higher price of electricity then causes consumers to become more energy efficient and/or seek renewable forms of energy in order to lower their energy bills.



Direct action, via the ERF for example, is like 'the carrot', providing financial incentives to reduce carbon emissions – a 'reward' for 'doing the right thing'. Those businesses who are prepared to undertake projects or activities to reduce emissions will receive a cash subsidy.

In terms of incentives, it is effectively the same as a tax (or a **price on carbon**) because net benefits are provided to those who reduce carbon emissions.

A major difference between a tax and subsidy relates to the effects on both government finances and prices of goods and services. The tax raises government revenue and reduces any budget deficit, but it results in higher prices for consumers. The subsidy raises government expenditure and increases any budget deficit, but results in relatively lower prices. [Prices should rise eventually, however, following attempts to reduce the deficit over time via higher taxes or as a result of higher interest rates that occur when the government issues more bonds to finance growing deficits.]

The major criticism levelled at direct action measures is that subsidies for abatement might be wasted because much (if not all) of the abatement may have occurred anyway. It can therefore be difficult for governments to ensure that payment is actually made for genuine abatement that would otherwise not have occurred. In this respect, direct action measures might not have a significant impact on overall carbon abatement compared to that which might be achieved with a carbon tax, an ETS or the Safeguard Mechanism. For example, a business may receive a \$1m subsidy for installing more energy efficient design in a construction project – a design feature that might have been implemented even in the absence of a subsidy. In this respect, the subsidy has resulted in no net carbon abatement. In contrast, a tax will result in carbon abatement either because the producer is keen to reduce their tax bill or because the resulting higher price discourages consumption and production of the carbon intensive product.

While direct action is generally considered to be inferior to a carbon tax, both direct action and the carbon tax measures are considered by most economists to be inferior to carbon pricing via an ETS. This is because the latter harnesses the power of markets to create the precise incentives required to mitigate any given level of carbon reduction.

Review questions 10.10

1. Explain how climate change can reduce the productive capacity of the economy.
2. Explain what the Emissions Reduction Fund is.
3. Distinguish between the Emissions Reduction Fund and the Modern Manufacturing Fund.
4. Describe how the ERF would operate using the market mechanism to improve inter-temporal efficiency.
5. Explain how the Emissions Reduction Fund can improve both material and non-material living standards.
6. Explain what is meant by carbon pricing.

7. Distinguish a carbon tax from an emissions trading scheme.
8. Describe the features of Australia's recently legislated 'Safeguard Mechanism' and explain why it can be referred to as a 'market-based' environmental policy.
9. Compare the stick versus carrot approach that can be used to reduce carbon emissions.
10. Explain how one example of an environmental policy uses the 'market mechanism' and relative prices to influence the allocation of resources and address market failure.
11. Using an example, explain how an environmental policy can improve intertemporal efficiency.

Multiple choice questions

- 1. Which of the following statements best describes an AS policy?**
 - a) A government initiative that is designed to lower inflation on the supply side of the economy
 - b) A government initiative that is designed to supply more goods and services to the nation
 - c) A government initiative that is designed to assist businesses with supply decisions
 - d) A government initiative that is designed to reduce the costs of production and/or improve supply conditions for businesses.
- 2. Which of following does not provide a good example for why the government was keen to implement AS policies?**
 - a) Australia's rate of productivity growth was poor by international standards
 - b) Australia's labour market was very flexible and labour productivity was high as a result
 - c) Australia's standard of living relative to other countries was declining
 - d) Australia's unemployment rate continued to climb to unacceptable levels
- 3. Which of the following AS policies is least likely to also cause AD to increase in the short term?**
 - a) Further reductions in tariffs in order to increase technical efficiency
 - b) An increase in R&D tax concessions
 - c) An increase in government infrastructure spending
 - d) An export development grant given to Australian exporters
- 4. Choose the AS policy that is least likely to be implemented when an economy experiences capacity constraints:**
 - a) An increase in government infrastructure spending
 - b) An increase in refugee intake from Syria
 - c) A reduction in tax concessions for investment in capital
 - d) An increase in subsidies for child care
- 5. Choose the policy that is likely to have an impact on AS that is different to the other three.**
 - a) A reduction in a business' tax liability when investing in R&D activities
 - b) A reduction in tax concessions for investment in capital
 - c) A reduction in drought relief for farmers
 - d) A reduction in government infrastructure spending
- 6. Which of the following is least likely to be considered an example of an AS policy?**
 - a) Assistance to businesses experiencing a temporary supply shock
 - b) A reduction in interest rates to reduce costs of production
 - c) A reduction in company tax rates
 - d) An increase in infrastructure spending
- 7. Choose the policy that is likely to have an impact on AS that is different to the other three.**
 - a) An increase in a tax on carbon
 - b) An increase in the skilled migration intake
 - c) An increase in government expenditure on roads, railways and ports
 - d) An increase in spending on education and training
- 8. An increase in which of the following is unlikely to increase productive capacity over time?**
 - a) Productivity
 - b) Protection
 - c) Population
 - d) Participation
- 9. Which of the following is most correct in relation to the recent direction of Australia's trade policy?**
 - a) A move to zero protection because of the general view that protection reduces long term efficiency
 - b) A move towards the protection of local industries in order to gain a foothold in international markets
 - c) A move towards the provision of general industry support and away from specific industry support
 - d) A move to provide direct assistance only to those firms with export potential

- 10. With respect to infrastructure spending, which of the following statements is least correct?**
- Infrastructure spending in the economy is delivered through the budget
 - Infrastructure spending can also be undertaken by the private sector
 - An increase in G1 will typically be in the form of infrastructure spending
 - Infrastructure spending is important to foster growth in an economy over time
- 11. Which of the following businesses is least likely to receive government support?**
- A farmer experiencing drought conditions
 - A banana grower affected by a cyclone that damages his/her crops
 - An exporter spending \$100,000 on export promotion
 - A business on the brink of closure due to aggressive competition from imports
- 12. Which of the following is unlikely to be an example of a government policy initiative that has both AD and AS side benefits?**
- Tariff reductions
 - An increase in skilled immigration
 - An increase expenditure on infrastructure
 - An increase expenditure on education and training
- 13. Which of the following measures is most likely to reduce carbon pollution?**
- A reduction in a carbon tax
 - A decrease in the price of carbon
 - A decrease in the GST
 - Subsidies to producers who agree to invest in carbon saving technologies
- 14. Aggregate supply policies should lead to all of the following economic outcomes with the exception of:**
- A reduction in the rate of inflation
 - The promotion of employment in the long term
 - A reduction in the sustainability of economic growth
 - An improvement in living standards
- 15. Which of the following policy measures is not likely to boost aggregate supply in the long run?**
- A flattening of the personal income tax system
 - An increase in infrastructure spending
 - The removal of a baby bonus
 - The increase in skilled migration
- 16. Of the following policy initiatives, which is least likely to boost AS in the economy in the longer run?**
- Government investment in education
 - Significantly increased spending on unemployment benefits
 - A reduction in personal income tax rates
 - Increased investment in roads, rail and ports
- 17. Which of the following statements is incorrect in relation to the impacts of skilled immigration?**
- Skilled immigration makes it more difficult to achieve low inflation
 - Immigration tends to result in an increase in both the demand for and supply of labour
 - Skilled immigration is less likely to raise unemployment compared to unskilled immigration
 - Immigration can help businesses to take advantage of economies of scale as market size increases
- 18. Trade liberalisation is likely to help achieve all of the following in the long term, except:**
- Higher rates of economic growth and lower inflation
 - Disinflation and an increase in material living standards
 - Higher productivity and more sustainable rates of economic growth
 - A lower rate of inflation and a reduction in real GDP
- 19. Which of the following is not a reason for increasing the levels of immigration?**
- A shortage of skilled labour in some sectors of the economy
 - A recession and/or economic downturn
 - The ageing of the Australian population
 - A declining natural birth rate
- 20. Immigration into Australia could lead to a decrease in living standards if:**
- The supply of housing is unable to keep up with demand
 - GDP per capita increases
 - There is an increase in aggregate supply
 - Labour productivity increases which boosts international competitiveness

Chapter Summary

1. Aggregate supply (AS) policies refer to any government initiative that is designed to reduce the costs of production and/or improve supply conditions for businesses so that Australia's productive capacity and living standards are enhanced over time.
2. AS policies can also include any government initiative(s) that seeks to manipulate supply conditions across the economy in order to achieve other specific objectives.
3. AS policies have been actively pursued because of their ability to reduce production costs for, and improve the international competitiveness of, Australian businesses.
4. AS policies will help to improve the quality or quantity of factors of production as a means of boosting productive capacity.
5. The quality of factors of production will typically involve an improvement to the quality of human capital, physical capital, or natural capital.
6. The successful implementation of AS policies will typically result in lower costs of production and an increasing productive capacity.
7. By increasing AS, or expanding productive capacity, AS policies enable the economy to achieve a higher rate of economic growth alongside lower inflation.
8. International competitiveness refers to the degree to which Australian businesses are able to compete against other businesses in the global market place.
9. Productivity refers to the volume of output (i.e. real GDP) that is produced from a given number of inputs (e.g. labour and capital resources).
10. Improvements in productivity should increase international competitiveness as average costs of production should fall, allowing businesses to reduce prices or improve quality.
11. AS policies also help to increase the (derived) demand for labour, boosting employment and reducing the rate of unemployment such that full employment becomes more achievable.
12. Overall, AS policies should benefit average living standards for Australians despite the possible short-term negative impact resulting from structural reforms.
13. AS policies are also important when an economy experiences stagflation, where high inflation and low levels of economic growth require unique policy approach.
14. AS policies are also important when an economy experiences capacity constraints, where the nation's productive capacity is stretched to the limit and output cannot keep pace with the growth in AD.
15. AS policies are also useful to counteract the effects of a short-term supply-side shocks to an economy, such as the government support to producers during a natural disaster.
16. An increase in the quality and/or quantity of training and education is ultimately designed to improve the quality of human capital in Australia.
17. Research and development (R&D) is a key component of the innovation process that businesses will typically go through in order to ensure that they better meet the needs of consumers and remain competitive in a dynamic global marketplace.
18. Given the high rate of technological change that takes place every year, businesses will typically spend a portion of their annual budget on R&D expenditure and governments support this with generous tax concessions that works to accelerate innovation and increase productive capacity and AS.
19. The government can manipulate AS levels in the economy via its direct control over the level and composition of infrastructure spending.
20. The government will seek to make substantial investment in public sector infrastructure (such as roads and ports) and to provide incentives for the private sector to invest in major infrastructure projects, such toll roads.
21. Spending on many infrastructure projects, such as improving rail networks or expanding highways, is designed to boost productivity, reduce bottlenecks and expand AS.
22. Governments will tend to devise policies that seek to promote the development of their local industries. These policies are typically delivered through the budget and are commonly referred to as 'industry policies.'
23. The government will often manipulate the levels or rates of taxes (the tax mix) in order to boost AS and achieve numerous supply side benefits. This includes the provision of tax concessions, tax rebates and accelerated depreciation measures to increase incentives for investment in capital.
24. A reduction in company tax rates could provide a significant boost to Investment and also attract significant foreign direct investment into Australia.
25. The government has the ability to reduce personal income tax levels as a means of further boosting AS levels. This works to increase AS and productive capacity primarily by increasing incentives to become more productive or entrepreneurial.
26. Businesses not only face the actual taxation costs associated with running their enterprises, but also the administrative burden of complying with the extensive tax legislation.
27. The government decided to make a number of changes to the tax system including the reduction in the effective tax rate for low- and middle-income earners as well as reducing the corporate tax rate for small and medium size businesses, and changing the tax brackets for PAYG taxpayers in order to reduce the tax burden.
28. Immigration occurs when people enter and settle in a country where they are not a native.

29. Skilled immigration is often seen as an AS policy initiative to address skills shortages in Australia and to help businesses expand their production levels.
30. The Intergenerational Report highlights that the three Ps of Population, Participation and Productivity are considered the key drivers of sustained economic growth and improvements in longer term living standards.
31. Immigration can boost productivity if immigrants bring new knowledge and innovation with them.
32. The Australian government views immigration as an important means of protecting against the negative demographic effects (an ageing population) that will impact on AS and living standards in the future.
33. An effective and well targeted immigration program will help to ease stresses in those labour markets facing skills shortages.
34. Temporary skills visas (and other migrant working visas) have the potential to reduce both capacity constraints and costs for Australian businesses, they also help to constrain wages growth and contain any reduction in the numbers of unemployed Australians that would otherwise have occurred.
35. Skilled Immigration may help to contain cost inflationary pressures because they add to the pool of available labour and facilitate an expansion in aggregate supply.
36. Skilled Immigration will help to contribute to stronger rates of growth because of the demand and supply side effects, but supply side impact helps to ensure that economic growth is more sustainable.
37. Skilled Immigration will help to contribute to growth in material and non-material living standards. However, immigration also has a number of negative impacts that requires the government to carefully manage the size of (skilled) immigration numbers over time, such as congestion and resource depletion.
38. Trade liberalisation can be defined as the process of phasing out or reducing restrictions or barriers to trade with other countries over time. It is the antithesis of protectionism, which refers to any government policy initiative that imposes restrictions on trade with other countries.
39. There is a general consensus among economists and Australia's political leaders that protectionist policies are misguided.
40. Absolute advantage occurs when a country can produce more of a good than other countries, using the same amount of resources.
41. Comparative advantage dictates that a country should specialise in the production of those goods where the opportunity cost is lower than other countries.
42. Trade liberalisation by its very nature creates costs in terms of the negative short-term impact on output, employment and incomes.
43. The long term benefits associated with trade liberalisation outweigh the short-term costs.
44. Trade liberalisation boosts aggregate supply and international competitiveness and assists with the achievement of price stability and strong and sustainable economic growth.
45. Trade liberalisation is likely to increase structural unemployment in the short term, but this will at least be matched by the higher demand for labour and lower unemployment in the long term.
46. Trade liberalisation is likely to improve overall living standards in the long term.
47. Market based policies include government interventions that seek to influence the behaviour of economic agents via the use of 'market forces', which ultimately involves the manipulation of prices to impact on producer and/or consumer behaviour
48. Climate change involves changing weather patterns and more specifically an increase in severe weather events.
49. Climate change is reducing the productive capacity of the country and negatively impacting on both output and material living standards
50. Reducing greenhouse gas emissions can mitigate against the long term negative impact on AS caused by climate change. It can also increase both material and non-material living standards and improve intertemporal efficiency.
51. Environmental policies in Australia mainly involve subsidies to businesses to undertake specific projects that reduce greenhouse gas emissions, such as the Emissions Reduction Fund, the Modern Manufacturing Fund, the Recycling Modernisation Fund and Future Made in Australia.
52. The other major means of addressing climate change is via carbon pricing, which includes a carbon tax, an emissions trading scheme and the recently legislated Safeguard Mechanism.
53. A price on carbon acts like a stick in terms of the means by which it attempts to reduce CO₂ emissions whereas subsidies act like a carrot.

Activity Centre: Unit 4 Outcome 2

This activity centre contains a sample of practice SAC and exam questions relating only to those key knowledge dot points covered in Area of Study 2 (Unit 4) of the VCE Economics Study Design (2023-27). It also contains a crossword puzzle to help students familiarise themselves with some of the key definitions or concepts relating to this area of study. The answers to all of the questions and crossword can be found at the CPAP website at www.economicfundamentals.com.au

Question 1

“Expanding Australia’s productive capacity is vital to position our economy to meet future challenges....(and) Infrastructure investment is a key driver of productivity which will increase living standards in the long term.”

- Define each of the following: ‘Aggregate Supply policy,’ ‘productivity’ and ‘productive capacity’.
6 marks
- Explain how the implementation of Aggregate Supply policies can boost productive capacity and lift living standards.
4 marks
- Outline one recent government initiative that has been introduced to boost infrastructure and explain how this is likely to increase productivity and minimise inflationary pressures.
6 marks
- Outline how immigration policy can be used to alleviate capacity constraints.
3 marks

Question 2

- Discuss one economic benefit and one economic cost associated with the provision of a subsidy.
4 marks
- Identify a recent budgetary policy outlay and explain how it is designed to boost aggregate supply and increase living standards.
4 marks
- Explain how the use of tax concessions can increase aggregate supply and assist with the achievement of the government’s low inflation goal.
4 marks
- Explain how trade liberalisation can boost international competitiveness and economic growth.
4 marks

Question 3

- Outline one reason why an ageing population makes it important for the Government to increase workforce participation.
2 marks
- Discuss how one budgetary policy supply side initiative, that is designed to boost productivity, can help to address the problems associated with an ageing population.
3 marks
- Discuss one positive and one negative impact that an increase in immigration can have on Australian living standards.
4 marks

Question 4

- Explain how immigration policies can combine with other economic policies to reduce capacity constraints and minimise inflationary pressures that may surface in the future.
6 marks
- Outline how investment in infrastructure can stimulate aggregate supply and economic growth.
4 marks

Question 5

- Explain how a change to the personal income tax system might help to create ‘incentives for entrepreneurship’ and lift Australian living standards.
3 marks
- Explain how subsidies provided to educational institutions might influence productive capacity. In your response, make reference to labour productivity.
4 marks
- Describe how the initiative described in part b) above can influence the achievement of the goal of full employment in the long term. In your answer, make reference to international competitiveness.
4 marks
- Describe one example of how the government could ‘build on infrastructure’ to increase the supply capacity of the economy and explain how this might influence the achievement of strong and sustainable economic growth.
5 marks
- Explain why the use of aggregate supply policies are considered to be superior to aggregate demand management policies as a means of achieving sustainable economic growth. Use the aggregate demand/aggregate supply diagram(s) to illustrate.
4 marks
- Discuss how an environmental policy can lead to an increase in AS. Distinguish the possible short term impact from the longer term impact.
5 marks
- Describe one argument to support government intervention in markets as a means of improving the quality of the factors of production.
3 marks
- Explain how the reduction in the corporate tax rate to 25% for small to medium sized companies can increase productive capacity of the economy.
2 marks

Question 6

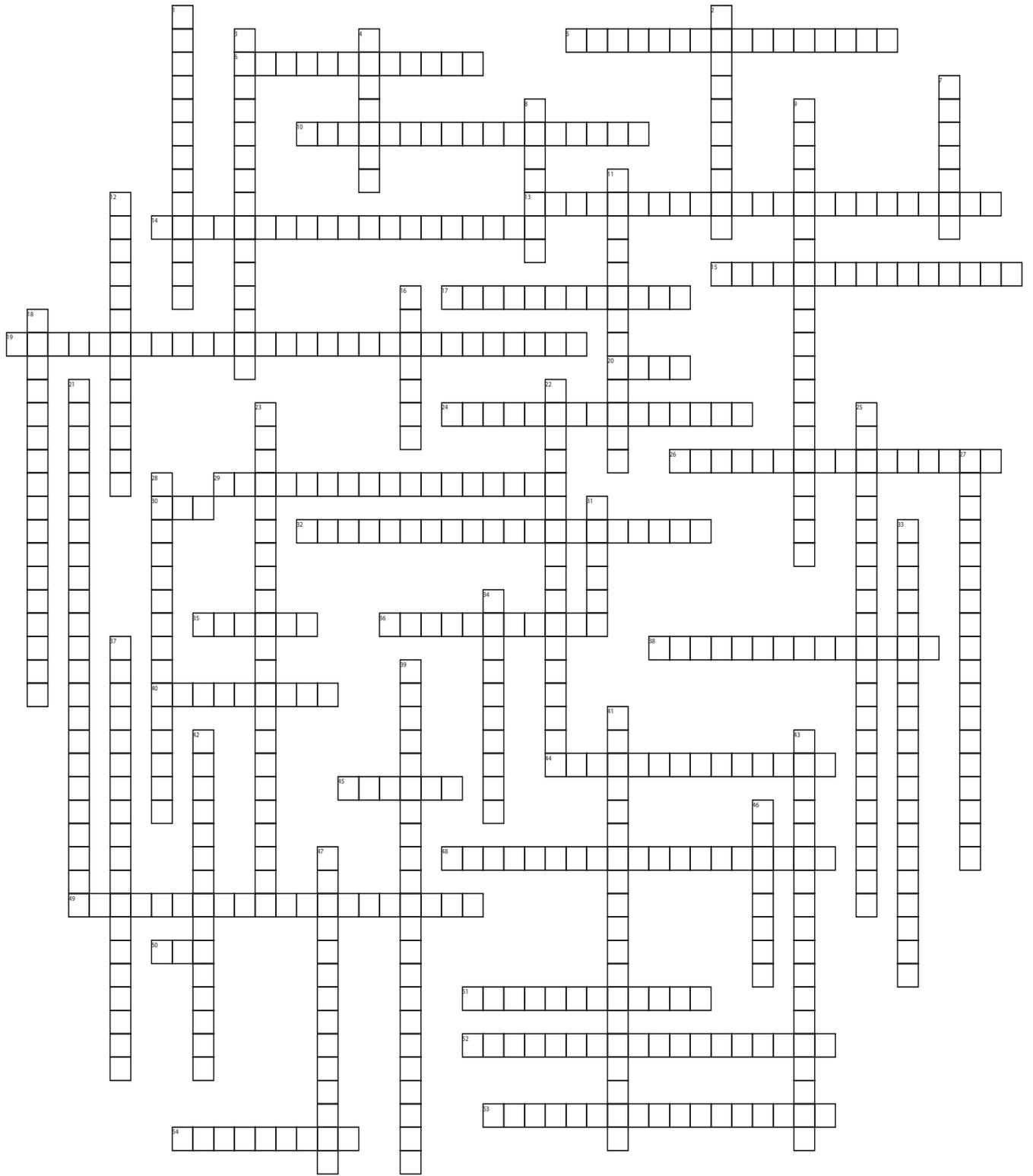
- Explain how the government reducing the tax burden has the potential to boost labour productivity, participation rates and national living standards.
8 marks
- Distinguish investment in human capital from investment in physical capital as a means of expanding aggregate supply in the economy.
3 marks
- Describe how government subsidies to educational providers or training institutions can stimulate aggregate supply and assist with the achievement of price stability.
4 marks
- Explain one negative long-term consequence for Australia’s international competitiveness and living standards following a decision to increase government subsidies to domestic businesses.
4 marks
- Describe how research and development (R&D) grants can help to promote innovation by Australian businesses and increase allocative efficiency.
3 marks
- Outline how government funding designed to reduce the cost of childcare can help to boost aggregate supply.
2 marks
- Discuss how a retreat from trade liberalisation might influence living standards over time.
5 marks
- Describe how a price on carbon (e.g. a carbon tax) might help to address climate change and contribute to the achievement of strong and sustainable economic growth.
4 marks

Giant Crossword puzzle - AOS 2 Unit 4**Across**

5. Changes to the structure of industries (such as a greater ratio of capital to labour employed). Normally is caused by changes in technology, or changes in market trends and typically follows MRPs (2 words)
6. An increase in labour productivity means that the quality of this will increase, which helps to increase AS (2 words).
10. A major factor influencing aggregate supply and are the costs incurred by businesses in the process of producing goods and services (3 words).
13. How well resources are allocated over different time periods (3 words)
14. The rate at which industries are producing in relation to maximum capacity (2 words)
15. Laws protecting some employees from being 'sacked' or removed in a way that is considered to be less than fair. (2 words)
17. The removal of regulations that impeded or hampered the efficient operation of markets.
19. The degree of competition that exists amongst different countries (and their producers) in the effort to increase world market share (2 words)
20. The government body responsible for policing the Trade Practices Act (or competition policy) and whose role is to improve competition and efficiency in markets and to foster adherence to fair trading practices (acronym)
24. When a GBE is restructured to operate with the same disciplines and market pressures applying to private enterprises.
26. The ability to produce at such a volume that average costs of production fall to low levels (3 words)
29. Where a country is more efficient than another country in producing all goods and services in the sense that it can produce more of every good or service using the same inputs as another country.
30. A business owned and operated by the government (e.g. Australia Post). Sometimes referred to as a Public Trading Enterprise (acronym)
32. A type of wage negotiation where workers join forces at a particular workplace (or enterprise) and collectively negotiate wages and conditions with employers.
35. A form of 'protection' involving controls or limits on the volume of imports entering the country.
36. This policy has helped the Government to alleviate capacity constraints and forms an important part of the three Ps approach to boosting aggregate supply
38. Investment in this is critical for an economy seeking to boost aggregate supply over time.
40. A form of 'protection' involving the government providing local producers with financial or other forms of assistance.
44. Tax rebates or allowances provided by governments allowing businesses to reduce their effective tax liability. A form of government assistance (2 words)
45. A form of 'protection' involving a tax on imports.
48. Factors that prevent (or constrain) an economy from producing more goods and services, such as skills shortages and infrastructure bottlenecks. It typically occurs when the economy is at productive capacity (2 words)
49. The most efficient allocation of resources occurs when living standards and welfare are maximised and it is not possible to further increase living standards by changing the way resources are allocated (2 words)
50. An acronym for a large telecommunications infrastructure investment that has helped to increase interconnectedness and boosted productive capacity.
51. The volume of output (e.g. real GDP) that is produced from a given number of inputs (e.g. labour and capital resources). How well our factors of production combine to produce goods and services.
52. The maximum level of production or output that is possible in an economy at a point in time (2 words)
53. How quickly an economy can reallocate resources from one activity to another (2 words).
54. Economic agents who are involved in the production process via the provision of goods or services.

Down

1. The significant changes to the planet's climate (e.g. global warming) as a result of excessive (carbon) pollution (2 words)
2. The process of converting resources and inputs into goods and services or the total volume (or value) of goods and services produced over a given time period.
3. An increase in infrastructure investment can increase the quality of this, which can help to boost AS (2 words).
4. Resources which have been made by combining labour and natural resources to create a more sophisticated input in the production process (e.g. machinery). Not to be confused with financial capital.
7. These taxes are paid by corporations. Currently a flat (proportional 30%) of profits for large corporates and 25% for small to medium sized ones
8. The practice of selling a good in a foreign market at a price below the costs of production. It is often done to eliminate competition.
9. A type of wage negotiation where workers join forces and collectively negotiate wages and conditions with employers (2 words)
11. When a Government business Enterprise (GBE) is sold to the private sector.
12. These policies are designed to conserve the natural environment and/or minimise long term environmental damage that may be caused by negative externalities.
16. This type of immigration helps to alleviate capacity constraints that stem from tight labour markets
18. When employees and employers are in dispute over the setting of wages and/or conditions at workplaces (2 words)
21. A body established to advise governments and other possible infrastructure providers (e.g. road construction companies) on the infrastructure projects and reforms that Australia could implement (2 words)
22. The competition law introduced in 1974 that is designed to promote competition and to prevent anti-competitive behaviour (3 words)
23. A scheme designed to achieve the most efficient reduction in carbon pollution by using market forces to place a price on pollution (e.g. carbon) and creating incentives for producers to achieve the most efficient forms of pollution abatement (3 words)
25. The government body that has an important role as an advisory body to the Government on industry reform policies and regulations more generally.
27. The process of restructuring the labour market to ensure that the system of industrial relations is one that is consistent with a more efficient allocation of resources (3 words)
28. Any government initiative that is designed to reduce the costs of production and/or improve supply conditions for businesses (2 words)
31. This tax was repealed in 2014 but remains an option for the government to re-legislate as a means of addressing climate change.
33. A theory stating that that a country should produce those goods and services where it is more efficient at producing, relative to another country. That is, a country will trade where the opportunity costs of producing a good or service are lower than other countries (2 words)
34. Efforts by governments to support domestic producers to compete against imports. Commonly implemented via tariffs, quotas and subsidies.
37. The movement towards international trading relationships that are not subject to protectionist policies. Also defined as any government policy initiative that is designed to promote free trade, or reduce restrictions or barriers to free trade (2 words)
39. a budget allocation of an amount that businesses can apply for a part of to spend on projects that reduce greenhouse gas emissions or which capture and store carbon (3 words)
41. When it is not possible to increase output without increasing inputs (resources). The point of production where productivity is at a maximum and where average costs are at a minimum (2 words)
42. The ultimate goal of all aggregate supply policies (2 words)
43. The government providing some form of financial (or other support) to Australian businesses (2 words)
46. Australia's workplace relations tribunal (2 words)
47. The argument used by relatively young industries requiring protection from low priced competition (2 words)



Chapter 11

Examination preparation and advice

11.1 VCE Examination structure

The final examination will be the most important assessment task students complete in this study and the details of the structure of the examination are contained below.

Description of examination

The VCAA Examination specifications reveal the following key points:

- Examination time – 2 hours, plus 15 minutes of reading time
- Contribution to study score – 50%
- All Areas of Study and Outcomes in Units 3 and 4 are examinable
- The examination will assess aspects of each area of study and outcome
- The examination paper will consist of two sections: A and B.

Section A

Section A will be worth a total of 15 marks and will consist of 15 multiple-choice questions which require students to apply their understanding of Economics to identify the correct response. The questions will typically assess the student's knowledge of key concepts as well as the ability to analyse and synthesise material covered in all areas of study and outcomes in Units 3 and 4. Section A also typically includes questions requiring simple calculations of economic indicators (as required by a key skill in some areas of study: calculate relevant economic indicators using real or hypothetical data.)

Section B

Section B will be worth a total of 65 marks and will consist of short-answer and extended-answer questions, including questions with multiple parts. The number of questions may vary from year to year. The examination can also include questions that refer to visual and/or written material, including scenarios, such as the information relating to changes to Australia's tariff rates on passenger motor vehicles that was contained in the preamble to Question 2 in the 2023 examination.

The weighting of examination questions will reflect approximately the weighting of the outcomes in the study design.

11.2 Preparing for the examination – leading up to the exam

When preparing for the examination students should develop a strategy or 'plan of attack' for how they will maximise their overall performance. This might involve the preparation of two separate strategies or plans – one relating to the period leading up to the examination (preparing for the day) and the other for the period during the examination (performing on the day).

In the months leading up to the big day students need to do enough preparation to be in a position where performance on the day can be optimal. The CPAP Study Guide to VCE Economics provides a useful acronym to remember when preparing for the examination: **KIAP**

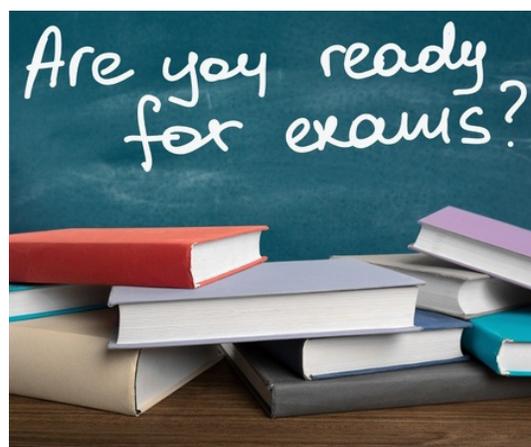
- K**now the course
- I**nterpret examination questions correctly
- A**nticipate examination questions
- P**ractise, practise and practise writing responses to questions

Knowing the course

If students have closely followed this text and followed the instructions provided by teachers, then they should be in a good position to **'know the course'**. The text has been written in a way that provides students with the opportunity to demonstrate an understanding of the key knowledge points for each area of study, as well as provide ample opportunity to apply the key skills stipulated for each area of study. To further consolidate understanding, it might be useful to prepare a revision plan or timetable and include some or all of the following tasks:

- condense notes and/or prepare a summary of the course, broken up into distinct **'chunks'** to facilitate review of the course over a given time period
- prepare a **glossary** of the most common terms and establish links and relationships between these terms
- prepare **concept maps** to highlight relationships and links (especially useful for policies and goals)
- gather friends to **work in teams** of two to create, answer and assess potential examination questions
- be willing to **teach** parts of the course to friends and family
- complete **activities** at www.economicstutor.com.au
- test yourself on the **Economics Tutor App** for smartphones
- attend **student lecture programs/workshops** held by various bodies over September and October. For example, visit the CPAP website for programs featuring the author(s) of this text (www.commpap.com).

It is important to remember that, given the dynamic nature of Economics, the text alone will be insufficient. While it provides students with the latest information to hand at the time of print, all texts date relatively quickly. The current course requires an understanding of recent economic events, with a particular emphasis on the last two years. By November 2025, this text will already be 12 months old (24 months old by November 2026) and it cannot, therefore, contain the latest information to provide you with that 'edge' in the examination. For example, since going to print in late October 2024, there are likely to have been numerous changes to the factors affecting the government's goals, or indeed the statistics underpinning these goals. Similarly, there are likely to have been significant changes in the direction, approach and use of government policies.



For these reasons it is important that students supplement their text with regular reading of newspapers, watching the news, reading annual economics publications (like Study Guides) and visiting relevant websites. Below is a list of some resources to keep students well informed of contemporary economic developments.

- The RBA's quarterly **Statement on Monetary Policy** (Nov, Feb, May, August) available at www.rba.gov.au.
- The RBA's **Media Releases** relating to monetary policy decisions, available at <https://www.rba.gov.au/media-releases/>.
- The **OECD country reports** or summaries at www.oecd.org/australia.
- Economics cartoons contained at popular sites such as www.inkcinct.com.au (John Ditchburn) and www.nicholsoncartoons.com.au (Peter Nicholson).
- 'Contemporary activities' within the 'Miscellaneous' section of www.economicstutor.com.au.
- The **CPAP Economics Updates** relating to each Area of Study of the VCE Economics Study Design (quarterly publication).

The importance of knowing about recent economic events is underlined by the repeated advice provided by the Chief Assessor in past **Exam Assessment Reports**. For example, in a recent report it was noted that

'Students who applied appropriate knowledge about current and recent performance and management of the Australian economy were likely to score higher marks. It is important for students to use examples of recent economic events and think about how these events are likely to impact on the performance of the Australian economy in terms of economic objectives and the management of Australian economic policies.'

Importantly, perusal of the past three exams up to 2023 revealed that more than 30% of each of these exams required students to have some understanding of contemporary events. In the 2021 exam, this was as high as 50%. Those students who 'lived in a bubble' during these years, or simply relied on a theoretical understanding of the course, could not have scored highly on the exams. Students should expect this trend to continue and therefore plan to stay engaged with what is happening in the economy if they are keen to do well in this subject.

Know how to interpret questions

This is a very crucial skill to use in the actual examination. However, it will involve some training and practice using past examinations and other assessment material provided by teachers. To illustrate the importance of knowing how to interpret questions, consider the following question.

Account for the fall in the trade weighted index since 2021. (2 marks)

During reading time, students should paraphrase the question in an attempt to uncover its intended meaning. In the process, the meaning of the key terms in the question should become apparent and students are less likely to respond to the 'wrong question'. In this example, the key words in the question are as follows:

- 'Account for'
- 'trade weighted index'

Paraphrasing the question reveals that students are essentially being asked to:

- Explain why the exchange rate fell since 2021.

Otherwise, it would be tempting for students to misinterpret the question and instead answer the following types of question(s):

- Explain how the fall in the trade weighted index will impact on the economy.
- Explain why there has been a fall in the trade balance.

Importantly, the mark allocation (2 marks) should signal that only one reason/explanation for the fall of the TWI is required.

Developing an awareness of the 'correct' interpretation of questions like this will come with practice completing past questions and reviewing past **Examination Assessment Reports**. Importantly, this practice will help to minimise the risk of misinterpreting questions that could cost valuable marks.

Relevance of past VCAA examination questions in light of the new Study Design

Given that the current VCE Economics course commenced in 2023, it means that examinations before 2023 will be less relevant as they relate to an 'old' course. However, the changes to the course were not dramatic and use of past examination papers remains a vital form of practice for the upcoming examination. Students will need to ensure that they ignore (or re-word) any past question that does not relate to the new course. Teachers should be an invaluable form of assistance in this respect. Past examination questions that cover content still relevant to the current course can be particularly useful if students take the time to update the data or examples provided in the questions, to ensure they are applying their understanding to recent economic developments, events or data (which is crucial knowledge, as noted earlier in this advice chapter.)

Anticipating questions

This will be a difficult and challenging exercise and will be best handled with the help of teachers. It's useful to start with an understanding of how the examination setting panel is likely to set the examination. The panel will rely on the use of the **key knowledge** and **key skills** (re-produced in the introductory pages of this text). The skills, such as 'define key economic concepts and use them appropriately' or 'apply economic concepts to analyse economic relationships and make predictions.....' provide a basis for how questions might be asked in relation to the key knowledge. For example, a required skill is the ability to 'analyse the effect of budgetary, immigration and trade liberalisation policies on aggregate supply, international competitiveness, the achievement of the domestic macroeconomic goals and living standards.' This involves more skill and effort than questions like 'Define aggregate supply policies, international competitiveness and trade liberalisation', 'Explain what is meant by living standards', or 'Describe an AS policy that has or can be used to achieve stronger rates of economic growth'.

In the current study design, the key skills in Unit 3 area of study 1, require students to:

'Construct and interpret demand and supply diagrams and a PPF model'

This means that students are required to not only interpret demand and supply diagrams (or a PPF) but also need to be able to construct these diagrams (based on real or hypothetical data) and then draw conclusions. Question 4b of the 2023 exam, Question 4c of the 2022 exam, Question 4d of the 2020 exam, Question 1 of the 2018 and 2019 exams and Question 2 of the 2017 examination, are all examples of how this key skill might be tested on future examinations.

Unit 3 AOS 1 also requires students to ‘evaluate the role of free and competitive markets in achieving an efficient allocation of resources’, which is a slight departure from the equivalent key skills in the previous Study Design ‘evaluate the role of the market in allocating resources’. So students will be expected to appreciate the implications that stem from the inclusion of the words ‘free and competitive’ when attempting to evaluate the role of markets. Free implying an absence of government intervention and competitive implying a market displaying some or all of the conditions required for a perfectly competitive market (e.g. homogenous products, freedom of entry and exit, etc.)

Unit 3 area of study 2 also includes the new skill to:

- **evaluate the extent to which the economy has achieved the domestic macroeconomic goals over the past two years and discuss the effect of this on living standards.**

This means that students are required to compare the data or statistics underpinning the key macroeconomic goals with the metrics that are generally used to determine if the goals have been achieved. For example, the full employment goal requires the rate of unemployment to be approximately 4.25% (i.e. the approximate NAIRU rate). Students could compare the actual rate of unemployment to the NAIRU over the relevant time period and determine whether it is consistent with the achievement of full employment. An evaluation would then require students to take into account other factors that could influence the assessment, such as whether the NAIRU itself has changed, whether the goal has changed, whether the rate of unemployment falling below 4.25% means that the goal hasn’t been achieved, or whether changes in other key statistics (such as underemployment, job vacancies, wages growth, etc.) influence one’s assessment of whether full employment has been achieved.

The above key skills provide only a snippet of the key skills that students need to master. Students should carefully examine each of the key skills listed in the Study Design to both anticipate likely questions and make a determination about what would be required to achieve full marks.

With respect to the use of the **key knowledge points**, it is likely that the panel will construct a table or matrix containing each of the key knowledge points and ensure that these points are adequately represented in the examination. It is expected that the panel will seek to incorporate a fair spread of the course in the examination, achieving a balance between Unit 3 and 4 questions, as well as a balance between the five areas of study across units 3 and 4. Accordingly, it should be designed with a view to providing students with **limited opportunity to ‘specialise’**.

Good examination preparation for students could be to use the tables at the start of this text, containing all of the key knowledge and skills, to compile a list of possible examination questions. Some of the questions devised should also include reference to the latest statistical/economic developments as appropriate. For example, one key knowledge point requires students to have a knowledge of ‘aggregate demand and aggregate supply factors that have affected the level of achievement or non-achievement of the goals of strong and sustainable economic growth, full employment and low and stable inflation over the past two years.’ From this, students should anticipate questions that relate to recent changes in AD and AS factors, using contemporary economic events to mould the response. For example, possible questions might be:

- **Explain how the behaviour of economic growth in Australia over the past year has been influenced by each of the following: One domestic demand or supply factor and one global demand or supply factor.**
- **Discuss two factors (one demand and one supply) that have contributed to the change in inflation and unemployment over 2025 [or 2026].**

Students should anticipate and prepare questions of this nature, and then allocate time to prepare responses (preferably under examination conditions). A good idea may be to team up with a peer of similar ability, where each prepares questions from the key knowledge points. Students should then prepare responses and assess each other’s answers, with relevant annotations. This will also prove to be a valuable exercise that can be applied across a range of VCE Units.

Possible questions relating specifically to the current 2023-2027 Study Design

Given that 2023 was the first year of the current Study Design, students completing the course in 2025 will have access to limited past VCAA examinations relating to the current course. Some sample questions relating to the new course are included below. However, most of the questions on past examinations will remain relevant for use as practice and your teacher should be able to provide further guidance in this respect. In addition, the VCAA have published a VCAA ‘Sample questions’ collection, which is downloadable at its website (www.vcaa.vic.edu.au). Finally, students should ensure that they have tackled all of the review questions throughout this text, as well as the practice examination/SAC questions contained in each Activity Centre, as many of the questions could indeed surface as examination questions. Below are

some examples of the types of questions that might be asked which specifically relate to the 'new' parts of the VCE Economics course.

1. Explain how an economy's resources might be used in a way where intertemporal efficiency is not achieved. Construct a Production possibility frontier model to illustrate your response.
2. Describe how the basic economic questions of what, how, and for whom to produce are related to the problem of relative scarcity.
3. Explain why a demand curve is downward sloping, referring to the income and substitution effect.
4. Outline how the profit motive influences the shape of a supply curve.
5. Explain how an increase in the number of suppliers within a given market is likely to influence equilibrium price and quantity.
6. Describe an example of a recent government intervention that has reduced one type of economic efficiency.
7. Evaluate the role of free and competitive markets in achieving an efficient allocation of resources.
8. Explain why the removal of government regulations, as an example of an aggregate supply factor, might contribute to the achievement of price stability and full employment.
9. Describe two separate consequences of not achieving the goals of strong and sustainable economic growth and full employment.
10. Explain what is meant by the non-accelerating inflation rate of unemployment (NAIRU) and examine the implications it has for the achievement of full employment.
11. Distinguish disinflation from deflation.
12. Describe two separate consequences of not achieving a low and stable rate of inflation.
13. Explain one negative consequence associated with a rate of inflation that is too low.
14. Evaluate the extent to which the economy has achieved price stability, full employment and strong and sustainable economic growth over the past two years.
15. To the extent that Australia has not achieved either the goal of price stability or full employment or strong and sustainable economic growth over the past two years, explain the effect on living standards.
16. Analyse the relationship between economic growth and unemployment.
17. Analyse the relationship between economic growth and inflation.
18. Analyse the relationship between unemployment and inflation.
19. Describe three gains that can be attributed to international trade.
20. Analyse the relationship between commodity prices and Australia's terms of trade.
21. Predict the outcome for Australia's terms of trade if there is a reduction in the costs of production experienced by a major trading partner.
22. Predict the outcome for the Australia's terms of trade if there is a rise in the supply of commodities on global markets.
23. Explain a possible cause a fall in Australia's credit rating and examine the effect this might have on the value of Australia's exchange rate and the value of net foreign debt.
24. Outline how a decrease in international competitiveness might influence full employment and living standards.
25. Describe how the RBA uses conventional monetary policy to influence interest rates. In your answer, refer to the role of the target cash rate.
26. Explain how the RBA has used unconventional monetary policy to support the economy over the past two years.
27. Explain the difference between progressive, proportional and regressive taxes as means of raising revenue for the government and provide a current example of each in the Australian context.
28. Explain a justification for reporting the government's (underlying) budget outcome 'as a proportion of GDP'.
29. Analyse two strengths and two weaknesses of using monetary policy to achieve the goal of price stability.
30. Analyse two strengths and two weaknesses of using monetary policy to achieve the goal full employment.
31. Analyse two strengths and two weaknesses of using monetary policy to achieve the goal strong and sustainable economic growth.
32. Analyse two strengths and two weaknesses of using budgetary policy to achieve the goal of price stability.
33. Analyse two strengths and two weaknesses of using budgetary policy to achieve the goal full employment.
34. Analyse two strengths and two weaknesses of using budgetary policy to achieve the goal strong and sustainable economic growth.
35. Explain how two separate aggregate supply policies could be employed to improve the quality and quantity of factors of production and analyse how this might influence the achievement of price stability or full employment or strong and sustainable economic growth.
36. Describe how the government could use its control over immigration to increase aggregate supply. In your answer, refer to the three Ps of productivity, participation, and population.
37. Discuss how trade liberalisation might influence the achievement of price stability or full employment or strong and sustainable economic growth. In your answer, distinguish short-term from long-term impacts.
38. Describe how one market based environmental policy can improve intertemporal efficiency. In your answer refer to the impact on AS and living standards.

Practise, practise and practise

Once students are confident with their knowledge of the course (including the relevance of contemporary events), have anticipated questions, and are confident in their ability to interpret questions, they need to practise answering questions within time constraints. This will involve an estimate of the number of marks that are likely to be awarded for each anticipated question and then spend approximately 90 seconds per mark answering the question.

Following this, students should access as many practice exams as possible and attempt these under time constraints. Teachers should have access to practice exams from various sources, including 'Compak' 'CPAP' and 'Insight' practice exams. In addition, follow the advice provided earlier in 'Relevance of past VCAA examination questions in light of the new study design' and download past examinations from the VCAA website at <https://www.vcaa.vic.edu.au/assessment/vce-assessment/past-examinations/Pages/Economics.aspx>. When visiting the VCAA site, students should also download

and read the Economics External Assessment Report for the past four or five exams. The Report is written following the assessment of the final examination each year, and can be a valuable source of information about common errors and areas of weakness on past examinations. It also provides sample student answers from past examinations.

11.3 Preparing for the examination – in the examination

If students have heeded the advice provided in Section 11.2 then they should be primed for a good performance. Students will now have 135 minutes of intense concentration ahead of them, 15 minutes of which is reading time and the remaining 120 minutes of writing time.

Reading time

How students optimise this 15 minute block is really a judgement call and what works best for some students, will not work for others. One possible approach is to:

- read over the structured questions relatively quickly and develop a general feel for what the questions are asking
- read over them a second time, this time much more carefully. During this time students should re-phrase the questions and/or break the question up into parts to ensure the 'correct' interpretation is uncovered
- prioritise the questions according to the ease with which they can be answered and then (mentally) prepare responses or plans to answer the easiest ones first
- carefully read (and attempt to answer) as many multiple choice questions as time permits, without marking the examination paper or the answer sheet!

Writing time

Timing

Use the mark allocation as a guide to how much time should be spent on each question. Given that students will have 120 minutes in the examination to answer a total 80 marks worth of questions, this means that the aim should be to spend approximately 90 seconds on each mark.

Multiple choice strategy

The first priority should be to correctly interpret the question, which might require the highlighting of key terms. Then students should seek to eliminate the least likely responses (usually two). Then carefully discriminate between the remaining two options. In the event that there remains uncertainty, students should not labour on the question for more than a few minutes. Instead, it is recommended to indicate the 'gut' response on the paper and return to it either after the remaining MC questions are complete, or after the structured responses have been written. Sometimes, the answer may become evident while preparing responses to the structured questions (or during the completion of other MC questions). Students should always remember to return to unanswered MC questions, and they should never leave MC questions unanswered in VCE Economics because incorrect answers are not penalised!!

Answering structured questions

Students should familiarise themselves with the key instructional verbs/command terms that may be contained in a structured question. The complete list of terms can be downloaded at the VCAA website [<https://www.vcaa.vic.edu.au/assessment/vce-assessment/Pages/GlossaryofCommandTerms.aspx>] but those relating to VCE Economics are likely to come from the following list:

analyse	Identify components/elements and the significance of the relationship between them; draw out and relate implications; determine logic and reasonableness of information.
assess	Make a judgment about, or measure, determine or estimate, the value, quality, outcomes, results, size, significance, nature or extent of something.
calculate	Determine from given facts, figures or information; obtain a numerical answer showing the relevant stages in the working; determine or find (e.g. a number, answer) by using mathematical processes.
clarify	Make a statement or situation more comprehensible.
compare	Recognise similarities and differences and the significance of these similarities and differences.
construct	Make, build, create or put together by arranging ideas or items (e.g. an argument, artefact or solution); display information in a diagrammatic or logical form.
contrast	Show how things are different or opposite.
deduce	Draw a conclusion from given information, data, a narrative, an argument, an opinion, a design and/or a plan.
define	Give the precise meaning and identify essential qualities of a word, phrase, concept or physical quantity.

describe	Provide characteristics, features and qualities of a given concept, opinion, situation, event, process, effect, argument, narrative, text, experiment, artwork, performance piece or other artefact in an accurate way.
discuss	Present a clear, considered and balanced argument or prose that identifies issues and shows the strengths and weaknesses of, or points for and against, one or more arguments, concepts, factors, hypotheses, narratives and/or opinions.
distinguish	Make clear the differences between two or more arguments, concepts, opinions, narratives, artefacts, data points, trends and/or items.
evaluate	Ascertain the value or amount of; make a judgment using the information supplied, criteria and/or own knowledge and understanding to consider a logical argument and/or supporting evidence for and against different points, arguments, concepts, processes, opinions or other information.
examine	Consider an argument, concept, debate, data point, trend or artefact in a way that identifies assumptions, possibilities and interrelationships.
explain	Give a detailed account of why and/or how with reference to causes, effects, continuity, change, reasons or mechanisms; make the relationships between things evident.
identify	Recognise and name and/or select an event, feature, ingredient, element, speaker and/or part from a list or extended narrative or argument, or within a diagram, structure, artwork or experiment.
interpret	Draw meaning from an argument, point of view, description or diagram, text, image or artwork and determine significance within context.
justify	Show, prove or defend, with reasoning and evidence, an argument, decision and/or point of view using given data and/or other information.
list	Provide a series of related words, names, numbers or items that are arranged consecutively.
outline	Provide an overview or the main features of an argument, point of view, text, narrative, diagram or image.
state	Give a specific name or value or other brief answer without explanation or calculation.
predict	Give an expected result of an upcoming action or event; suggest what may happen based on available information.

The lower order ones include select, state, identify, list, outline, describe and define, and a smaller number of marks are likely to be allocated to these types of questions. The remainder are higher order instructional verbs and require more thought and detailed responses. However, one should also be guided by the number of marks allocated to a question and the lines provided. Students can reasonably expect four lines to be allocated per mark and use this as a 'rough' guide to the expected length of responses.

Once students are confident that they have correctly interpreted the question, they might like to jot down some key points before commencing their response. This particularly applies to the 'bigger' questions and can be in the form of a plan, or simply a list of the points to incorporate into the response. It is important for responses to be written in legible handwriting, with linked sentences and clear paragraph breaks. There is no problem writing below the lines and/or at the rear of the booklet (and making reference to this in the script). It is best not to write your answers in pencil, and not to use unacceptable acronyms or notations. If students have untidy handwriting when they write quickly, then they should be advised to slow down as assessors cannot award marks if they can't read the script.

Valuable websites to access information relating to economics

Economic Fundamentals website
www.economicfundamentals.com.au
 Victorian Curriculum and Assessment Authority
www.vcaa.gov.au
 Reserve Bank of Australia
www.rba.gov.au
 Department of Treasury
www.treasury.gov.au
 Commonwealth Budget
www.budget.gov.au
 Commercial Teachers' Association
www.vcta.asn.au
 World Trade Organisation
www.wto.org
 Organisation for Economic Cooperation and Development
www.oecd.org
 Australian Bureau of Statistics
www.abs.gov.au

The Guardian newspaper (Australia)
www.theguardian.com/au
 Productivity Commission
www.pc.gov.au
 Romeo Salla's site
www.economicstutor.com.au
 The Age newspaper
www.theage.com.au
 Parliament House
www.aph.gov.au
 Australian Chamber of Commerce and Industry
www.australianchamber.com.au
 The Australian Stock Exchange
www.asx.com.au
 The Australian Competition and Consumer Commission
www.accc.gov.au
 Austrade
www.austrade.gov.au
 Australian Council of Social Services
www.acoss.org.au

The Economist
www.economist.com
 The Australian Financial Review
www.afr.com
 Fair Work Australia
www.fairwork.gov.au
 Department of Home Affairs
www.homeaffairs.gov.au
 Department of Climate Change, Environment, Energy and Water
<https://www.dcceew.gov.au/>
 John Ditchburn's cartoons
www.inkcinct.com.au
 Peter Nicholson's cartoons
www.nicholsoncartoons.com.au
 Ross Gittin's site
www.rossgittins.com
 Trading economics
www.tradingeconomics.com/australia/indicators

Multiple choice answers

Visit www.economicfundamentals.com.au for answers to multiple choice questions from each of the 10 chapters.

GLOSSARY OF TERMS

ABS	Australian Bureau of Statistics. The government body responsible for gathering and reporting statistical information.
Absolute advantage	Where a country is more efficient than another country in producing all goods and services in the sense that it can produce more of every good or service using the same inputs as another country.
Absolute poverty	A situation where a person or a household has insufficient income to purchase the basic necessities such as food, clothing and shelter.
ACCC	See Australian Competition and Consumer Commission.
Accommodative Monetary policy	When the RBA leaves the target cash rate unchanged during times of stronger economic growth.
Adverse selection	A form of market failure (that is associated with asymmetric information) where the seller knows more about the product than the buyer does. The uninformed buyer may therefore purchase adversely, resulting in an overallocation of resources to the production of that good or service.
Affluenza	The addictive pursuit of more and more goods and services.
Aggregate Demand	Total expenditure on Australian made goods and services.
Aggregate supply	The total volume or real value of goods and services available for sale in an economy in a given time frame.
Aggregate supply (AS) policies	Any government initiative that is designed to reduce the costs of production and/or improve supply conditions for businesses.
AIRC	See Australian Industrial Relations Commission.
Allocative efficiency	A type of efficiency measured by how well resources are being allocated in the economy. The most efficient allocation of resources occurs when living standards and welfare are maximised and it is not possible to further increase living standards by changing the way resources are allocated. If resources are allocated efficiently the goods and services will be made in the right quantities and will generally go to those people who value them the most.
Annualised	The process of converting a monthly or quarterly figure into one that can be compared to annual figures. For example, a quarterly rate of growth of 1% is multiplied by four to provide an annualised rate of growth of 4% for that quarter.
Annualised rate of economic growth	The product of multiplying the quarterly rate of economic growth by four.
Asymmetric information	A type of market failure where one party has greater information than the other in an exchange.
Australian Competition and Consumer Commission (ACCC)	The government body responsible for policing the Trade Practices Act (or competition policy) and whose role is to improve competition and efficiency in markets and to foster adherence to fair trading practices.
Australian Fair Pay Commission (AFPC)	The government body set up under Workchoices to set minimum wages but now replaced by Fair Work Australia.
Australian Prudential Regulatory Authority (APRA)	The government body set up to supervise and regulate the financial system (e.g. banks and credit unions).
Australian Workplace Agreements (AWAs)	Individual contracts governing wages and conditions and introduced as part of the Liberal Government's Workplace Relations Act in 1996.
Automatic stabilisers	In relation to budgetary policy, the changes to the budget that occur automatically with changes in the level of economic activity. Also referred to as the cyclical component of budget. Contrast with discretionary stabilisers/structural component of the budget.
Average weekly earnings	Gross (before tax) earnings of employees and derived by dividing total weekly earnings by the number of employees.
AWA	See Australian Workplace Agreements.
Award system	A feature of the highly 'centralised' system of industrial relations that existed in the past where wages and conditions were determined predominantly by highly inflexible Awards.
Awards	Legal documents establishing the minimum wages and conditions that apply to various occupations.
Balance of payments (BOP)	A record of the financial transactions between residents of Australia and residents of the rest of the world. Includes the Current Account and the Capital and Financial Account.
Balanced budget	See budget balance.
Barrier to entry	Factors making it difficult for firms to commence operations or enter an industry, such as large 'set-up' costs, government regulations or the market power of incumbent firms.
Basis points	One hundredth of one percent. For example, 100 basis points equals 1%.
Bonds	Debt instruments issued by governments or corporations. The bond purchaser becomes the lender to the bond issuer.
Boom	A period of very high rates of growth in production (or real GDP) that is likely to be unsustainable.
BOP	See Balance of payments.
Bracket creep	See Fiscal drag.
Budget balance	When government revenue (or receipts) equals government expenses (or expenditure).
Budget deficit	When government revenue (or receipts) is less than government expenses (or expenditure).
Budget outcome	The outcome of the budget, either balanced, surplus or deficit.

Budget surplus	When government revenue (or receipts) exceeds government expenses (or expenditure).
Budgetary policy	The manipulation of the level and composition of Federal Government receipts and outlays in order to assist in the achievement of its economic and social goals for Australia.
Business	An entity that provides a good or service for sales with the objective of making a profit.
Business confidence	The general business community's perception of their future levels of sales and profitability (also referred to as business sentiment).
Business cycle	The cyclical movement of economic activity over time, with periods of above average rates of economic growth and periods of negative or low rates of growth. Also referred to as the economic cycle.
Business sentiment	See business confidence.
CAD	See Current Account Deficit.
CAFA	See Capital and Financial Account.
Capacity constraints	Factors that prevent (or constrain) an economy from producing more goods and services, such as skills shortages and infrastructure bottlenecks. It typically occurs when the economy is at productive capacity.
Capacity utilisation	The rate at which industries are producing in relation to maximum capacity.
Capital	Resources which have been made by combining labour and natural resources to create a more sophisticated input in the production process (e.g. machinery). Not to be confused with financial capital.
Capital expenditure	Expenditure involves the purchase of capital assets that will have ongoing benefits into the future, such as defence equipment or infrastructure assets.
Capital Account	A sub-account in the CAFA of the BOP and a relatively insignificant account covering capital transfers, the acquisition/disposal of non-produced, non-financial assets, between residents and non-residents.
Capital and Financial Account	The second of the two accounts in the BOP and made up of two sub-accounts, the Capital Account and the Financial Account.
Capital inflow	Funds entering the country in the form of either debt or equity. It often refers to overseas parties being attracted to the relatively higher Australian interest rates and lending to Australians.
Capitalism	An economic system where the majority of productive resources are owned by private individuals and firms.
Carbon Tax	A tax on carbon emissions. Once was introduced in Australia in 2012 but was repealed in 2014.
Cash flows	One of the monetary policy transmission mechanisms and refers to the cash available for spending following a change in interest rates (see discretionary income).
Cash market	The market for cash or the overnight money market.
Cash rate	The price of cash in the overnight money market (or cash market).
Centralised system	Used in relation to industrial relations and refers to the inflexible system of wages determination where wages and conditions were determined predominantly by Awards and negotiated by peak bodies such trade unions, governments and employer representatives.
Ceteris paribus	Latin phrase meaning 'all other things being equal.' It is used in economics to isolate the cause and/or effect of a change(s) in variables.
Chain volume measure of GDP	An estimate of real GDP in the economy. In simple terms, it involves using prices from the previous period and applying them to current period volumes.
Classical unemployment	When unemployment is caused by excessive labour costs relative to labour productivity.
Climate change	The significant changes to the planet's climate (e.g. global warming) as a result of excessive (carbon) pollution.
Collective bargaining	A type of wage negotiation where workers join forces and collectively negotiate wages and conditions with employers. See enterprise bargaining.
Commodity prices	The prices for raw materials such as minerals and agricultural products.
Common Access Resources	These are like public goods and include fish in the ocean, air and forests. These goods not owned by anyone, usually do not have a market price and are therefore available to anyone even if they have not paid to use them.
Commonwealth Government Securities (CGS)	Government issued debt, typically in the form of government bonds.
Company taxes	Taxes paid by corporations. Currently a flat 30% of profits for large companies and 25% for smaller companies.
Comparative advantage	A theory stating that that a country should produce those goods and services where it is more efficient at producing, relative to another country. That is, a country will trade where the opportunity costs of producing a good or service are lower than other countries.
Competition and Consumer Act	Government legislation designed to promote competition and to prevent anti-competitive behaviour. The Competition and Consumer Act (2010) replaced the Trade Practices Act (1974).
Competition law	See Trade Practices Act (1974)
Competitive market	Where all economic agents are price takers. No individual buyer or seller has the market power to influence prices.
Competitiveness	The degree of competition that exists amongst different producers (or sellers) of goods and services in their quest to increase market share.
Complement	A good or service that tends to be consumed with another good or service (e.g. sugar is a complement for coffee).
Consumer confidence	Consumers' general expectations about future economic prosperity.

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Consumer price index	An indicator of consumer price inflation and measures the change in the prices of goods and services purchased by the average Australian household.
Consumer price inflation	Inflation as it relates to the costs of purchasing goods by consumers.
Consumer sentiment	See consumer confidence.
Consumer surplus	What consumers receive if they obtain the good or service for less than the maximum they are willing to pay.
Consumers	Economic agents who purchase goods and services.
Consumption expenditure	Part of AD and defined as the total value of all expenditures on individual and collective consumption goods incurred by resident households and non-profit institutions.
Contraction	A downturn in economic activity.
Contractionary policy	A policy that is designed to constrain or restrictive economic activity.
Core rate of inflation	See Underlying rate of inflation.
Corporatisation	When a GBE is restructured to operate with the same disciplines and market pressures applying to private enterprises.
Cost of credit	The cost of borrowing money and one of the monetary policy transmission mechanisms.
Costs of production	Those costs incurred by businesses in the process of producing goods and services.
Counter cyclical	Commonly used in relation to the impact of government policies to describe those policy actions that work against the current stage of the economic (or business) cycle. Also used to describe economic variables that move in the opposite direction of economic activity, such unemployment, which increases when economic activity is low and vice versa.
CPI	See Consumer price index.
CPI all groups excluding volatile items	An inflation measure based on the normal CPI but excluding the 'volatile items' of fruit and vegetables and fuel. One measure of underlying inflation.
CPI Weights	Attached to each CPI group of items to reflect their relative importance to the typical Australian household.
CPRS	See Carbon Pollution Reduction Scheme
Credit growth	The rate of growth of credit (loans) in the economy, with stronger growth both reflecting and contributing to stronger economic activity.
Credit rating	The degree of risk associated with foreigners investing in a country's assets, including property, shares and debt. The higher a country's credit rating the more creditworthy (or financially secure) it is considered in the global economy, making it more attractive for foreigners to invest in that country's assets. Australia currently has a very high credit rating of AAA.
Crowding In	The opposite of crowding out. Describes the process of budget surpluses resulting in lower interest rates and/or exchange rates which then stimulates AD (via Consumption, Investment and/or net exports) and economic growth.
Crowding out	Describes the process of budget deficits resulting in higher interest rates and/or exchange rates which then reduces AD (via Consumption, Investment and/or net exports) and economic growth.
Current Account	In the BOP and includes the receipts and payments of a 'current' nature, as opposed to transactions of a 'capital' nature. The account has four sub accounts. Balance on Merchandise Trade, Net Services, Net income and Current Transfers.
Current Account Deficit (CAD)	When total payments (or debits) in the Current Account of the BOP exceed total receipts (or credits). Often expressed as a percentage of GDP, such as 3.5% for the financial year ended 30 June 2009.
Current expenditure	represents payments for goods and services that are consumed in the current budget period and which result in no ongoing benefits into the future. Contrast with capital expenditure.
Current transfers	Formerly part of the Current Account of the BOP that is made up of receipts in the form of foreign pensions, gifts or other gratuitous payments minus payments such as foreign aid, gifts, pensions and other gratuitous payments. Now referred to as 'Net Secondary Income.'
Cyclical component of budget	That part of the budget outcome that changes (or has changed) as a result of automatic stabilisers.
Cyclical unemployment	Unemployment that occurs when the economy is not operating at its full capacity due to a deficiency of aggregate demand.
Debt	The amount of money owing to lenders following the receipt of borrowed funds. See net foreign debt
Deflation	A decrease in the average price level over time. The opposite of inflation.
Demand factor	A factor that causes changes in economic activity via its impact on AD.
Deregulation	The removal of regulations that impeded or hampered the efficient operation of markets.
Differentiated products	Products that are not homogenous or perfect substitutes for other products. Often differentiated products are similar to other products, but are made to appear different in some way via marketing (see product differentiation).
Diminishing marginal utility	Occurs when the more of a good or service that is consumed per period, the smaller the increase in total utility (or satisfaction) that is generated from the last unit.
Direct Action	The Coalition Government's policy to tackle climate change, involving the provision of grants/subsidies to businesses for investing in cleaner production methods.
Direct investment	Setting up a production facility or controlling 10% or more of a company's shares in a foreign country. Typically a surplus for Australia, meaning that foreign entities directly invest more in Australia than Australian entities invest abroad.

Direct tax	A tax paid directly by economic agents, normally based on the income they earn, such as income taxes. Also see indirect tax.
Dirty float	Colloquially, the RBA's manipulation of the exchange rate via the buying and selling of AUD in the foreign exchange market.
Discouraged job seekers	See Hidden unemployment.
Discretionary income	The disposable income available for consumption following the payment of all 'non-discretionary' or 'non-avoidable' expenditures such as those related to food, clothing and shelter. Not to be confused with disposable income.
Discretionary stabilisers	In relation to budgetary policy, the deliberate policy decisions designed to change receipts or outlays in an effort to influence economic activity. Contrast with automatic stabilisers.
Disequilibrium	When the market is in a state of excess demand or excess supply due to price being too low or too high..
Disguised unemployment	See Underemployment.
Disinflation	A reduction in the rate of inflation (distinct from deflation)
Disposable income	The total income that households have received in exchange for their participation in the production process plus government transfers less direct (income taxes). Also gross income less the direct taxes levied by governments.
Dividends	The payment of profit to shareholders.
Dumping	The practice of selling a good in a foreign market at a price below the costs of production. It is often done to eliminate competition.
Domestic market operations	The process involved in the manipulation of liquidity in the cash market by the RBA via the purchasing and selling of government securities (or repos). Also referred to as open market operations.
Dynamic efficiency	How quickly an economy can reallocate resources to achieve allocative efficiency.
Earned income	Income representing a reward to individuals for their physical contribution to the production process, e.g. wages or salaries. See unearned income.
Economic activity	Volume (or real value) of production, employment, incomes and expenditure in an economy.
Economic agents	Any entity, such as a person, household, government or business that makes economic decisions
Economic cost	See opportunity cost.
Economic cycle	See business cycle.
Economic development	A term referring to improvements in the economic well-being of a nation, including material and non-material factors such as growth in incomes and wealth, and access to health, education and social advancement.
Economic growth	An increase in the amount or level of national production that has occurred over time. Most commonly measured by changes in the level of real GDP.
Economics	A social science that studies the decisions made by individuals, businesses, governments and other groups about how scarce resources are allocated.
Economies of scale	The volume that a firm needs to produce so that it is able to effectively cover its fixed costs and operate at what is called the minimum efficient scale. See economies of scale benefits.
Economies of scale benefits	The benefits that are enjoyed by firms in terms of an increase in output (typically at high volumes) leading to reductions in average costs. It relates primarily to the fact that fixed costs can be spread over a larger range of output.
Economy	A place where scarce resources are allocated among competing uses and goods/services are bought and sold.
Elastic	Refers to either the demand or supply curve where the responsiveness of demand (or supply) to a change in a variable (such as price) is high.
Emissions trading scheme (ETS)	A scheme designed to achieve the most efficient reduction in carbon pollution by using market forces to place a price on pollution (e.g. carbon) and creating incentives for producers to achieve the most efficient forms of pollution abatement, and at the same time, provide incentives to invest in more renewable forms of energy. It works via governments allocating a set number of emission permits to producers, who must not exceed this level of emissions without purchasing additional permits on the open market from those firms who have polluted below their quota (i.e. permit level).
Employed	To be employed for ABS purposes, one needs to be over 15 years of age and working more than one hour per week in return for some form of measurable remuneration (such as wages).
Employer Nomination Scheme	A scheme that enables employers to sponsor skilled workers for permanent residence in order to fill vacancies in their business.
Employment	The provision of labour resources to the business, government and/or not for profit sectors.
Enterprise bargaining	A type of wage negotiation where workers join forces at a particular workplace (or enterprise) and collectively negotiate wages and conditions with employers. See collective bargaining.
Entrepreneurship	The skills of those individuals who combine our resources to produce goods and services.
Environment Protection and Biodiversity Act (1999)	The Federal Government's central piece of environmental legislation designed to protect and manage flora, fauna, ecological communities and heritage places.
Environmental policies	Policies that are designed to conserve the natural environment and/or minimise long term environmental damage that may be caused by negative externalities.
EPBC Act	See Environment Protection and Biodiversity Act (1999).
Equilibrium price	The price at which the quantity demanded is equal to the quantity supplied.

GLOSSARY OF TERMS

Equilibrium quantity	Where the quantity demanded is equal to the quantity supplied (also see market equilibrium).
Equity	Ownership of assets, such as shares. For example, a shareholder has an equity interest in a company. See net foreign equity.
Equity in the distribution of income	The goal of ensuring that all Australians have sufficient income to purchase those goods and services that enables them to have a 'dignified' standard of living; to avoid absolute poverty and to ensure that huge or obscene inequalities in incomes are avoided.
Equivalised household income	Disposable income adjusted for the size and composition of households.
ESA	See exchange settlement accounts.
Excess demand	Where the quantity demanded exceeds the quantity supplied (shortage).
Excess supply	Where the quantity supplied exceeds the quantity demanded (surplus or glut).
Exchange rate	The value of the Australian dollar when compared to another currency, or a basket of currencies of our major trading partners. See Trade Weighted Index.
Exchange settlement accounts (ESAs)	Compulsory accounts held by all the commercial banks with the RBA to facilitate the transfer of funds between banks after settling amounts owing following interbank transactions.
Excludable	In the context of goods and services, a supplier of the product can legally stop someone from consuming the product unless they pay the price offered in the market.
Expansionary policy	A policy that is designed to stimulate or expand economy activity.
Exports	Goods and services that are made in Australia and purchased by foreign residents.
External stability	When Australia is able to meet its international financial obligations that result from transactions with the rest of the world, without jeopardising economic growth or other economic goals. Requires that the CAD and NFD (or NFE) are manageable and sustainable over time.
Externality	When a third party is affected (either positively or negatively) from a transaction between two or more other parties. Externalities can occur in the production or the consumption of a good and/or service.
Factor income	The total returns to factors of production for the contribution to production and includes earned and unearned income.
Fair Work Act (2009)	An Act of parliament containing the detail relating to Australia's new industrial relations system that superseded Workchoices.
Fair Work Australia	The government body that recently replaced several other agencies, including the Australian Industrial Relations Commission, the Australian Fair Pay Commission and the Workplace Authority.
Final Income	Social wage income plus production (or indirect) taxes.
Financial Account	A sub-account in the CAFA of the BOP and the most important account within the CAFA as it effectively records how Australia finances its CADs. Records the inflows (credits) and outflows (debits) of debt and equity that relate to Australia's net foreign liabilities.
Financial capital	Funding or money that is typically used to finance the acquisition of assets. Includes both debt and equity.
Financial obligations	Involves economic agents being contractually required to perform some act into the future as a result of a financial (or international) transaction. For example, the decision by a company to issue debt in foreign markets will bring with it an obligation to repay the debt (and interest) into the future.
Financial Sector	That sector of the economy acting as the intermediary ('middle man') between savers and investors (or lenders and borrowers). It includes banks and other financial institutions.
Fiscal Consolidation	The government seeking to reduce the budget deficit and return the budget to surplus, consistent with its medium term fiscal strategy.
Fiscal drag	The process of inflation increasing nominal wages (as workers seek to protect real wages) and pushing some workers into higher marginal tax brackets. This increases the 'average' rate of tax paid by taxpayers and boosts the real value of Federal Government revenue.
Fiscal outcome	In relation to the government's budget, revenue that has been earned over the relevant period minus expenses that have been incurred over the period.
Fiscal strategy	In relation to budgetary policy, the government laying out a strategy for how it intends to meet its objectives or goals. For example, the strategy for the 2009-10 budget was to ensure that the government could meet its current and future spending commitments.
Fixed rate loans	Loans where the rate is fixed (usually for a specified period) and not free to vary (compare variable rate loan) over the life of the loan.
Foreign aid	The payment of money or other assistance to less developed economies around the world.
Foreign currency speculators	Investors who seek to profit from buying currencies at one price and selling at a higher price.
Forward guidance	The RBA providing markets and economic agents in general with some level of certainty about the future direction of interest rates
Free rider	An economic agent who receives the benefit from a public good but does not pay for it.
Free trade	Where nation's can engage in international trade without facing 'protection' or 'trade barriers' from other countries.
Free trade agreement	An agreement between two or more countries whereby trade between the member countries occurs without (or with minimal) restrictions
Frictional unemployment	Where a person is unemployed for that period of time While they are moving from one job to another..

Fringe benefits	Non-monetary reward for contribution to the production process, such as a company car, use of credit card, etc.
Fringe benefits tax	Tax applying on the value of any 'fringe benefits' received by income earners.
Full employment	That level of unemployment that exists when the government's economic growth objective is achieved and where cyclical unemployment is non-existent.
G1	Government current (consumption expenditure) on goods and services that are not capital in nature.
G2	Government Investment Expenditure on goods that are of a capital nature.
GBE	See Government Business Enterprise.
GDP	See Gross Domestic Product.
GDP per capita	See GDP per person.
GDP per person	GDP divided by the size of the population (also referred to as GDP per capita).
Genuine Progress Indicator (GPI)	An indicator of national well being that seeks to overcome the difficulties associated with the use of GDP as a measure of overall living standards for a nation. It takes into account a host of other factors not taken into account by GDP estimates, such as the social costs associated with unemployment, crime, problem gambling, excessive work, natural resource depletion and pollution.
Gini coefficient	Derived from the Lorenz curve, a number between zero and one, providing an indication of the degree of inequality in the distribution of income. As the coefficient approaches zero, equality improves.
Global Financial Crisis (GFC)	The crisis affecting the financial systems of many countries over 2007-8 caused by excessive (unsustainable) borrowing and lending and the large losses sustained by financial institutions once asset markets (e.g. property) crashed. Resulted in huge reduction in global liquidity (lending) as financial institutions became much more risk averse.
Glut	Where the quantity supplied exceeds the quantity demanded (surplus or excess supply).
GNE	See Gross National Expenditure.
Goods and services tax (GST)	A broad-based consumption tax introduced in Australia in 2000 and currently applied at a rate of 10% on most goods and services.
Government	An organisation made up of people who represent the interests of society (or constituents) and govern a region (e.g. has responsibility for making and enforcing laws as well as the management of the economy).
Government Business Enterprise	A business owned and operated by the government (e.g. Australia Post). Sometimes referred to as a Public Trading Enterprise.
Government Expenditure	Expenditure by all areas of government (Federal, State and Local) and commonly broken up into G1 and G2.
Government failure	The undesirable situation where government intervention in the market leads to a less efficient allocation of resources.
Government failure	Where government intervention fails to improve the allocation of resources or actually makes the allocation of resources less efficient
Gross Domestic Product (GDP)	The final market value of all goods and services produced in the Australian economy over a given period of time. It is the same as the total 'value added' during each stage of the production process and is calculated every quarter by the ABS.
Gross income	Private or market income in addition to the direct cash benefits received from governments.
Gross National Expenditure	Total expenditure by Australians on goods and services produced in Australia and the rest of the world.
Gross National Happiness (GNH)	GNH is a measure of living standards (or general happiness) used in Bhutan that incorporates the promotion of sustainable development; the preservation and promotion of cultural values; the conservation of the natural environment and the establishment of good governance.
GST	See goods and services tax.
Hard core unemployment	Where a person is unemployed due to mental, physical or other characteristics that prevent them from receiving a job offer.
Headline cash outcome	In relation to the government's budget, it is total cash received by the Federal Government less the total cash paid.
Headline inflation	See Headline rate of inflation.
Headline rate of inflation	The rate of inflation as captured by price movements of all goods and services contained in the CPI.
Henderson poverty line	A benchmark level of income for various household sizes, below which, a household is considered to be living in relative poverty.
Hidden unemployment	Potential workers who are excluded from unemployment statistics because they have become discouraged about their job prospects and are not actively seeking employment. Also referred to as discouraged job seekers.
Homogenous products	Products that are essentially the same or undifferentiated.
House Price Index	A price index that measures the change in housing prices over time.
Household income	All current receipts, whether monetary or in kind, that are received by the household or by individual members of the household, and which are available for, or intended to support, current consumption.
Human capital	The skills embedded in labour.
Human Development Index	A composite statistic, that measures performance in three key dimensions of development – economics, health and longevity, and education, and provides a superior measure of development to GDP or GDP per capita

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Hurdle rate of return	The rate of return required on an investment project or proposal in order to make it viable. Used in relation to interest rates, where an increase in interest rates negatively impacts on Investment because the additional servicing costs on any loan means that the expected rate of return on the project is more likely to be insufficient.
Immigration	When people enter and settle in a country where they are not a native.
Imported inflation	Inflation caused by rising prices of imports rather domestic price pressures
Imports	Goods and services purchased by Australians that are made overseas. Also a leakage from in the circular flow model of income.
Income	Money that is typically received on a regular or recurring basis (e.g. wages and salaries, investment returns, profit shares, royalties, or government pensions or allowances).
Income tax	A tax that is paid to the government based on income earned.
Index numbers	Used by statisticians to provide a meaningful way to record movements in the price or value of items that are quite diverse in nature. For example, the CPI or the TOT.
indirect tax	A tax paid by economic agents via their purchases of goods and/or services (such as the GST). See direct tax.
Industrial dispute	When employees and employers are in dispute over the setting of wages and/or conditions at workplaces.
Industry assistance	The government providing some form of financial (or other support) to local industries.
Industry policies	Any government policy that seeks to promote the development of local industries. A part of the government's aggregate supply policies.
Inelastic	Refers to either demand or supply curve where the responsiveness of demand (or supply) to a change in price is low.
Infant industry argument	Where relatively young industries are protected from low priced competition. Once the local industry develops, the tariffs are then removed.
Inferior goods	Goods whose demand will tend to decrease with an increase in disposable income.
Inflation	A sustained increase in the general or average price level over time.
Inflationary expectations	The expectations of future price increases by economic agents.
Infrastructure	Capital items or networks that enable society (and economies) to function effectively. Infrastructure items like roads, telecommunication networks, ports and electricity grids provide the foundation for economic activity to take place.
Injections	an increase in funds flowing back into the core of the economy in relation to the circular flow model of income.
Interest rates	The cost of borrowing money.
Internal Stability	A period of stable economic activity that is characterised by healthy and sustainable rates of economic growth, full employment and low inflation.
International competitiveness	The degree of competition, based on price and quality, that exists in the global market place for goods and services.
International Investment Position	See Net International Investment Position
International transactions	The receipt and payment of money for the sale and purchase and sale of goods and services (including labour and financial capital) in international markets.
Inter-temporal efficiency	How well resources are allocated over different time periods.
Investment expenditure	The purchase of new equipment and plant, buildings and vehicles, as well as the addition to inventories (or stock).
Job vacancy rates	The rate at which job vacancies exist in the economy – compared to previous periods. An indicator of the strength of the jobs market, with high vacancies suggesting a tight or strong labour market.
Jobless growth	Economic growth that occurs in the economy without any impact on employment given that growth has been fuelled by supply side improvements such as growth in productivity or participation.
Keynesian	These economists believe that AD does have a role to play in achieving strong and sustained economic growth because of price rigidity ('stickiness') in factor and product markets.
Keynesian economics	A branch of economics associated with a famous British Economist, John Maynard Keynes (1883-1946) who argued that governments had a crucial role to play in manipulating Aggregate Demand in order to 'smooth the business cycle' (e.g. stimulate economic growth and reduce unemployment during economic downturns).
Labour	Mental and physical effort exerted by humans in the production process.
Labour costs	The cost to businesses of employing labour, including the wages or salaries paid to employees, plus any additional costs associated with their employment, such as superannuation, workcover, payroll taxes and sick leave.
Labour force	All those people aged 15 and over who are willing and able to work; it includes the employed and the unemployed.
Labour market deregulation	The general shift away from centralised system of industrial relations to one that is less centralised or regulated, where wages and conditions are more closely tied to performance or economic conditions at workplaces. Also see Labour market reform.
Labour market reform	The process of restructuring the labour market to ensure that the system of industrial relations is one that is consistent with a more efficient allocation of resources.
Labour Price Index	A price index that measures the change in the price of labour over time.
Land or natural resources	Resources that occur in nature and that can be utilised in the production process to generate more elaborate products or consumed in their raw form.

Law of demand	As the price of a product increases the quantity demanded will tend to decrease. Conversely if the price of the product decreases, the quantity demanded will tend to increase.
Law of supply	As the price increases for a good or service there will generally be an increase in the quantity supplied.
Leakages	Money that is diverted away from Consumption in the circular flow model of income.
Liquidity	The supply of funds available in a particular financial market. Typically used with reference to the cash market and open market operations (OMOs).
LITO	See Low income tax offset.
Living standards	The aggregate welfare of people in a country like Australia, made up of both material factors (such as access to goods and services) and non-material factors (such as quality of life).
Local content rules	A form of 'protection' involving the requirement for goods or services produced in Australia to contain a specified percentage of Australian content.
Long run	A period of time when all prices, including those in both product and factor markets, are fully flexible. . This contrasts with the short run when all prices are cannot adjust (i.e. are fixed).
Looser monetary policy	A decrease in the target cash rate by the RBA.
Lorenz curve	A diagrammatical representation of the degree of equity in the distribution of income.
Low income tax offset (LITO)	A government tax initiative to support low income earners by increasing their effective tax-free threshold above that which applies for other income earners.
Luxury	A good or service that is not a necessity and whose demand tends to increase as income increases to high(er) levels.
Macroeconomics	The study of the economy as a whole focusing on aggregate variables such as national income, production and expenditure (real GDP), inflation, unemployment, the current account deficit and net foreign debt. It is therefore concerned with the "big picture" of how the economy works and how the government may influence the level of economic activity through the use of aggregate de-mand and aggregate supply side policies.
Marginal propensity to consume	Measures the change in consumption that would result from a one dollar increase in income. (A number between zero and one).
Market	Any place (which may or may not be a physical space) that allows buyers and sellers to interact and exchange goods and services.
Market capitalism	A system where the market allocates resources based on the buying and selling decisions of consumers and producers and where the majority of productive resources are owned by private individuals and firms.
Market concentration	The degree of competition in a market as measured by the number of firms competing and their respective shares of the market. High concentration in a market signifies a small number of firms controlling the market (see monopoly and oligopoly).
Market equilibrium	When the demand for a good or service is equal to the supply of a good or service.
Market failure	When an unregulated market is unable to allocate resources efficiently or where resources are allocated in such a way that national living standards or welfare is not maximised. It will result in an over allocation of resources to the production of some goods and services and/or an under-allocation to others.
Market income	Also referred to as private income. Income that is received in the market place primarily as a result of one's contribution to the production process (factor income), plus private transfers (e.g. child support payments).
Market socialism	An economic system where the government owns most of the resources but markets determine what goods and services are ultimately produced.
Market structure	The way different industries are organised in terms of the numbers and type of buyers and sellers and the conditions under which they exchange. Market structures range from ones that are highly competitive (e.g. perfect competition) to ones that are highly un-competitive or highly concentrated (e.g. monopoly).
Market system	A type of economic system that allocates resources based on the buying and selling decisions of consumers and producers. Prices give signals which influence the behaviour of these buyers and sellers.
Material living standards	Living standards as measured by access to goods and services.
Means test	Related to the provision of government benefits where the receipt of such benefits will only occur if the recipients' level of income (or wealth) is below a benchmark level. It is designed to ensure that support is only provided to those welfare recipients genuinely in need of support.
Measures of Australia's Progress (MAP)	An indicator of national well being that seeks to overcome the difficulties associated with the use of GDP (or real GDP per capita) as a measure of overall living standards for a nation. It takes into account a host of other factors not taken into account by GDP estimates, such as the social costs associated with unemployment or crime.
Mergers and acquisitions	When two or more firms join as one (merger) or when one firm purchases and controls another (acquisition). These are sometimes prohibited under competition law if they substantially lessen competition in a particular market.
Microeconomic reform policies (MRPs)	Government reforms that seek to improve the structure and operation of markets (or industries) in an effort to achieve a more efficient allocation of resources.
Microeconomics	The study of the individual parts of the economy that interact to make up the whole economy.
Migrant transfers	Part of the current account in the balance of payments that includes the receipt of funds when migrants settle in Australia or the payment of support to the relatives of migrants.
Minimum wage	The minimum allowable rate of pay in Australia.
Monetary policy	A policy operated by the RBA on behalf of the government and involves the manipulation of key financial variables in the economy (primarily interest rates) in order to achieve specific economic goals and ultimately improve the living standards or welfare for all Australians.

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Monetary policy neutrality	When monetary policy is neither in an expansionary or restrictive phase. The level for the target cash rate is neither expanding nor restricting economic activity.
Monopolistic competition	An industry that is also highly competitive, with many similarities to perfect competition, but products are not homogenous (i.e. they are differentiated).
Monopoly	An industry or market that is dominated by one seller of a product and the product does not have a close substitute.
Monopsony market	A market situation where there is a single buyer for a product.
Moral hazard	A form of market failure (that is associated with asymmetric information) that occurs when economic agents adjust their behaviour to one that is less efficient or favourable from society's point of view. It typically occurs in insurance, where economic agents are somewhat insured against the risk of loss and then become less risk averse in their actions because losses incurred are transferred to the other party (e.g. the insurer).
NAIRU	Acronym for the Non Accelerating Inflation Rate of Unemployment which involves the attainment of the lowest unemployment rate possible before inflation begins to accelerate (approximately 5% U/E).
National Competition Policy	A MRP designed to increase competition and/or competitive pressures in the economy in order to raise productivity, reduce prices, and increase competitiveness.
National Reform Agenda	State and Commonwealth government agreement designed to undertake social and economic reform of the Australian economy.
Natural rate of unemployment	The rate of unemployment that exists when economic growth is relatively strong (in the order of 3-4% per annum) and cyclical unemployment is non-existent. See NAIRU and full employment.
Necessity	A good or service that it is needed by consumers.
Negative externality	When the production or consumption of a good or service results in a cost to a third party not involved in the transaction. Sometimes referred to as 'spillover' costs or social costs of production or consumption.
Net exports	Exports minus imports.
Net foreign debt (NFD)	The net financial obligations Australians have to the rest of the world that stems from Australia's 'total borrowing' from overseas exceeding the 'total lending' to overseas.
Net foreign equity (NFE)	Financial obligations that stem from foreign ownership of Australian assets, such as property and shares, less Australian ownership of foreign assets.
Net foreign liabilities	The net value of financial obligations that Australia has to the rest of the world. It includes net foreign debt (NFD) and net foreign equity (NFE).
Net International Investment Position	The value of Australia's net international financial obligations to the rest of the world. This is made up of Australia's stock of net foreign liabilities (NFLs), which is made up of both net foreign debt (NFD) and net foreign equity (NFE).
Net Primary income	Part of the Current Account of the BOP that is made up of receipts (credits) of income from holding foreign assets, such as dividends from shareholdings in foreign companies or interest repayments from foreigners, minus payments (debits) of income to service foreign liabilities, such as dividend payments for foreign equity (e.g. profits sent to overseas owners) and interest repayments for foreign debt. In addition, it includes receipts or payments of income earned from international labour.
Net Secondary Income	Part of the Current Account of the BOP that is made up of receipts in the form of foreign pensions, gifts or other gratuitous payments minus payments such as foreign aid, gifts, pensions and other gratuitous payments. Formerly referred to as 'Net Transfers.'
Net services	Part of the Current Account of the BOP that is made up of services export receipts, such as the money received for the provision of education to foreigners, minus services import payments, such as money spent overseas by Australian tourists.
New Classical	These economists believe that, in the long run, the AS curve is vertical such that economic growth can only be achieved in the long run via an expansion in AS or productive capacity.
NFD	See Net foreign debt.
NFE	See Net foreign equity.
No disadvantage test	Applied in cases where workers moved to AWAs and wages and conditions could not be worse than those offered by the pre-existing Award.
Nominal	A given value unadjusted for any inflationary impact.
Non-depletable	The consumption by one person does not lead to a reduction in the amount available for other potential consumers. Means the same as non-rivalrous. This is the case for public goods, such as defence (same as non-rivalrous).
Non-excludable	A supplier cannot stop a person from consuming/using the product (even if they have not paid). This is the case for public goods, such as defence. It creates the free rider problem.
Non-rivalrous	The consumption by one person does not lead to a reduction in the amount available for other potential consumers. Means the same as non-depletable. This is the case for public goods, such as defence.
Normal goods	Goods whose demand will tend to increase with an increase in disposable income.
Normal profit	A profit level that is just sufficient to provide incentive for existing businesses to continue operating. Profits below this level are likely to encourage firms to exit the industry.
Oligopoly	An industry where a few (very large) firms tend to dominate the industry in terms of market share and volumes sold and there is limited competition.

OPEC	Organisation of Petroleum Exporting Countries.
Open market operations (OMOs)	The process involved in the manipulation of liquidity in the cash market by the RBA via the purchasing and selling of government securities (or repos)
Opportunity cost	The value of the next best alternative that is foregone whenever a choice is made. Sometimes referred to as economic cost.
Output gap	The difference between AD and AS at a point in time. When AD exceeds AS, there is a positive output gap and when AS exceeds AD there is negative output gap
Overnight money market	The market for overnight funds. See cash market.
Parallel import restrictions	A form of 'protection' involving the prevention of foreign businesses from producing and selling goods into Australia that are protected by Australian copyright laws.
Participation rate	The percentage of the total 'working age' population (over 15) that is a member of the labour force.
Peak Oil	The point of time when half the world's oil supplies have been extracted. After this point, it generally becomes more difficult and more expensive to extract oil.
Pensioner and Beneficiary Living Cost Index	A price index that measures the change in the prices of goods and services most commonly purchased by pensioners.
Perfect competition	A market structure where there are many buyers and many sellers, homogeneous products, freedom of entry and exit to the market, perfect information, high mobility of resources and where producers seek to maximise profit while consumers act rationally to maximise utility.
Personal income tax	Taxes paid by individual income earners.
Phillips Curve	A construct that highlights the trade-off that sometimes exists between inflation and unemployment. When inflation increases in response to pressures from a growing economy, it is usually associated with lower unemployment. Similarly, lower inflation that accompanies lower growth will usually be associated with higher unemployment as the low growth rates lead to job losses.
Planned Capitalism	An unusual economic system may evolve whereby the government directs the owners of productive assets to produce certain goods and services.
Planned Socialism	An economic system where the governments makes long and short-term plans about what to produce, how to produce it and who gains the produce after it is produced. However, the majority of productive assets are state owned (owned by the people of the country collectively).
Portfolio investment	Investment involving less than 10% control of a company and/or net debt flows between countries.
Positive externality	When the production or consumption of a good or service confers a benefit to a third party not involved in the transaction. Sometimes referred to as 'spillover' benefits or social benefits of production or consumption.
Predatory pricing	The illegal act of charging low prices (usually below cost) in order to drive a competitor out of the market. Once the competition has been removed, the business is then free to charge excessive prices.
Preferential treatment	A form of 'protection' involving government procurement policies providing local producers with a better chance of winning a government contract compared to foreign providers of goods and services.
Price ceiling	Where the sellers of the goods or services are prohibited from raising their prices above a certain level
Price elasticity of demand	The responsiveness of quantity demanded to changes in price.
Price elasticity of supply	The responsiveness of quantity supplied to changes in price.
Price floor	Where the price offered in a market is prohibited from falling below a certain level.
Price mechanism	Refers to the way changing market conditions, and the resulting movement in relative prices, coordinate the way resources are allocated within the economy.
Price taking	Where there are a large number of buyers and sellers in a market and each of them has little influence on the prices. Occurs in competitive markets.
Private goods	These are goods or services that are opposite in nature to public goods as they are both excludable and rival in consumption.
Private income	Also referred to as market income. Income that is received in the market place primarily as a result of individuals supplying their labour (including entrepreneurship) to the business sector.
Privatisation	When a Government business Enterprise (GBE) is sold to the private sector.
Pro- cyclical	Describes an economic variable that moves in the same direction as the change in the economic (or business) cycle. For example, business confidence increases when economic activity is high. Also used to describe government policies that inadvertently contribute to the movement in the current stage of the cycle. For example, the operation of monetary policy can cause pro-cyclical changes in economic activity given that it suffers from long impact lags.
Producer price inflation	Inflation as it relates to business costs.
Producer surplus	What producers receive if they are able to sell the product at a price above their economic costs.
Producers	Economic agents who are involved in the production process via the provision of goods or services.
Product differentiation	The process of businesses (particularly under monopolistic competition) seeking to make their unique in some respects such that consumers believe it is no (or less) substitutes.
Product markets	Markets for products, as distinct from labour or factor markets.
Production	The process of converting resources and inputs into goods and services or the total volume (or value) of goods and services produced over a given time period.

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Production possibility diagram	See production possibility frontier.
Production possibility frontier	A diagram illustrating the choices or options available when deciding how to allocate scarce resources. Any allocation of resources to the production of certain goods and services will mean that an alternative combination cannot be achieved. It is often used to illustrate the concept of opportunity cost.
Productive capacity	The point at which production (or GDP) is occurring at the maximum level possible in an economy.
Productivity	The volume of output (e.g. real GDP) that is produced from a given number of inputs (e.g. labour and capital resources). It refers to how well our factors of production combine to produce goods and services.
Productivity Commission	The government body that has an important role as an advisory body to the Government on microeconomic reform policies and regulations more generally.
Products	Goods and services available for purchase in the market place.
Profit	When revenue (e.g. sales) exceeds expenses.
Profit margin	The difference between sales price and the cost price of a product (or the difference between sales revenue and a measure of costs).
Progressive tax	A tax that collects proportionally more from higher income earners compared to lower income earners. It involves the rate of tax increasing as income increases. For example, Australia's income tax system is progressive in nature.
Property rights	The formal and informal rules regarding the use, ownership, and transfer of property. In most countries, people have property rights over the things that 'belong' to them.
Proportional tax	A tax that collects proportionally identical amounts from all income earners. It involves the rate of tax remaining the same for all taxpayers. For example, the company tax in Australia is a proportional tax of 30% for large companies.
Protection	Efforts by governments to protect local import competing producers from the threat of imports. It is commonly implemented via tariffs, quotas and subsidies.
Public goods	Goods or services that are both non-excludable and non-rival (non-depletable) in consumption. A person who does not pay for the good cannot be excluded from consuming it and one person's enjoyment does not lessen another's enjoyment.
Public Trading Enterprise	See Government Business Enterprise.
Purchasing power	The ability of cash, money or income to acquire goods and services. This erodes over time with inflation.
Quantitative easing (QE)	The process of the RBA purchasing government bonds (and/or other financial assets) as a means of reducing longer term interest rates. Typically used when monetary policy cannot be loosened further (i.e. when the official cash rate is too low) and is similar to 'printing money'. Used by the RBA between 2020 and 2022.
Quantitative tightening (QT)	The reverse of QE, where the RBA allows bonds to mature instead of reinvesting the funds in the market or sells the bonds to market participants.
Quarterly rate of economic growth	The rate of economic growth over one of the four quarters of the year, comprised of the March, June, September and December quarters.
Quotas	A form of 'protection' involving controls or limits on the volume of imports entering the country.
Real	A given value adjusted for any inflationary impact.
Real Unit labour costs	The average costs of labour (adjusted for inflation) divided by average labour productivity.
Recession	A period of very low rates of growth in production (or real GDP) and relatively high (or increasing) rates of unemployment. It occurs at the lowest point in the business cycle and is 'technically' defined as two periods of negative economic growth.
Recovery	A pick up (or return to normal) levels of economic activity.
Regressive tax	A tax that collects proportionally more from lower income earners compared to higher income earners. It involves the rate of tax decreasing as income increases.
Relative poverty	A situation where a person or a household has a low level of income compared to other individuals or households in society or compared to a generally agreed standard. See Henderson poverty line.
Relative prices	The prices of products relative to other products. Changes in relative prices send clear signals to producers and consumers and therefore direct resources to their most profitable ends.
Relative scarcity	A situation where resources are limited compared to the demands placed upon those resources via wants and needs.
Repurchase agreements (repos)	Contracts where the RBA will buy (or sell) a CGS at its current market price but then agrees to sell (or buy) the same CGS at an agreed price in the future.
Restrictive policy	A policy that is designed to constrain economic activity (see contractionary policy). Used mostly in relation to monetary policy efforts to restrain AD.
Ricardian equivalence	A theory that questions the effectiveness of budget deficits as a means of stimulating economic growth, where the private sector anticipates future budget tightening or restraint and therefore reduce spending accordingly.
Rivalrous	Depletable in consumption which means that consumption by one person reduces the amount that is available for another person. Often used in the context of public goods which are rivalrous.
Safeguard mechanism	Emissions reduction legislation currently in force where 215 major polluting businesses are required to cut emissions intensity by 5% a year (either through absolute cuts to their own emissions or through buying carbon offsets).
Savings	Disposable income less consumption expenditure. Also a leakage from in the circular flow model of income

Scarcity	See relative scarcity.
Screening	Related to asymmetric information and is a way of dealing with adverse selection and involves the process of placing economic agents through a number of processes in order to glean information that was otherwise unknown. For example, firms may also undertake psychological tests and trial periods to screen job applicants.
Seasonal unemployment	Where a person is unemployed because their skills are only demanded during certain times of the year.
Short run	A period of time when all prices, including those in both product and factor markets cannot adjust and are fixed. This contrasts with the long run when all prices are fully flexible.
Shortage	Where the quantity demanded exceeds the quantity supplied (excess demand).
Signalling	Related to asymmetric information and occurs when one economic agent passes on some valuable information to another economic agent to assist decision making that relates to something that is otherwise unobservable. For example, a job applicant may provide credentials or qualifications to signal that they are of high ability.
Skilled migration	The migration of individuals who possess skills that are valuable to the host economy.
Social Benefits	Benefits enjoyed by a country that are non-economic in nature, such as the benefits of education that are related to positive externalities (re market failure) and the social harmony that may accompany a society with a more 'equitable' distribution of income. See social costs.
Social costs	Costs borne by a country that are non-economic in nature, such as the depletion of natural resources related to negative externalities (re market failure) and the social unrest that may accompany a society with huge inequity in the distribution of income. See social benefits.
Social science	Social sciences focus on human behaviour and social interactions. Economics is an example of a social science
Social Wage Income	Disposable income plus indirect government benefits provided in the form of goods and services such public housing, education, health and welfare.
Socialism	An economic system where the majority of productive assets are state owned (owned by the people of the country collectively) and therefore no one can benefit excessively from producing goods and services.
Speculation	[Foreign currency] A type of investment activity where the investor (speculator) will purchase a particular currency if they believe that it is undervalued or sell if they believe it is overvalued.
Stability in the level of domestic economic activity.	See internal stability.
Stability of the currency	The RBA's objective to achieve low rates of inflation in the order of 2-3%, on average, over the course of the economic cycle. See price stability.
Stagflation	Periods of low economic growth, high unemployment rates and high inflation rates.
Sterilised intervention	When the RBA totally offsets the impact on liquidity in the cash market following any intervention in the foreign exchange market.
Stimulus package	The delivery of budgetary policy initiatives that are designed to stimulate economic growth.
Strong and sustainable economic growth	The highest growth rate possible, consistent with strong employment growth, but without running into inflationary, external pressures or environmental pressures.
Structural change	Changes to the structure of industries (such as a greater ratio of capital to labour employed). Normally is caused by changes in technology, or changes in market trends.
Structural component of budget	That part of the budget outcome that changes (or has changed) as a result of discretionary stabilisers (i.e. deliberate policy decisions by the government. Contrast with automatic stabilisers/cyclical component of the budget.
Structural reform	see structural change.
Structural unemployment	Where the skills of the unemployed do not match the skills required by industry, resulting in unemployment.
Subsidies	The government providing local producers with financial or other forms of assistance. Often considered a form of 'protection'
Substitute	A good or service that serves the same (or similar) purpose as another good or service (e.g. Coke and Pepsi are substitutes).
Superannuation	A form of retirement savings that cannot be accessed until the retirement of an income earner from the workforce. This savings vehicle receives generous tax support from the Federal Government and employers are compulsorily required to contribute 11.5% of workers' wages into their superannuation accounts.
Supply factor	A factor that causes changes in economic activity via its impact on AS.
Surplus	Where the quantity supplied exceeds the quantity demanded (excess supply or glut).
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Target cash rate	The RBA's target level for the cash rate. The RBA will operate in the cash market on a daily basis via OMOs to ensure that the actual cash rate is as close as possible to the target cash rate.
Tariff	A form of 'protection' involving a tax on imports.
Tax concessions	The government providing taxpaying entities with the ability to reduce their assessable income and tax liability. Includes tax rebates or allowances provided by governments allowing businesses to reduce their effective tax liability. A form of government assistance.
Taxes	Money collected by governments, mostly based on the income earned by economic agents such as businesses and households. Also a leakage from in the circular flow model of income.

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Technical efficiency	When it is not possible to increase output without increasing inputs (resources). Therefore the most technically efficient point of production occurs where productivity is at a maximum and where average costs are at a minimum.
Technological efficiency	See Technical efficiency.
Terms of Trade (TOT)	A ratio of Australian exports prices to import prices.
The Balance on Merchandise Trade	Part of the Current Account of the BOP that is made up of merchandise export receipts (credits) minus merchandise import payments (debits), such as the sale or purchase of manufactured goods.
Tighter monetary policy	An increase in the target cash rate by the RBA.
TOT	See Terms of Trade.
Tradables (or tradeables) sector	That sector of the economy that competes against foreign produced goods and services. It includes exporters and import competing businesses.
Trade liberalisation	The movement towards international trading relationships that are not subject to protectionist policies. Also defined as any government policy initiative that is designed to promote free trade, or reduce restrictions or barriers to free trade.
Trade Weighted Index	The value of the Australian dollar when compared to a basket of currencies of our major trading partners.
Traded goods sector	See tradeables sector.
Transfer income	Income that is transferred from one group to another, usually via the government. Common examples include pensions and unemployment benefits.
Transmission mechanisms	The way that a change in interest rates affects economic activity. There are four generally recognised transmission mechanisms.
Trickle down theory	A theory suggesting that a way to boost economic growth in a country (and therefore living standards) is to minimise taxes on businesses and high income earners in order to promote efficiency and productivity gains. By encouraging business and wealthy households to invest, greater volumes of goods and services can be produced at lower prices, resulting in increased employment opportunities for middle and lower classes, increasing their purchasing power and material welfare.
Trimmed mean	An underlying measure of inflation calculated by measuring the price changes of all CPI items but removing the top 15% price changes and the bottom 15% price changes. It therefore removes the effects of 'extreme' price changes.
Trough	A period of very low rates of growth in production (or real GDP) or the lowest point in the business cycle. See recession.
Underemployment	The underemployed are those individuals that are classified as employed, but who are at least partly unemployed in the sense that they would prefer to be working more hours than they are currently working. Also referred to as dis-guised unemployment.
Underlying cash balance	In relation to the government's budget, the headline cash outcome, but excluding 'net cash flows from investments in financial assets for policy purposes.'
Underlying rate of inflation	Sometimes referred to as the core rate of inflation. The rate of inflation that provides the best indicator of the predominant price pressures existing in the economy. Commonly measured by the RBA's trimmed mean and weighted median measures. See also CPI all groups excluding volatile items.
Underutilisation rate	Adding the unemployed to the underemployed and dividing by the size of the labour force. It represents the proportion of the total labour force that is 'underutilised.'
Unearned income	Income representing a reward for providing resources other than labour, e.g. dividends and interest (see Earned income)
Unemployed	When someone is over 15, without work or working for less than one hour per week, and actively looking for (more) work.
Unemployment rate	The percentage of the labour force that is unemployed.
Unfair dismissal laws	Laws protecting employees from being unfairly dismissed. Revised unfair dismissal laws involve employees of some small businesses (less than 15 employees) being unable to rely on these laws for protection in certain circumstances.
Unit labour costs	The average costs of labour divided by average labour productivity. See real unit labour costs.
Variable rate loans	Loans where the rate is not fixed but instead can vary over the life of the loan in line with changes in both economic conditions and monetary policy more generally.
Wage Price Index	An index containing the average price of labour across the economy.
Wage price spiral	The cycle of higher prices (or inflation) that causes an increase in nominal wages (as workers seek to protect their real wage) that in turn causes higher business costs and higher prices.
Wealth effect	One of the reasons explaining the downward sloping AD curve where higher prices on average will reduce the purchasing power of any given amount of savings. Also one of the five transmission mechanisms of monetary policy where a change in interest rates will impact on AD.
Weighted median	An underlying measure of inflation calculated by measuring the price changes of all CPI items and then using the price change that sits in the middle of the range.

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