

# ECONOMICS

YEAR 11 ATAR COURSE – UNITS 1 & 2

THIRD EDITION





WACE STUDY GUIDE

# ECONOMICS

YEAR 11 ATAR COURSE

Andrew Tibbitt



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## About the Author

Andrew Tibbitt is an experienced teacher, having taught both WACE Economics and the International Baccalaureate Diploma whilst authoring a number of textbooks and journal articles. He is a life member of the Western Australia Economics Teachers' Association and been involved with syllabus development and as assistant examiner.

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- Parliament of Australia – data for government spending table
- Reserve Bank of Australia – use of graphs from RBA Chartpack
- Tradingeconomics.com – use of graphs

# TO THE STUDENT

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## Aims of the course

The Economics ATAR course aims to develop students’:

- understanding of economic ideas and information at local, national and global levels across a variety of contexts
- skills in analysis of economic issues and events, and the forces that influence the operation of the economy
- understanding of the trade-offs and effects of economic decisions made at the local, national and global levels
- understanding of economic decision-making and its role in creating a productive, efficient and equitable economy
- understanding of why economic policies and actions are required to manage the economy
- understanding of the policy options used to address domestic and international economic problems and issues
- skills in economic inquiry as they apply them to recent economic issues and events
- application of economic concepts and models to interpret economic data and information, such as patterns, similarities, differences and trends
- skills in using economic terminology to convey meaning to economic decision makers.

## Structure of the syllabus

The Year 11 syllabus is divided into two units, each of one semester duration, which are typically delivered as a pair. The notional time for each unit is 55 class contact hours.

### Unit 1 – Microeconomics

This unit introduces microeconomics and explores the role of the market in determining the wellbeing of individuals and society. Students explore the workings of real-world markets with an emphasis on the Australian economy.

Microeconomics is the study of particular markets, and segments of the economy. This unit explores the theory that markets are an efficient way to allocate scarce resources, using real-world markets with an emphasis on the Australian economy. When the forces of demand and supply do not allocate and price resources in a way that society would regard as efficient, equitable or sustainable, market failure can occur. Students examine examples of market failure along with a range of government policy options that can be applied to achieve more desirable outcomes. Students are also introduced to the language of economics and the use of theories and models to explain and interpret economic events and issues.

### Unit 2 – Macroeconomics

This unit introduces macroeconomics and explores economic growth, inflation and unemployment with an emphasis on the Australian economy. Students learn it is important to measure and monitor changes in these macroeconomic indicators as changes in the level of economic activity affect the wellbeing of individuals and society.

Macroeconomics is the study of the whole economy. This unit focuses on Australia’s macroeconomic performance using the circular flow of income model. The business cycle results in changes in the levels of output, income, spending and employment in the economy, which, in turn, have implications for economic growth, inflation and unemployment. Students also examine the role of the government in the macroeconomy.

The content for each unit is itemised at the start of each chapter.

## Economic skills

The course will help students to develop and demonstrate the following skills

- select and use appropriate terminology
- apply mathematical techniques relevant to macroeconomics, including:
  - calculations relating to the circular flow of income
  - calculating the inflation rate using the Consumer Price Index (CPI)
  - calculating the unemployment rate and the participation rate from labour force data
  - calculating and interpreting rates of change in Gross Domestic Product (GDP)
  - interpreting Lorenz Curves
  - calculating marginal and average rates of taxation
- use economic models to analyse and convey economic theory and reasoning related to macroeconomic events and issues, including:
  - the five sector circular flow model
  - the Aggregate Production Function (APF)
  - the business cycle
  - the production possibility frontier
  - the Lorenz Curve and the Phillips Curve
- select and/or use economic information and data to:
  - identify trends and relationships in the macroeconomy
  - analyse macroeconomic issues and events
  - predict movements in macroeconomic trends using indicators
  - link economic theory to contemporary macroeconomic events and issues
  - justify a conclusion
- select and use a clear structure when communicating economic understandings, including:
  - using a relevant and accurate diagram/model
  - making reference to a diagram/model/data to support a written response
  - applying problem-solving, critical thinking and decision-making strategies to predict a macroeconomic outcome
  - recommending a range of demand management policies to achieve Australia's macroeconomic objectives and mitigate demand and supply shocks.

## The subject framework

There are a number of parts to the framework of Economics.

**Concepts and language:** Concepts are thoughts, ideas or notions on which knowledge can be built. There are a number of key economic concepts such as opportunity cost, elasticity and a market. It is important to use correct economic terms when you share your economic understanding.

**Mathematical and statistical techniques:** Simple mathematical and statistical techniques are used to measure and communicate economic information but the results are not always as precise as economists pretend.

**Methodology:** Some economic knowledge is based on models that are simplified versions of the real world based on assumptions about how people behave and other factors affecting the situation. For example, economic people are assumed to be rational and to aim for maximum wellbeing. Economic theories are developed from these models, and, if the theories can be shown to be valid, they become economic laws. Be prepared, however, to come across exceptions to a number of economic laws. Other economic knowledge is based on generalisations made from the direct observation of human behaviour.

**Personal knowledge:** Economists are directly involved in their subject, being both economic agents, as consumers and producers for example, and as individual members of society, so the observer is part of the system.

**Knowledge issues:** Be prepared to find exceptions to many economic laws, for people to exercise their free will and to act less predictably than economists assume will be the case, for people to be biased and to have opinions and for rival models of economic behaviour to produce contradictory theories and predictions. These issues are what make economics interesting.

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# ECONOMICS

## UNIT 1

USD	5-20	34.0	35.45
USD	50-100	35.27	
EUR		38.3615	
AUD		24.77401	50.80891
GBP		50.54535	0.00
ZAR		1.43296	0.00
BHD		69.41	0.00
QAR		7.95125	0.00
IDR		0.002	0.00
		7.77	



### SYLLABUS POINTS

- The concepts of economics and the distinction between microeconomics and macroeconomics
- The concepts of opportunity cost and the economic problem
- The economic decision-making process
- The importance of economic models
- The Production Possibility Frontier (PPF) model

OVERVIEW – INTRODUCTION TO ECONOMICS	
1	The fundamental economic problem is that of relative scarcity. Whilst the supply of economic resources is limited, the demand for goods and services produced with the resources is unlimited.
2	Microeconomics examines the economic problem by studying the behaviour of individual producers, products and consumers.
3	Macroeconomics examines the economic problem by studying the operation of the economy as a whole, focussing on aggregate supply (i.e. total production) and aggregate demand (i.e total spending on goods and services).
4	Because resources are relatively scarce society has to be selective or make choices, for example, about what products to produce, what resources to use in their production and which consumers' wants and needs to satisfy. These are known as the 'what to produce', 'how to produce' and 'for whom to produce' questions at the heart of economics.
5	Economic choices are made on an assessment of the costs and benefits resulting from the choice of a particular course of action. In theory, economic agents act rationally or objectively, trying to maximise net benefits, but in practice decisions are made more subjectively.
6	Cost, in economics, involves an assessment of opportunity cost. Opportunity cost is the value of what is sacrificed or foregone by following a particular course of action. Benefit, in economics, is the return or gain from following a particular course of action.
7	Observing, understanding, and making predictions about economic behaviour often involves the use of an economic model, or a simplified version of reality.
8	One such model is the Production Possibility Frontier (PPF) model designed to show that, given resources are limited, output or production must be limited too.
9	Many western, liberal societies (such as Australia) have developed an economic system largely based on market forces with only relatively small role being played by government central planning.
10	In pure market economies, private individuals (i) own resources, (ii) are free to make economic choices, and (iii) act in their own self-interest. Market economies thrive on competition and people have to live by their decisions and accept the consequences of poor decision making.

## Part 1 -- The concepts of economics and the distinction between micro and macroeconomics

**Relative scarcity:** The problem of relative scarcity is at the heart of economics. In all societies there are not enough resources (land or natural, labour or workforce, capital or equipment and enterprise) available to produce all the products (e.g. goods, services, essentials and discretionary) required to satisfy the needs and wants of their members. The term relative scarcity is used to describe the relationship of limited resources and unlimited needs and wants.

**Choice:** Because of relative scarcity choices have to be made (i) at the level of producers and consumers in individual markets (microeconomics), (ii) at the level of the government and the national economy (macroeconomics), and (iii) at an international level where countries have interdependent as a result of globalisation (global economics).

**Opportunity cost:** Economic choices are based on the concept of opportunity cost, i.e. what is sacrificed or foregone by taking a particular course of action.

**Efficiency/Productivity:** Productivity is a measure of the efficiency with which inputs are converted to output. Production becomes more efficient when more output is produced from a given unit of a resource.

**Economic systems:** Economic systems involve a mixture of free markets and intervention: In pure market economies, private individuals (i) own resources, (ii) are free to make economic choices, and (iii) act in their own self-interest. Market economies thrive on competition and people have to live by their decisions and accept the consequences of poor decision making. Market economies don't always lead to an efficient or optimum outcome as a result of various 'market failures'. The public or government sector intervenes to correct market failure, but their intervention may cause other inefficiencies.

**Equity:** The concept of equity refers to fairness. It is related to peoples' access to resources, goods and services and the distribution of income in an economy.

**Economic well-being:** Economic well-being is a multidimensional concept relating to the level of prosperity, quality of living standards, satisfaction or even level of happiness enjoyed by people in an economy.

**Interdependence, externalities and sustainability:** Economic resources can be finite in supply (e.g. fossil fuels) or renewable (e.g. solar energy). The use of resources is unsustainable if their use generates negative side-effects or externalities (e.g. climate change). Economic decisions made in one market are likely to affect outcomes elsewhere. The impact can be positive (e.g. getting vaccinated) or negative (e.g. using fossil fuels)

**Change and economic shocks:** The economic arena is dynamic. The factors affecting decision making are subject to regular change e.g. climate change and geopolitical tension.

**Microeconomics and Macroeconomics:** Economics approaches the issues caused by the relative scarcity of resources in two main ways. Microeconomics looks at the component parts of the economy. It is concerned with individual consumers, products or markets. Microeconomics is the branch of economics that analyses the operation of individual markets and whether the forces of demand and supply provide an efficient solution to the economic problem of relative scarcity. Macroeconomics looks at the economy as a whole. It is concerned with aggregates or totals.

### Student Activity 1.1

1. (a) List three main types or classes of economic resources.

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- (b) The economic problem of relative scarcity refers to the fact that there are \_\_\_\_\_ resources relative to \_\_\_\_\_ needs and wants.

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- (c) A person is given \$100. On what grounds should they (i) decide whether to spend or save the \$100 and (ii) if they choose to spend it, what to spend it on.

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(d) In the Australian economy, who or what makes the majority of economic decisions?

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(e) State the meaning of the terms 'production' and 'productivity'. Which of these terms is a measure of output and which is a measure of efficiency.

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2. State for each of the following whether they are macroeconomic or microeconomic concept?

(a) The average or general level of prices in an economy. \_\_\_\_\_

(b) The demand for a specific brand and model of a mobile phone.  
\_\_\_\_\_

(c) The price of a ticket for a concert. \_\_\_\_\_

(d) The percentage of the workforce who are unable to find a job.  
\_\_\_\_\_.

(e) The balance between export revenue and payments for imports.  
\_\_\_\_\_

3. Use the economic concepts of interdependence, externalities and sustainability to explain why people making economic decisions should be aware the consequences of the choices they make.

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## Part 2 – The concepts of opportunity cost and the economic problem

### The three questions generated by the economic problem

In order to solve the economic problem, society has to find a way to decide:

- what products, and how much of each product, to produce. This is referred to the 'what to produce' question, for example, should they produce more schools or more bombs.
- what resources will be used for the production. This is the 'how to produce' question, for example, should a product be made in a labour intensive or capital intensive way.
- who will consume the products once they have been produced. This is the 'for whom to produce' question, for example, will they be sold to the highest bidder or allocated in some other way.

## Opportunity Cost

Because resources are relatively scarce, choices have to be made about what to produce, how to produce and for whom to produce and all choices involve a trade-off. In the economic way of thinking choices should be made on the basis of opportunity cost. Opportunity cost is defined as the value of best alternative foregone or sacrificed when a choice or a decision is made. So in a world of relative scarcity, the real cost of an economic choice is not the price that has to be paid but the value of the best option gone without or surrendered and hence the value of the trade-off. If there is no opportunity cost, there is no sacrifice and the product is considered to be a free good rather than economic good

Note that accountants and economists consider costs in a different way. Cost to an accountant is the direct cost of the money paid for something e.g. the wages paid to the workforce or the price of raw materials and energy, whereas cost to an economist is calculated in terms of 'opportunity cost'.

### Student Activity 1.2

1. (a) What are the three questions that have to be answered by a country's economic system?

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- (b) Give an example from the Western Australian economy to show the relevance of each of these three key questions to decision that have been made.

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- (c) Give two examples of 'free goods'. In what sense are they free?

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- (d) Why is it easier for an accountant to work out the cost of research for a vaccine than an economist?

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## Part 3 – The economic decision-making processes of 'economic man' and real people

Individual decision-making is the foundation of most microeconomic models and theories. Traditional economic models and theories are based on the assumed behaviour of 'Economic Man'. 'Economic man', or Homo Economicus in Latin, is an imaginary economic agent, such as a consumer, producer or worker, who makes decisions following a rational or logical decision making process in order to maximise their economic welfare, for example, by

maximising satisfaction or utility as a consumer, maximising pay and job satisfaction as a worker or maximising profit as a producer. Note the gender biased terms used when traditional economics was developed.

This rational or logical process would follow a number of steps including:

- Identifying the goal.
- Identifying the problem.
- Defining the problem.
- Identifying the choices or options available.
- Gathering all the information needed about all the options available.
- Evaluating the advantages (benefits) and disadvantages (costs) of each of the options.
- Choosing the best option.
- Taking action.
- Reflecting and reviewing whether goal was achieved.

It is assumed that these economic agents (e.g. producers, consumers and workers):

- act in a perfectly rational or logical way and choose the option that maximises personal net benefit.
- are risk-averse and dislike uncertainty.
- have complete, good quality information, about, for example: products, product prices and factor (resource) prices.
- have the ability to calculate costs and benefits.
- have the ability to weigh up all the alternatives.
- have complete self-control, and can avoid making emotional or spur-of-the moment decisions
- act in their own self-interest and are, therefore, not altruistic or over generous.
- make decisions independently and do not compare their consumption to the consumption of others (i.e. there is no 'envy').
- make decisions at the margin, for example, by comparing extra benefit received from a purchase with the extra cost involved.
- experience diminishing marginal returns or utility, that is, the more they buy of something the less they want more of it.
- do not base their present and future consumption on their past consumption.

However, by incorporating ideas from psychology and other disciplines, behavioural economists have challenged traditional views about economic decision-making. They reject the view that economic agents are fully 'rational' decision-makers and highlight the importance of psychological biases, social and emotional factors. Hence they also dismiss many of the predictions of traditional models and theories. Unlike 'economic man', human beings may:

- operate in inefficient and imperfect markets and the lack information needed for rational decision making.
- satisfice, that is, make satisfactory choices without too much sacrifice. Their choices are 'good enough' choices rather the best possible choice.
- use heuristics (or mental short-cuts) when making their consumption decisions.
- suffer from cognitive biases (errors in thinking) in their behaviour.
- make decisions in a social context rather than independently of others.
- be altruistic and think of others
- react to the context in which a choice is made and how it is framed or presented.
- may be emotional rather than rational, and lack self-control.

The impact of behavioural economics will be examined further in Chapters 2 to 7.

## Student Activity 1.3

1. (a) Identify something you have purchased recently. Suggest six steps you might have taken in making your choice of purchase.

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- (b) Make a list of six factors you did consider in coming to your choice of purchase.

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- (c) Assess the extent to which the approach to your purchase was rational and the extent to which you followed the behaviour of an 'economic person'.

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2. Describe, using an example, the meaning of the following behaviours, why they are used and their impact on decision making. Do some research if necessary.

- (a) Satisficing.

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- (b) Errors in thinking (cognitive bias).

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- (c) Use of mental short cuts (heuristics).

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(d) Altruism.

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(e) Reaction to how the ‘offer’ of product purchased was framed or presented.

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(f) Emotion and lack of self-control.

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3. Explain why, if economic agents are often not fully rational decision makers, why economic theories based on rational decision making may still be worth studying.

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## Part 4 – The importance of economic models

- Economists use models or diagrams to organise thinking and promote understanding about economic issues. Often in the form of a diagram, a model provides a simplified version the real world in order to develop an understanding economic principles and explain, observe and predict economic behaviour.
- They are built on assumptions and are not intended to be realistic. Like the map of many cities’ train network, a model is not intended to be a mirror image of the real world, but something that highlights key factors information and provides insight.
- A good model is simple enough to be understood but complex enough to provide understandings. Models that are over-simplified are rightly open to criticism.
- The term ‘theory’ may be used instead of model but, strictly speaking, a theory is more abstract and a model is a more applied or empirical.

## Part 5 – The Production Possibility Frontier (PPF) model

- One model useful for understanding aspects of the economic problem and relative scarcity is the Production Possibility Frontier (PPF) model.
- An economy’s Production Possibility Frontier (PPF) shows the possible output levels of two goods that can be produced using the economy’s current resources or factors of production. The PPF, therefore, shows the maximum amount of one product that can be produced for each given level of output of another product. Each PPF is drawn on the assumption that resources and technology are fixed and only two goods are produced.
- The model helps show the opportunity cost of moving from one of the production combinations to another. It also shows potential output (or capacity). The level of actual output will be somewhere inside the frontier if the economy is not operating at full capacity.

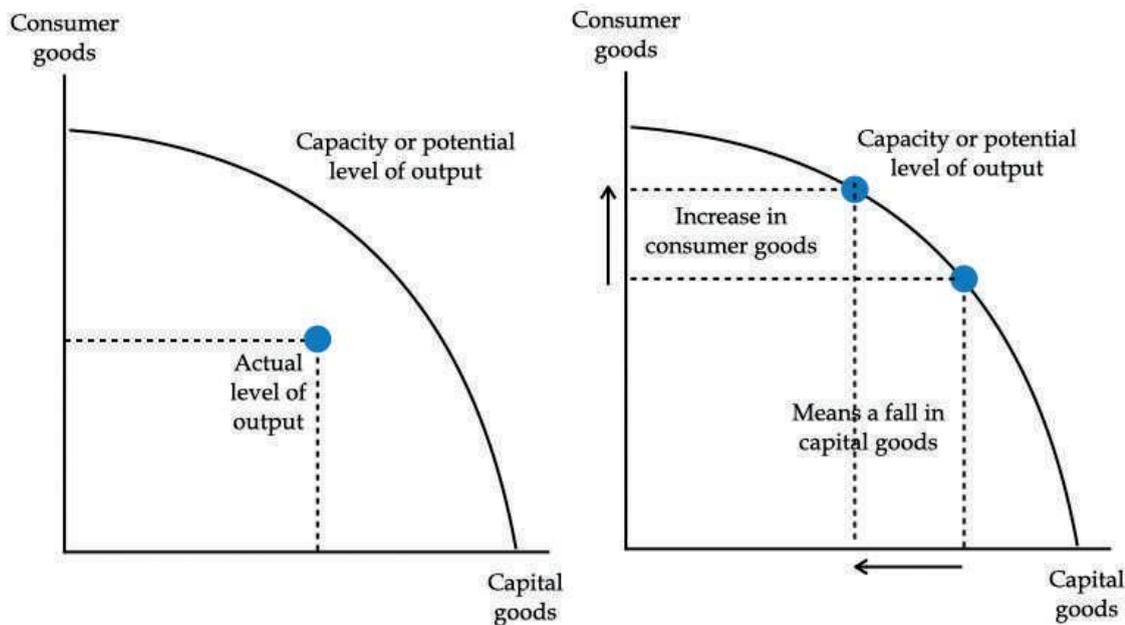


Figure 1.1: Production possibility frontiers

If all the economy's resources were equally useful or productive for making both consumer goods and capital goods the PPF would have been a straight line. Doubling the resources being used to make consumption goods would double their output.

However, as shown in fig 1.1 above, the PPF is often not a straight line. This is because the law of diminishing marginal returns is at work. This law states that, given a fixed amount of other resources to work with, the output of a new worker, for example, will be less than the output of the previous workers, because, for example, adding extra workers dilutes the amount of capital equipment available to each worker and the new workers may not have appropriate skills or training.

### Student Activity 1.4

1. A fast food outlet can provide the following combinations of pizza and calzone.

- (a) Sketch the PPF for the fast food outlet

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- (b) Does the level of opportunity cost change or stay constant as output levels are changed?

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- (c) Why, in this case, is opportunity cost constant?

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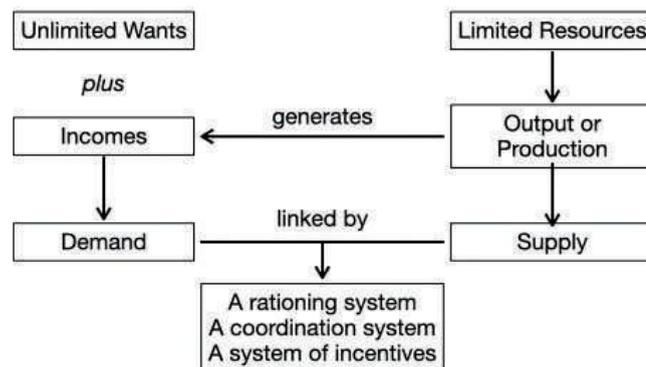
Option	Pizza output	Calzone output
A	30	0
B	25	10
C	20	20
D	15	30
E	10	40
F	5	50
G	0	60

Option	Pizza output	Robot output
A	30	0
B	29	1
C	25	2
D	15	3
E	0	4

2. A more unlikely firm has the following production opportunities.
- (a) What is the opportunity cost of making the first robot?
- 
- (b) What is the opportunity cost of making the second robot?
- 
- (c) Why in this case does the opportunity cost of making robots increase as output of robots increases?
- 
3. A tribe living on a tropical island includes five workers whose time is devoted either to gathering coconuts or to collecting turtle eggs. Regardless of how many other workers are engaged in the same occupation a worker may gather 20 coconuts or 10 turtle eggs in a day.
- (a) Sketch a PPF for the five workers.
- 
- (b) Why is the PPF a straight line? Why doesn't the law of diminishing returns operate in this situation?
- 
- (c) Suppose a new climbing technique is invented making it easier to harvest coconuts. Each worker can now gather 28 coconuts a day. There is no change in their egg collecting abilities. Draw a new PPF (add it on to the other one) to show how the production frontier has shifted.

## Part 6 – The characteristics of a market economy

- Many industrial economies, such as Australia, US, Japan, UK and Germany, solve the economic problem by operating a market economy. Other economies, such as China and Russia use a command or centrally planned economic system. In market economies, the key questions of what, how and for whom to produce are answered in a network of separate but interconnected markets.



**Fig 1.2:** Economies need a way of rationing, coordination and providing incentives

Markets allow buyers and sellers to undertake trade and exchange. All markets must have:

- Buyers (who create the demand)
- Sellers (who create the supply)
- A commodity (the thing that is being bought and sold)
- Voluntary exchange (people can choose whether or not to participate)
- A process, mechanism or arrangement through which buyers and sellers ‘meet’
- A price (set by the relative strength of market demand and market supply)

Market economies have a number of key features:

- **Property rights and private ownership:** People own, or have property rights, over resources and products. These property rights are enforced through contract law and the justice system. People are free to sell their property rights to the highest bidder.
- **Economic freedom:** Consumers and producers have the freedom to choose how they participate in the economy. Households are free to sell their resources to the highest bidder and to buy goods and services that maximise their satisfaction. Owners are free to make and sell whatever will be profitable.
- **Self-interest:** The main motivational force in a market economy is self-interest – for business it is the opportunity to make a profit and for an individual it is the opportunity to improve their standard of living.
- **Competition:** Market economies thrive on competition. For markets to work efficiently monopoly power must be restricted to avoid distortion of markets, prices and hence incomes and the allocation of resources and products.
- **Moral hazard:** People have to live by their decisions and accept the consequences of poor choices. In a pure or unmodified market economy they face ‘moral hazard’ in the form of low incomes, unemployment or bankruptcy because there is no safety net or government (social) insurance to bail them out.
- **Limited role of the Government:** Most societies operate modified market economies in which the government performs a restricted role. The Government has to protect property rights and enforce contract law, protect people with no resources to sell who would otherwise become destitute and regulate producers who try to monopolise markets by eliminating the competition. In addition, the government allocates resources directly in the case of public goods.

## Student Activity 1.5

1. Select a product of your choice. In the market for this product:

(a) Identify the buyers or consumers

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(b) Identify the sellers or producers

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(c) Are the buyers and sellers forced to participate or are they free to opt out?

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(d) How do buyers and sellers meet? What is the process of exchange?

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(e) What role does the market price play?

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2. Explain the importance of the following in the operation of a market economy.

(a)	Property rights	
(b)	Self-interest	
(c)	Moral hazard	
(d)	Competition	
(e)	Economic freedom	

3. Would Australia be able to produce more goods and services if the Reserve Bank of Australia printed more Australian dollars? Explain your answer.

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4. Select a photograph or video clip that shows the production of a product of your choice. What economic resources can be identified in the photo or video? Is there evidence of each of the four broad resource categories being used?

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5. Identify two examples of people who appear to have limited material need and wants?

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6. **Case Study: The ‘Gig Economy’**

People who work in the gig economy are self-employed freelance workers or working on short-term or ‘zero hours’ contracts. Like a musician who goes from one gig to the next, they get only paid for the ‘gigs’ they do, such as food delivery, a taxi ride, video and website production, renting out a room and tutoring, rather than earning wages. Economy activity in the gig economy involves the use of land, capital and enterprise as well as labour. Resources that would otherwise be idle, such as a spare bedroom, a car, or a parking space near sports and concert venues, airports or shopping centres, are employed in the gig economy on an ad hoc basis. Characteristically workers in the gig economy don’t have typical, stable employment and are self-employed, independent contractors undertaking temporary or short term contracts.

Factors behind the growth of the gig economy include the overall growth of the service sector and the development of computer technology that links buyers with suppliers, allows people to work away from a traditional workplace, and shop on-line. There are fewer full-time opportunities for work. Workers in the gig economy may be motivated by tax evasion too.

The gig economy is a convenient way of introducing flexibility into the labour market, allowing people to control how often and how long they work. It increases the use of economic resources and raises the labour force participation rate and reduces the unemployment rate. It may lead to a rise in productivity or efficiency because employers only have to employ and pay people when there is work to do. They don’t incur staff costs when there is no demand.

However, the gig economy creates opportunities for businesses to exploit workers, and avoid the provision of the entitlements given to traditional workers (such as leave allowances, superannuation and sick pay). Gig economy suppliers might take business away from traditional suppliers who have to conform to more regulations.

### **Discussion Points**

1. How does the the gig economy increase the availability of resources in an economy?
2. Discuss the impact of the gig economy on the following groups: (a) Workers operating in the gig economy, (b) Workers employed by conventional, traditional suppliers; (c) The Government; (d) Consumers, (e) The business sector, (f) Entrepreneurs.

## EXAM TECHNIQUE

### Multiple Choice Questions

STEP 1: Read through the question carefully and study any diagrams or tables that are included.

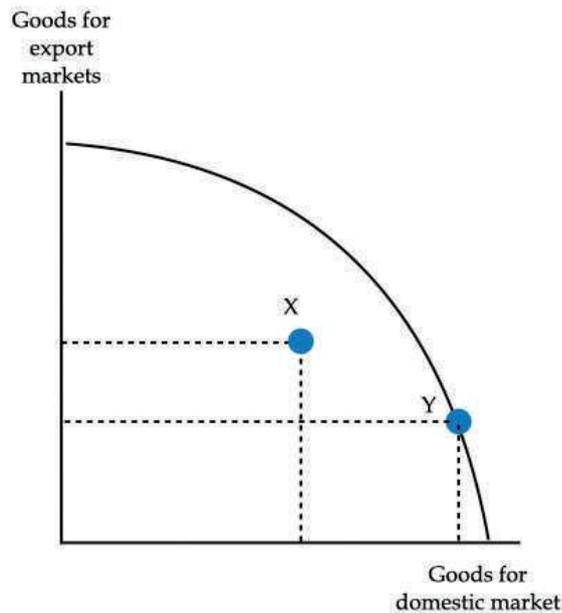
STEP 2: Without looking at the alternative answers, work out from the information provided what correct answers you could be offered, and what answers would definitely be incorrect.

STEP 3: Now carefully read through the alternative answers provided. Eliminate answers that are clearly wrong.

STEP 4: Select the correct answer.

Now attempt the following questions. Select your answers before checking below.

- Which of the options provided is an accurate explanation for a move from point X to point Y on the production possibility curve diagram?



**Fig 1.3:** Production Possibility Curve

- A more efficient allocation of resources
  - An increase in the level of international trade
  - Technological progress
  - Inflows of skilled migrants
- The existence of scarcity in an economy implies that:
    - There are no free goods
    - There are no goods provided by the government
    - Individuals must make choices
    - There has been a misallocation of resources

## Answers

Question 1		
A	CORRECT	Any production point on the PPF is economically efficient. Resources are being wasted if the production point is inside the PPF
B	INCORRECT	There is less production of export goods suggesting a decrease in trade
C	INCORRECT	This would cause the whole PPF to shift outwards
D	INCORRECT	This would cause the whole PPF to shift outwards

Question 2		
A	INCORRECT	There may be no opportunity cost for some specific goods – there is supply to meet all demand at a zero price
B	INCORRECT	Governments have limited resources and make choices e.g. between transport infrastructure and health services
C	CORRECT	Relative scarcity forces individuals to make decisions. Individual decision-making is at the heart of microeconomics
D	INCORRECT	The problem of scarcity exists whether or not resources are being used efficiently

SO YOU THINK YOU UNDERSTAND THIS INTRODUCTION TO ECONOMICS	
Two sides to the concept of relative scarcity 1 2	Basis of opportunity cost
Focus of microeconomics  Focus on macroeconomics	Three features of economic models
Three key questions answered by an economic system 1 2 3	Two uses of Production Possibility Frontier models 1 2
Two values compared when deciding what to buy 1 2	Five features of Australia's economic system
Two reasons why consumer choices may be subjective rather than rationally objective 1 2	

*See answer section for completed summary*

## REALITY CHECK

1. The existence of scarcity in an economy implies that:
  - (a) there are no free goods in the economy
  - (b) resources are mainly allocated by government departments
  - (c) individuals must make choices
  - (d) there has been a misallocation of resources
  
2. The central purpose of economic activity is:
  - (a) to reduce the costs of production to the lowest level possible
  - (b) to satisfy consumers' needs and wants
  - (c) to make products as efficiently as possible
  - (d) to save scarce resources
  
3. Which one of the following is an economic resource or factor of production?
  - (a) The profits earned by a mining company.
  - (b) Iron ore deposits.
  - (c) A bank loan.
  - (d) Labour productivity.
  
4. Which of the following is classified as land or a natural resource?
  - (a) A fishing boat.
  - (b) Fishing nets.
  - (c) The fishing boat captain.
  - (d) Fish in the ocean.
  
5. Which of the following leads to 'relative scarcity'?
  - (a) Limited resources and unlimited wants.
  - (b) Infinite resources and finite wants.
  - (c) Low incomes and high prices.
  - (d) Lack of knowledge about the quality of products produced.
  
6. The production possibility frontier model shows:
  - (a) combinations of two products that an economy can produce using all its resources
  - (b) that needs and wants are less than resources
  - (c) shows how much of two goods should be produced
  - (d) shows the combination of resources needed to produce two products
  
7. Economic models:
  - (a) are a mirror image of the real world
  - (b) help to promote understanding of economic issues
  - (c) are based on economic data
  - (d) ignores key factors in order to produce a solution
  
8. Which of the following describe the role of a country's economic system?
  - I. To provide a rationing system
  - II. To provide a system that coordinates economic activity
  - III. To provide incentives to producers

(a) Option I only; (b) Option I and II only; (c) Option I and III only;  
(d) Options I, II and III.

9. In a market economy the majority of choices are made by:  
(a) the government; (b) producers; (c) consumers; (d) in markets
10. The main motivation force in a market economy is:  
(a) self-interest;  
(b) the well-being of other people;  
(c) buying as much as possible;  
(d) happiness.



## SYLLABUS POINTS

- The law of demand
- The relationship between individual and market demand schedules and curves
- The effect of changes in price on quantity demanded, i.e. movement along the curve
- Non-price factors affecting demand
  - Income, i.e. effect on normal and inferior goods
  - Population
  - Tastes and preferences
  - Prices of substitutes and complements
  - Expected future prices
- The effect of changes in non-price factors on demand, i.e. increase or decrease in demand

OVERVIEW – DEMAND	
1	Market economies are full of markets. These markets are involved in a constant process of adjustment that, for the most part, provides an acceptable solution to the economic problem of relative scarcity and the questions of what, how and for whom to produce. Market prices and levels of output are set as a result of the interaction of the forces of demand and supply.
2	Demand is the quantity of a product that consumers are willing to buy at a given price level over a period of time.
3	The term individual demand refers to the quantity of good or service demanded by an individual household, at a given price and over a given period of time. Market demand is the sum of the individual demand from all households in the market.
4	The Law of Demand suggests that there is an inverse relationship between a product's price and the quantity demanded. The effect of a change in price on quantity demand, other things being equal, is shown by a movement along the demand curve for the product.
5	The strength of the relationship between price and quantity demanded varies from market to market. The term 'price elasticity' is used to describe the strength of the reaction of consumers to a change in the price.
6	There are many non-price factors that affect the level of demand at any given price level. Important non-price factors are income levels, population demographics, tastes and preferences, prices of related products and expectations of future prices. and changes in related markets.
7	The position of the demand curve shifts when there is a change in a non-price factor. An increase in demand is shown by a shift to the right and a decrease in demand by a shift to the left.
8	When income increases demand increases for normal products but decreases for inferior products.
9	Demand for a product falls if the price of a substitute product falls. Demand for a product falls if the price of a complementary product rises.
10	In some situations changes to non-price factors can create the impression that there are exceptions to the Law of Demand.

## Part 1 – The Law of Demand

The Law of Demand states that there is an inverse relationship between the price of a product and quantity of the product demanded. In most cases, when the price of a product rises consumers purchase less of this product and when the price falls consumers purchase more. There are two reasons for this.

- **The substitution effect:** When a product becomes more expensive it no longer provides the same value for money. If there are alternative products available consumers may switch their purchases to these substitutes.
- **The income effect:** When the price of a product goes up, consumers buying the product suffer a fall in the purchasing power or real value of their income. For example, when the price of petrol rises drivers spend more on petrol and have less income left to spend on other products. The rise in the price of petrol has reduced their real income.

## Part 2 – Consumption choices

A rational consumer will demand (or be willing to pay for) a product if the benefit they expect to receive from the product is equal or greater than the price they have to pay. For example, if a Cherry Ripe costs \$2.50 a consumer will buy one if the Cherry Ripe provides them with at least \$2.50 worth of benefit, satisfaction or utility. If the price of the Cherry Ripe rises to \$3, other things being equal, the consumer must change their spending in a way that increases the level of benefit, satisfaction or utility they get from a Cherry Ripe. An economic law, known as the Law of Diminishing Marginal Utility, suggests they can raise the level of benefit, satisfaction or utility if they reduce the level of Cherry Ripe consumption. The table below shows the process a rational consumer is assumed to follow when they make a consumption decision.

Steps	Explanation
Need/Want recognition	Consumers realise that they have a need for or want something.
Information search	Consumers find out about the products they can purchase that will satisfy their need or want e.g. through print media, internet, product reviews, friends or social media influencers.
Evaluation of alternatives	Consumers work out a 'best buy' option from the information they have gathered. They calculate a marginal utility to price ratio (MU/P). They realise that MU/P must be the same for all products if their utility is to be maximised. They may base the decision on one or more product features. They may need to trade-off one feature with another, e.g. pay more for higher quality.
Purchase	The final product selection may be influenced by the ease or difficulty of making the actual purchase, e.g. is the product available immediately and can it be bought safely and reliably on line.
Post-purchase	Consumers evaluate their product choice and use this evaluation to influence future purchase decisions.

The findings of behavioural economists show real people do not follow this process systematically, if at all. The concept of 'bounded rationality' is used to describe the scaled-down or limited way people determine whether or not a purchase should be made. In the real world consumers use 'rules of thumb' or 'mental short cuts', known as heuristics, to simplify and speed up the consumption decision-making process. Unlike the rational consumers of economic theory, real consumers:

- Operate in inefficient and imperfect markets and the lack information needed for rational decision making
- Satisfice (make 'good enough' choices) rather than maximise (make the best possible choice)
- Use heuristics (or mental shortcuts) when making their consumption decisions
- Suffer from cognitive biases (errors in thinking) in their behaviour
- Make decisions in a social context rather than independently of others
- Can be altruistic and think of others
- React to the context in which a choice is made and how it is framed or presented
- May be emotional rather than rational, and lack self-control

Examples of mental shortcuts or heuristics include:

- Making default purchases, i.e. making repeat purchases and carrying on as before
- Anchoring, i.e. placing undue emphasis on limited information which may or may not be relevant to judge whether a deal or offer is good or bad
- Herd behaviour, i.e. copying the choices made by other people rather than making judgements themselves

While the findings of behavioural economists challenge a number of microeconomic laws and theories, they do not completely discredit the basic relationship between price and quantity demanded stated in the Law of Demand.

### Part 3 – The relationship between individual demand and market demand

The Law of Demand works at an individual and market level. The individual consumer is only one of many people participating in the market. Market demand for a Cherry Ripe includes the individual demand of all the participants in the Cherry Ripe market. The market demand curve is simply the horizontal addition of all the individual demand curves, so the Law of Demand operates at both the individual and market level.

### Part 4 – The strength of the Law of Demand

The reaction of quantity demanded to a change in price will vary from product to product.

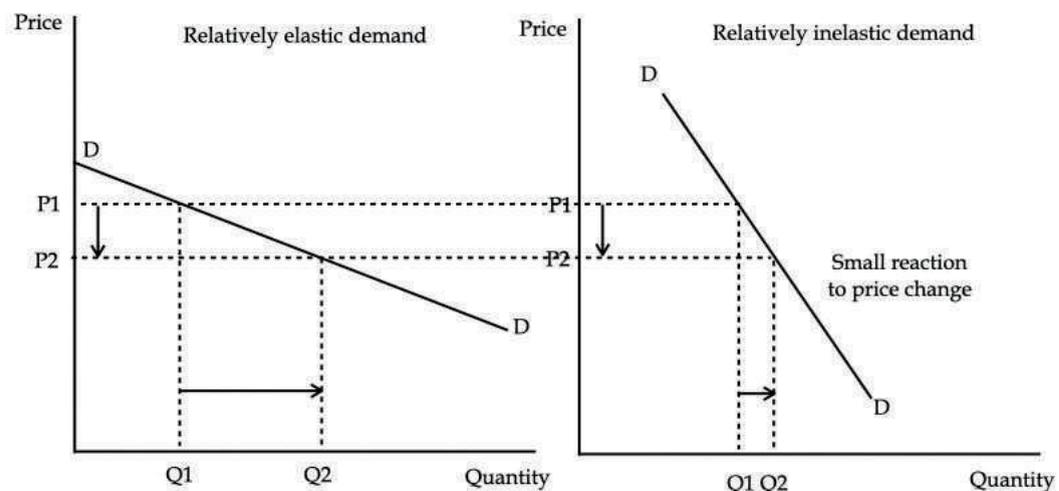


Fig 2.1:

Demand is said to be relatively elastic if there is a relatively strong response in quantity demanded to a price change. Demand is said to be relatively inelastic if there is a relatively weak response in quantity demanded to a price change. Elasticity is covered in more detail in Chapter 5.

Given the overall price effect is the sum of a substitution and income effects it is reasonable to assume that two important factors that affect the strength of the law of demand (or elasticity) are:

- Availability of substitutes – how essential is it that the consumer buys the product
- Proportion of income spent on the good – what is the impact on real income when the price changes

## Student Activity 2.1

1. What is the law of demand? What does the law of demand predict will happen to quantity demanded as the price of the product goes up?

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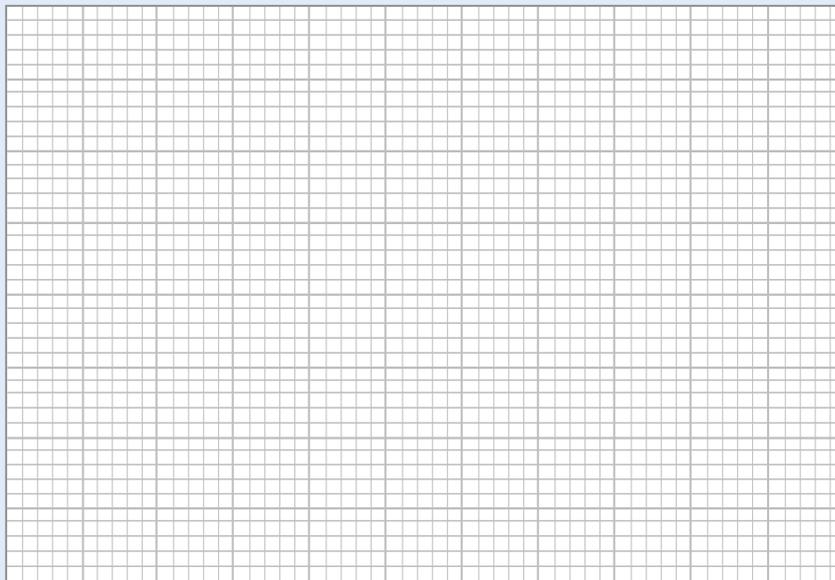
2. What factors determine the slope of a market demand curve? What information does the slope of a market demand curve provide?

Price of milk	Demand (millions of litres per month)
1.50	4
1.25	6
1.00	8
0.75	10
0.50	12
0.25	14

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3. The table shows the market demand schedule for milk.



- (a) Draw the demand curve for milk.
- (b) What is the level of spending (or consumer outlay) on milk when the price of milk is \$1.25 a litre? Shade in a rectangle on the diagram that shows this outlay.

- (c) What happens to producers' revenue when the price of milk is cut to \$1 per litre? Shade in the 'revenue box' on the diagram to show this. Comment on a decision by producers to reduce the price of milk from \$1.25 to \$1 per litre.
4. The table shows the demand schedule for three consumers. They are the only people participating in this market. Calculate the level of demand in the market as a whole. Sketch the individual and market demand curves.

Consumer A		Consumer B		Consumer C		Market as a whole	
Price	Quantity Per week	Price	Quantity Per week	Price	Quantity Per week	Price	Quantity Per week
4	0	4	0	4	1	4	
3	2	3	1	3	3	3	
2	4	2	2	2	5	2	
1	6	1	3	1	7	1	
0	8	0	4	0	9	0	

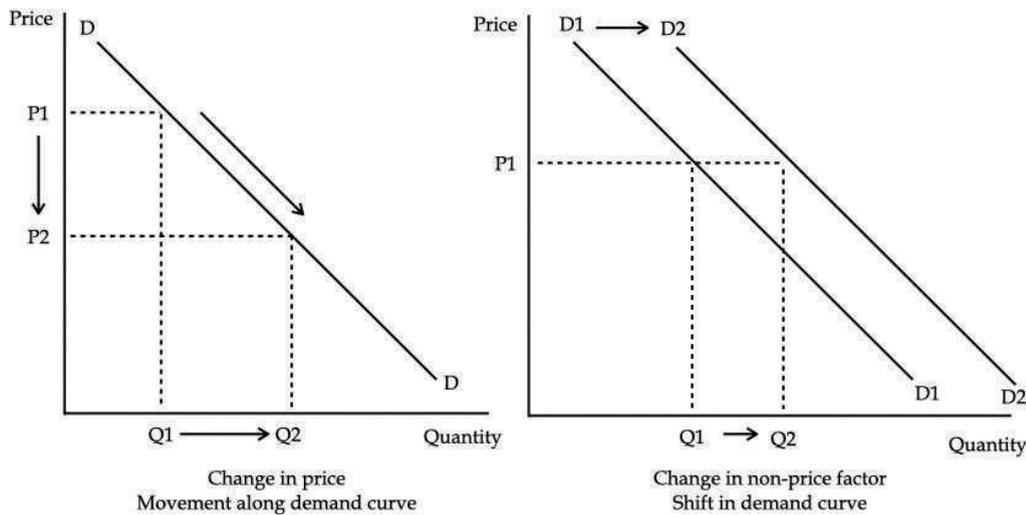
## Part 5 – Non-price factors that affect market demand

There are many non-price factors that affect the level of market demand. A change in a non-price factor shifts the position of a product's demand curve. Five important non-price factors are:

- **Incomes:** In most cases, when incomes rise, the market demand for a product also rises. Products that react in this way are described as normal goods. However, the market demand for some products falls as incomes rise. These are typically cheap, low quality products that people prefer not to buy if they can afford to spend little more. Products, where demand reacts in this way are described as inferior goods.
- **Tastes, fashion or preferences:** Tastes, fashion or preferences develop through, convenience, custom and social attitudes, amongst other things. For example, an increase in the emphasis on health and fitness has increased the demand for products such as jogging equipment, gym memberships and personal trainers, health foods and so on, but decreased the demand for cream cakes, butter and cigarettes.
- **Prices of related products:** Most markets are interconnected. A disturbance in one market is likely to upset equilibrium in many other markets. For example a rise in petrol prices might lead to greater use of public transport (if these are considered to be substitute ways of getting about) but reduce the demand for gas guzzling 4WD vehicles (because petrol and cars are complementary products)
- **Expectations of future price changes:** Buyers may delay purchases if they expect prices to fall. For example, if there is a trade agreement between Australia and Japan that will lead to a fall in tariffs on imported electrical goods consumers might postpone buying these products until the tariffs cut is reflected in lower prices in shops.
- **Population or demographic changes:** Changes in the size and age distribution of the population affects the demand for certain products. For example, as Australia's population ages there has been an increase in the demand for age and health care services.

## Part 6 – The effect on demand curves of a price change and a non-price change

Demand curves show the relationship between quantity demanded and the price of the product, based on the assumption that everything else that affects demand stays the same.



**Fig 2.2:** Movements along and shifts in the demand curve

If the price changes, but nothing else that affects demand changes, the outcome is shown by a movement along the same demand curve. This is described as a contraction or expansion in the quantity demanded. If non-price factors that affect demand change (i.e. other things are not equal anymore) the demand curve shifts to a new position. This is described as a decrease or increase in demand.

### Student Activity 2.2

1. Choose a specific good or service. Write down four non-price factors that are likely to affect the demand for your chosen product and the reason for this effect.

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2. Complete the table by adding the appropriate terms.

	Description	Term
(a)	Rise in income leads to a rise in demand	
(b)	Rise in income leads to a fall in demand	
(c)	Fall in price of another good (e.g. Mars Bar) leads to fall in the demand of this good (e.g. Cherry Ripe)	
(d)	Fall in price of another good (e.g. torch) leads to rise in the demand of this good (e.g. batteries)	
(e)	Fall in price of another good (e.g. economics textbook) leads to no change in the demand of this good (e.g. a bicycle)	

3. What is the golden rule about movement along and shifts in a demand curve?

(a)	When do demand curves SHIFT?	
(b)	When is there a MOVEMENT ALONG a demand curve?	

4. State the correct description the following changes.

	Description	Correct Term
(a)	Impact on demand of a rise in price of the product	
(b)	Impact on demand of a fall in the price of the product	
(c)	Rise in demand caused by a non-price factor	
(d)	Fall in demand caused by a non-price factor	

5. Describe the impact of the following events on the demand curve for the product stated.

	Product	Event	Impact on demand curve
(a)	SUV's (4WD's)	Rise in fuel prices	
(b)	Plums	Fall in the price of apples	
(c)	Air travel	Rise in airport taxes and charges	
(d)	Overseas holidays	Increase in wealth	
(e)	Australian Dollar	Increase in inwards foreign investment	
(f)	Restaurant meals	Fall in incomes	
(g)	Postage stamps	Email, SMS	
(h)	Postage stamps	Christmas	
(i)	Organic food	Rise in healthy living	
(j)	Electricity	Rise in the price of gas	

## Part 7 – Exceptions to the Law of Demand

There are at least four situations when the law of demand doesn't appear to hold true. In these situations a rise in the price of a product appears to cause an expansion in quantity demanded rather than a contraction.

- **High Status Goods, Goods of Ostentation or 'Veblen Goods':** The value or benefit of these products comes from their exclusivity or 'snob value'. Buyers are undertaking 'conspicuous

consumption', that is the benefit comes from being seen consuming the good. The higher the price of these goods the more exclusive they become and the more benefit people get from being seen to own them.

- **Giffen Goods:** Giffen Goods are inferior, staple goods. The demand for inferior goods rises as incomes fall. Staple goods, such as basic foods, are goods that take up a large share of a person's income especially when incomes are low. The name Giffen Good comes from an economist who observed what happened in 19th century Ireland. He saw that when the price of potatoes was low people had some spare disposable income and switched to better (superior) types of food. When potato prices were high, however, they had no income left over for other foods so they had to rely on potatoes. Today rural Chinese farmers may experience a similar problem with rice.
- **Experience Goods:** Consumers often face an 'information gap' when trying to decide what product to buy. Experience goods are 'difficult to judge the quality' goods. For example, it is difficult to tell which brand of LED TV is best. One way of making the choice is to assume that there is a positive correlation between price and quality. A high price TV's might be considered to be the higher quality TV's and hence the TV to buy. Consumers of health products face a similar problem, not knowing the quality of the product before they experience it. Is Blackmores the market leader in health foods because they are better or just because they are more expensive?
- **Bandwagon Effects:** A price change for a share in company, for example, may be seen as an indication of further price changes to come. A rational consumer might, therefore, increase demand, in order to be well positioned for future price rises. Similarly, a fall may be considered a sign of more falls to come so it is better to sell before the further fall takes place.

The apparent breakdown of the Law of Demand in these cases occurs because there is a change in a non-price factor triggered by the change in price. The relevant non-price factors are respectively (a) change in exclusivity, (b) change in real income, (c) change in quality and (d) expectations of further price changes.

## Part 8 – Joint demand

There is said to be joint demand for products when the demand for two or more products is interdependent, usually because they are used together or are complementary products. The demand for one product is derived from the demand for the other product. For example, the demand for ink cartridges depends on the number of printers in use. This is why printers are sold as loss leaders to increase demand for ink cartridges.

## Part 9 – Derived demand

Demand is said to be derived demand when the demand for a resource or intermediate good depends on the level of demand for another intermediate or final good. For example, the demand for geologists is linked to demand for mineral commodities such as iron ore, copper and gold. In this case there is joint demand for geologists and mineral commodities.

## Part 10 – Composite demand

Products that have multiple uses are said to have composite demand. For example, the overall demand for crude oil depends on the separate demand for oil used to produce petrol, for oil used to make tyres, for oil to make plastic, oil to make detergent and so on. Each market segment can be affected by different non-price factors.

## Student Activity 2.3

1. What normally happens to quantity demanded when the price of a product rises? What is the shape of a normal demand curve?

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2. What basic condition or assumption, made when a demand curve is drawn, is broken in the cases of 'perverse' or upward sloping demand cases explained in the text?

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3. Complete the following table covering the apparent exceptions to the law of demand.

	Description	Examples	Explanation
Veblen good			
Giffen good			
Experience good			
Bandwagon good			

4. Which type of behaviour (Giffen, Veblen, Experience, Bandwagon) is the most likely to occur in the real world? Do these examples discredit the law of demand?

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5. Complete the table about joint demand, derived demand and composite demand.

	Description	Examples	Significance
Joint demand			
Derived demand			
Composite demand			

6. MINI CASE STUDY – Soaring demand for sugar fuels land grabs  
(Oxfam Australia Media)

An Oxfam report '*Nothing sweet about it: How sugar fuels land grabs*' highlights examples of land grabs and disputes linked to companies that supply sugar for Coca-Cola and PepsiCo products, and allegations of land disputes among suppliers of Associated British Foods – whose brands include Twinings and Ovaltine. 31 million hectares, an area bigger than Victoria, is already being used to grow the world's sugar, much of it in poor countries. Last year, the world produced 200 million tonnes of sugar, with the food and drinks industry accounting for more half of that. Sugar production is expected to rise by 25 per cent by 2025.

- (a) Define the terms 'derived demand', 'joint demand' and 'composite demand'
- (b) Using the information in the text, apply these three concepts to the demand for sugar.

SO YOU THINK YOU UNDERSTAND DEMAND	
State the law of demand. Sketch diagram.	Meaning of joint demand
Two reasons for inverse relationship between price and quantity demanded 1 2	Meaning of derived demand
Two factors affecting strength of law of demand 1 2	Meaning of composite demand
Terms for movement along demand curve 1 When price increases = 2 When price decreases =	Terms for shifts in demand curve 1 Shift to the right = 2 Shift to the left =
Five non-price factors that affect demand 1 2 3 4 5	Four apparent exceptions to the law of demand 1 2 3 4

## REALITY CHECK

1. Which one of the following is an example of composite demand?
  - (a) The demand for labour is derived from the demand for the good which that labour produces
  - (b) The demand for petrol increases when roads are improved
  - (c) The demand for strawberries increases when the price of strawberries falls
  - (d) Bricks are in demand for both house building and factory building.
  
2. Which one of the following best describes the relationship between the demand for pilots and the demand for air travel?
  - (a) Composite demand
  - (b) Derived demand
  - (c) Joint demand
  - (d) Complementary demand
  
3. The demand curve for a product will shift to the right when:
  - (a) The price of a close substitute decreases
  - (b) There is an increase in the price of a complementary good
  - (c) Consumers expect that the price of the good is about to fall
  - (d) The real income of consumers of the product falls
  
4. Which of the following will lead to an increase in demand for butter?
  - (a) A decrease in the price of complementary goods to butter.
  - (b) A successful advertising campaign for a butter substitute.
  - (c) A decrease in the population.
  - (d) A decrease in real wages.
  
5. Other things being equal, demand curves slope downwards from left to right because
  - (a) Higher prices lead to higher costs.
  - (b) Lower prices lead to higher output.
  - (c) Lower prices lead to higher demand.
  - (d) Higher prices lead to higher profits.
  
6. When a market is disturbed by an increase in demand, at the existing price there is now:
  - (a) A shortage and the price will rise
  - (b) A surplus and the price will fall
  - (c) A shortage and the price will fall
  - (d) A surplus and the price will rise



### SYLLABUS POINTS

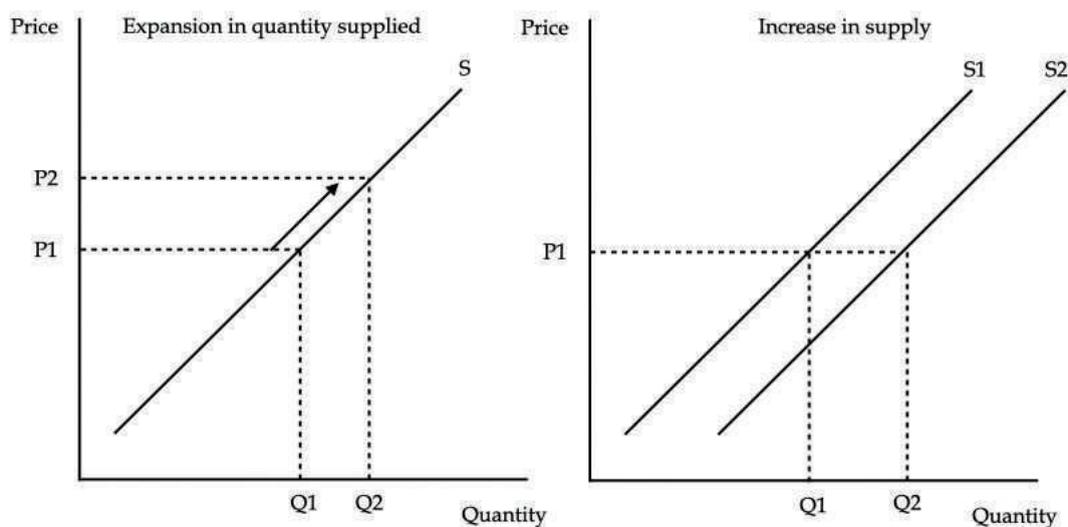
- The law of supply
- The relationship between individual and market supply schedules and curves
- The effect of changes in price on quantity supplied, i.e. movement along the curve
- Non-price factors affecting supply
  - costs of production
  - expected future prices
  - number of suppliers
  - technology
  - events affecting the availability of resources and the supply chain
- The effect of changes in non-price factors on supply, i.e. increase or decrease in supply

## OVERVIEW – SUPPLY

1	Market economies are full of markets. These markets are involved in a constant process of adjustment that, for the most part, provides an acceptable solution to the economic problem of relative scarcity and the questions of what, how and for whom to produce. Market prices and levels of output are set as a result of the interaction of the forces of demand and supply.
2	Supply is the quantity of a product that producers are willing to offer for sale in a market at a given price over a period of time.
3	Individual supply refers to the output of a single supplier or producer. Market supply is the total supply of all the suppliers or producers in the market.
4	The Law of Supply suggests there is a positive or direct relationship between the price of a product and the quantity supplied.
5	The effect of a change in the price of a product on supply is shown by a movement along the supply curve.
6	The strength of this relationship (or elasticity of supply) depends on the complexity of production processes, the availability of resources and the time period involved.
7	There are a number of non-price factors that affect supply. Some important non-price factors are changes to technology, changes to input prices or costs of production, expectations of future price changes, the level of government regulation, supply chain issues and the number of suppliers in the market.
8	If there is a change in a non-price factor affecting supply there is a shift in the position of the supply curve.
9	Supply shocks (as well as demand shocks) can lead to a shortage or surplus, and an automatic (or invisible) adjustment to prices, the quantity traded and the allocation of resources.
10	Markets are interconnected. A change in one market will cause a ripple or domino effect across many other markets.

### Part 1 – The Law of Supply

The Law of Supply states that, in most cases, there is a positive or direct relationship between the price of a product and the quantity of supply. When the price of a product rises producers increase the supply of the product to this market and when the price falls producers reduce supply. This happens because higher prices mean higher profits for producers assuming the rise in production does not increase unit costs. A fall in prices may mean a fall in profits and some firms being forced to close down.



**Fig 3.1:** Movement along and shifts in a supply curve

## Part 2 – The slope of the supply curve

A steeply sloping supply curve suggests that it is difficult, in a given period of time, to increase supply when the price of the product increases. Supply is said to be relatively inelastic. Supply is inelastic where, for example, expanding production is complex, expensive or constrained by a lack of resources. The time period is important because, given time, it is possible to increase the supply of most products. For example, during the pandemic demand for a testing kits was high but it took while for them to become generally available.

## Part 3 – Non-price factors that affect market supply

Non-price factors that affect supply include:

- **Costs of production or input costs:** Lower input prices, such as the cost of labour and energy, allow firms to profitably increase supply at each price level. If firms can improve the efficiency with which they operate through a rise in productivity they will be able to increase supply.
- **Technology:** Improved technology is likely to increase the production capacity of suppliers and reduce their unit costs of production. Producers are able to profitably increase supply at each price level. For example, improved transport technologies have reduced the costs of international trade increasing the ability and willingness to supply products around the world.
- **Expected future prices:** If producers expect market prices for a product to change in the future they may alter production and supply to take advantage of the future price change.
- **Number of suppliers:** If a producer has monopoly power in a market they may restrict supply in order to keep the price of their product high.
- **Government regulations:** Government rules and regulations increase the cost of production or in some cases rule out any production at all. Removal of regulations has the opposite effect. For example, the reduction of tariffs on imported goods from China has increased the supply of products such as toys, electrical goods and clothing in Australian markets.

## CASE STUDY – LEAN MANAGEMENT AND PRODUCTIVITY

- The level of productivity is the level of output divided by the level of resource input. Productivity is a measure of productive efficiency. There are two common measures of productivity, labour productivity (GDP/hours of labour used) and multifactor productivity (GDP/hours of labour plus quantity of capital used).
- At the microeconomic level, improving productivity is important for producers seeking to reduce production costs and raise profits. An improvement in productive efficiency will shift the producer's supply curve in a downward direction, as any given level of output can be made at lower unit or average cost.
- One way a producer can improve productivity is through 'lean management'. The 'lean' approach, based on the Toyota Management System (TMS), provides a set of tools that can be applied to all aspects of a business and stages along the value-adding stream. These tools include identification of wasteful practices that increase production costs and the use of management techniques to eliminate waste, reduce costs and hence promote productivity and competitiveness.
- The key to 'lean' management is the elimination of waste so that the value-adding stream flows smoothly. The original 'lean' TMS defined seven areas of waste, with an eighth area being added later. These 'wastes' are seen as symptoms of inefficiency or clues to help in the detection of non-value adding practices. The eight areas where waste occurs are:
  - **Waste of transportation:** Unnecessary movement of people, components, sub-assemblies, packaging or anything else needed for production.
  - **Waste of inventory:** Having unnecessary levels of inventory or stocks. Stocks cost money, for example, through the provision of space for storage, tying up cash flow and the use of people to track and rotate the stock.
  - **Waste of motion and movement:** Moving further than needed e.g. to get components and complete tasks.
  - **Waste of waiting:** Waiting for parts, waiting while a machine is down and waiting for a process to finish.
  - **Waste of over-production:** 'Pull' production involves making only what the customer wants and making it when the customer wants it. Making for stock is known as 'Push' production. True pull is not always easy. Ideally, if a customer orders a product, that is when it is made.
  - **Waste of over-processing:** Over-engineering a product and doing tasks that are not necessary e.g. extra coats of paint or trimming.
  - **Waste of defects:** Defects lead to rework, salvage and scrap. If defective goods reach customers, the reputation of the business will suffer. Products should be made 'right the first time'.
  - **Waste of untapped human resources:** Not allowing your employees to their full potential.

Some principles of 'lean' management designed to eliminate waste are:

- **Kaizen:** Continuous improvement through the involvement and training of workers
- **'Just-in-time'** rather than 'just-in-case' stock control and production
- **Built-in quality control** to eliminate waste and scrap

### Discussion Points

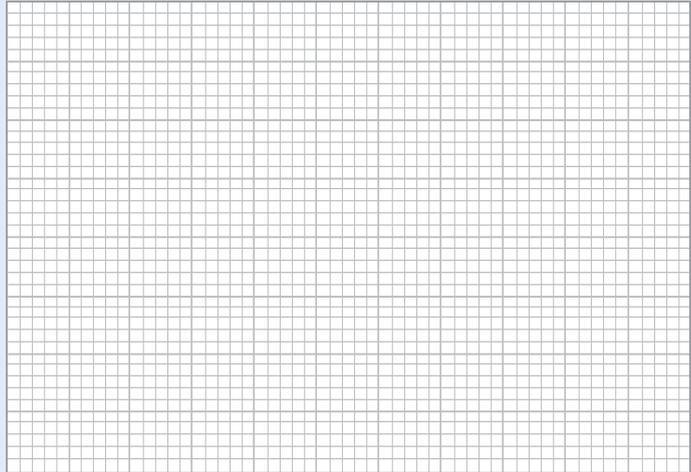
1. **What inefficiencies or areas of waste are highlighted in each of the following examples?**
  - (a) A warehouse full of stock.
  - (b) An employee who is rushing around looking very busy.
  - (c) An employee standing by a machine that is being repaired.
  - (d) A skip of defect products ready to be scrapped.
  - (e) A product that is designed to exceed the expectations of the customer.
  - (f) Components and sub-assemblies being moved between different factory sites.
  - (g) Workers doing repetitive tasks without the need to think about what they are doing.
  - (h) A storeroom full of spare parts just in case vehicles or machinery breaks down

2. Using the 'lean' areas of waste or inefficiency as a guide, identify and analyse an activity or process that you undertake and explain three ways your productivity could be increased.

### Student Activity 3.1

1. (a) Use the data in the table below to draw a supply curve for milk.

Price of milk (\$)	Supply of milk (\$)
1.50	25
1.25	20
1.00	15
0.75	10
0.50	5
0.25	0



- (b) State why supply curves display a positive relationship between price and quantity supplied?

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2. Complete the table below about the 'golden rule' of supply curves.

When do supply curves SHIFT?	
When is there a MOVEMENT ALONG a supply curve without a shift?	

3. Complete the table below by stating the correct terminology for the descriptions given.

Description	Correct Term
Impact on supply of a rise in price of the product	
Impact on supply of a fall in the price of the product	
More supply due to a change in a non-price	
Lower supply due to a change in a non-price factor	

4. Complete the following table for the stated products and events.

Product	Event	What happens to supply curve?	Description of supply change
Gold	Rise in gold price		
Wheat	A good harvest		
Private schooling	Rise in teachers' pay		
Cars	Better robotics		
Sugar	Fall in sugar price		
Houses	House price rises		
Plastic	Rise in the price of oil		
Workers	Rise in population		

5. Think of a product where supply is adjusted very quickly when demand rises. What factors make this adjustment possible? What will be the slope of the supply curve for this product?

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SO YOU NOW THINK YOU UNDERSTAND SUPPLY	
State the law of supply. Sketch diagram.	Four non-price factors that affect supply 1 2 3 4
Reason for positive relationship between price and quantity supplied	Terms for shifts in supply 1 2
Two factors affecting strength of law of supply 1 2	Two exceptions to the law of supply 1 2
Terms for movement along supply curve 1 When price increases = 2 When price decreases =	

*See answer section for completed table*

## REALITY CHECK

1. A shift to the right of the supply curve for a product can be caused by:
  - (a) A rise in popularity of the product.
  - (b) A rise in costs of production.
  - (c) A tax on the product.
  - (d) Firms entering the industry.
  
2. Other things being equal, supply curves slope upwards from left to right because:
  - (a) Higher prices lead to higher costs.
  - (b) Lower prices lead to higher output.
  - (c) Lower prices lead to higher demand.
  - (d) Higher prices lead to higher profits.
  
3. Oil producers reduce the supply of oil because of a fall in the price of oil. The correct description of this reduction in supply is:
  - (a) A fall in the quantity supplied
  - (b) An extension in the quantity supplied
  - (c) A contraction in the quantity supplied
  - (d) A decrease in supply
  
4. The effect of a shortage of semi-conductors from China and Taiwan:
  - (a) raised the price of cars and shifted the supply curve for cars to the right
  - (b) reduced the price of cars and shifted the supply curve for cars to the left
  - (c) increased the price of cars and shifted the supply curve for cars to the left
  - (d) had little impact on the price or availability of cars
  
5. A steep sloping supply curve suggests that when the price of their product changes
  - (a) it is relatively hard for producers to change supply in the short term
  - (b) it is relatively easy for producers to change supply in the short term
  - (c) it will be less profitable for suppliers to change supply in the short term
  - (d) there will be a surplus in the market over the short term

# 4

## MARKET EQUILIBRIUM

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### SYLLABUS POINTS

- The concept of market equilibrium.
- The concepts of market clearing, shortages and surpluses.
- The effect of changes in demand and/or supply on market equilibrium, including simultaneous shifts of demand and supply.

OVERVIEW – MARKET EQUILIBRIUM	
1	A market is in equilibrium when demand equals supply. Equally, a market is in disequilibrium if, at a given price, demand and supply are not equal.
2	The equilibrium price is said to be the clearance price. At the clearance price there is no shortage or surplus in the market as all the products supplied are purchased.
3	If the price is set below the market clearance price there will be excess demand and if it is set above the market clearance price there will be excess supply.
4	Demand curves and supply curves shift their position when they are affected by changes in relevant non-price factors.
5	When supply and/or demand conditions change the market is disturbed and the market is in temporary disequilibrium.
6	A process of adjustment brings the market back into equilibrium but at a different price level and quantity of supply.
7	The process of adjustment involves a number of steps. For example, suppose a negative demand shock disturbs a market, creating a surplus. Producers discount prices to eliminate the surplus. The price reduction causes producers to reduce supply but also entices some consumers back into the market, expanding quantity demanded. The process continues until a new equilibrium is reached.
8	In a competitive free market economy markets are interconnected through a complex network of prices and supply chains.
9	Some of the more obvious market connections involve substitutes and complements, changes in income and where there is derived demand.
10	Demand and supply in a market may change regularly and simultaneously. The price mechanism operates constantly and invisibly reallocating of resources to match the pattern of demand.

## Part 1 – Market equilibrium

- Markets are in equilibrium when the quantity demanded equals the quantity supplied. The equilibrium price is said to be the clearance price. All the products supplied to the market are purchased.
- The market is in disequilibrium if, at a given price, the quantity demanded is not equal to the quantity supplied. If the price is above the equilibrium or clearance price there will be excess supply (supply > demand) and if the price is below the equilibrium or clearance price there will be excess demand (demand > supply).
- If there is excess demand buyers will have to compete to buy the product. Sellers will raise the price of the product to maximise profits.
- If there is excess supply buyers will be able to get discounts or take advantage of special offers as sellers try to offload their excess stock.

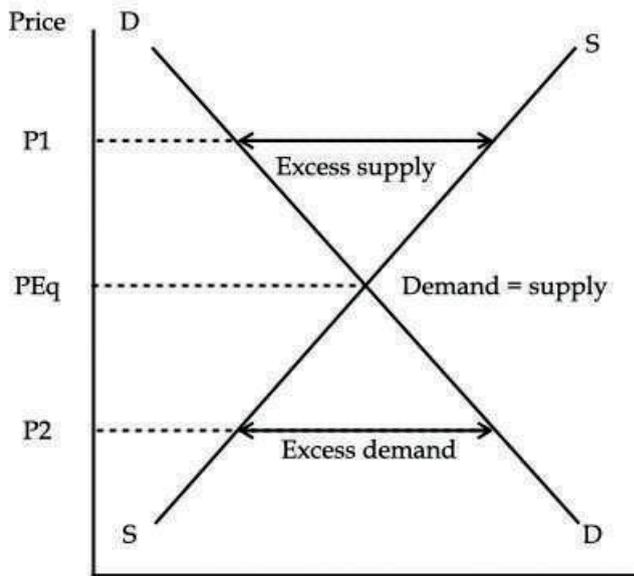


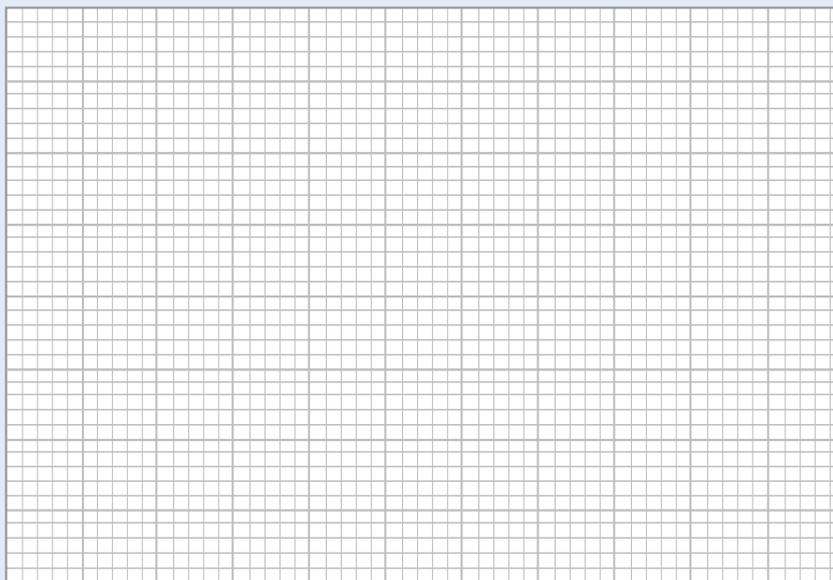
Fig 4.1: Excess supply and excess demand

### Student Activity 4.1

1. The table shows the demand and supply for milk in a town.

Price of milk (\$)	Demand for milk (litres per month)	Supply of milk (litres per month)
1.50	4	25
1.25	6	20
1.00	8	15
0.75	10	10
0.50	12	5
0.25	14	0

(a) Draw the demand and supply curves.



(b) What is the equilibrium price and quantity?

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(c) If the price of milk was fixed by the government at \$1.25 per litre, what would be the result?

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(d) If the price was fixed by the government at \$0.50 per litre, what would be the result?

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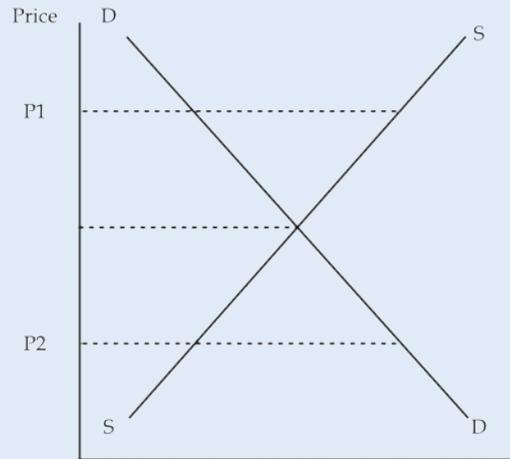
(e) Due to an increase in population in the market for milk and a successful marketing campaign, demand increases by 7 litres per month at each price level. There is no change to supply. Fill in table below showing the new level of demand. Draw the new demand curve on your diagram. What is the new equilibrium price?

Price of milk (\$)	Demand (litres per month)	Supply (litres per month)
1.50		25
1.25		20
1.00		15
0.75		10
0.50		5
0.25		0

(f) Next, because of rising energy costs and wages supply falls by 7 litres per month at each price level. Fill in table below showing the new level of supply. Draw the new supply curve. What is the new equilibrium price?

Price of milk (\$)	Demand (litres per month)	Supply (litres per month)
1.50	11	
1.25	13	
1.00	15	
0.75	17	
0.50	21	
0.25	24	

2. (a) On fig 4.2 below, show the market clearance price and quantity.



*Fig 4.2: Excess supply and excess demand.*

- (b) Given this level of demand and supply, how many market clearance prices are there?  
\_\_\_\_\_
- (c) At the market clearance price what is relationship of quantity demanded and supplied?  
\_\_\_\_\_
- (d) At the clearance price is there any excess demand (a shortage) or excess supply (a surplus or glut)?  
\_\_\_\_\_
- (e) At price P1 there will be a \_\_\_\_\_ (shortage/surplus) because there is excess \_\_\_\_\_ (demand/supply)
- (f) At price P2 there will be a \_\_\_\_\_ (shortage/surplus) because there is excess \_\_\_\_\_ (demand/supply)
- (g) Why are prices P1 and P2 not 'equilibrium' prices? What happens at price P1 and P2?  
\_\_\_\_\_  
\_\_\_\_\_

## Part 2 – Impact of changes in demand and supply on market equilibrium

First a recap on when demand and supply curves shift their position. They shift position when non-price factors lead to a change in demand and/or supply. As a result there will be a change in market equilibrium. The market can be said to have been disturbed or to have experienced a demand or supply shock.

- Shocks that increase demand shift the entire demand curve from its original position to the right.
- Shocks that decrease demand shift the entire demand curve from its original position to the left.
- Shocks that increase supply shift the entire supply curve downwards and to the right.
- Shocks that decrease supply shift the entire supply curve upwards and to the left.

## STUDY TIP

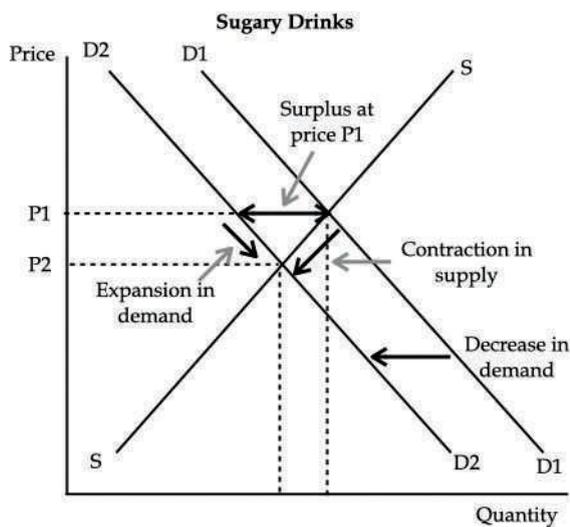
Avoid using diagonal arrows to show a shift in demand or supply curves. Normally it makes sense to think along the following lines:

- An increase in demand is a horizontal shift to the right and a decrease in demand is a horizontal shift to the left
- An increase in supply due to a fall in costs of production is a vertical shift in downwards and a decrease in supply as a result of higher production costs is a vertical shift upwards
- An increase in supply due to an increase in capacity is a horizontal shift to the right and a decrease in supply as a result of reduced capacity is a vertical shift to the left

Non-price factors causing a change in demand	Non-price factors causing a change in supply
Changes in consumer income	Changes in costs and availability of resources
Changes in consumer tastes or preferences	Changes in costs of production
Changes in quality	Changes in government regulations
Changes in prices or quality of other goods	Changes in goals of business

## Part 3 – How a market moves from one equilibrium position to another

After a market is disturbed it is in temporary disequilibrium. At the old price demand and supply are no longer equal. The market does not clear at the old price. For example, if consumers become health conscious they might reduce their demand for sugary drinks.



**Fig 4.3:** The market for sugary drinks

The demand curve for sugary drinks will shift to the left. At the old equilibrium price ( $P_1$ ) there is now more supply than demand and a surplus. Producers will react to the surplus by discounting or reducing their prices and will reduce the quantity of sugary drinks supplied. The discounted price might tempt a few consumers back into the market and cause an increase in quantity demanded. These adjustments continue until a new equilibrium position is reached at price  $P_2$ .

It is important that you understand the sequence of events when markets move to a new equilibrium position. Here is a recap.

1. Market is in its original equilibrium position at  $P_1/Q_1$ .
2. A negative non-price shock disturbs the market. Demand shifts from  $D_1$  to  $D_2$ .
3. There is now a surplus at price  $P_1$ .
4. Producers discount prices to eliminate the surplus.
5. As price is falling producers contract the quantity supplied, but some consumers come back into the market, expanding the quantity demanded.
6. Process continues until surplus disappears and a new equilibrium is reached at  $P_2/Q_2$ .

## Student Activity 4.2

1. Assume the table shows the demand and supply for toasters at different price levels.

Price	Quantity demanded per week	Quantity supplied per week	Quantity demanded rises by 6
40	20	6	
50	18	8	
60	16	10	
70	14	12	
80	12	14	
90	10	16	

- Draw the demand and supply diagram for this market
- What is the equilibrium price and quantity for toasters?
- Suppose the price of bread falls leading to a rise in the demand for toasters by 6 units at each price level. Add the new level of demand to the table above.
- Draw in the new demand curve
- What is the new equilibrium price and quantity for toasters?
- Describe the six steps involved in the establishment of the new equilibrium price and quantity for toasters.

Step 1: Market is in equilibrium at price \$75 and 13 units
Step 2
Step 3
Step 4
Step 5
Step 6:

## Part 4 – Connections between markets

In a competitive free market economy all the markets are interconnected through an ultra-complex network of prices. This network operates ‘invisibly’ as if driven by a giant free-market super-computer. Some of the more obvious market connections involve the following.

- **Substitutes:** An increase in demand for one product leads to a fall in demand for the other
- **Complements:** An increase in demand for one product leads to more demand for the other
- **Incomes:** A change the price of a product changes producers’ income level, and hence the demand for the products they buy

- **Derived demand:** A rise in demand for a good affects demand for the resources used to make the product

For example, if there is frost in Brazil the supply of coffee falls. The price of coffee will rise. Some consumers may switch from coffee drinking to tea. The price of tea rises. Producing tea is now more profitable so supply rises. Sales of coffee creamer drop disturbing this market. Coffee suppliers in Kenya (unaffected by frost) earn higher incomes and increase their demand for roofing tiles. This raises the price of roofing tiles and encourages a rise in supply. So the impact of the frost in Brazil has far reaching effects spreading throughout the world economy.

### Student Activity 4.3

1. Demonstrate with the aid of a series of annotated demand and supply diagrams, how two apparently separate markets may, after five or six steps, prove to be connected.
2. **CASE STUDY – SUPERFOODS**
  - Consumers in the developed world increasingly demanded so-called ‘superfood’ products produced in the developing countries such as Peru, Bolivia and Ethiopia. These superfoods included grains or seeds, such as Chia, Quinoa and Teff, berries, such as Açai, Goji and blue berries, vegetables such as kale and broccoli, and coconut water.
  - Superfoods are generally highly nutritious containing lots of fibre, vitamins, protein, minerals and antioxidants amongst other things, but, on their own, are not particularly appetising or tasty. They become fashionable among people looking for a ‘silver bullet’ or easier and more interesting way of staying healthy than sticking to a balanced diet and taking regular exercise.
  - Demand for some of these products grew as a result of favourable scientific research and publicity (Chia seed) and from reports that their consumption has transformed peoples’ health.
  - Demand for other superfood products grew because of celebrity endorsement including Oprah Winfrey (Açai berries) and Michelle Obama (Quinoa) and, as a result, become highly fashionable.
  - As a result of increased demand prices of these products rose sharply. For example, the price of Quinoa rose from \$300/ton to \$1,500/ton in five years.
  - The surge in demand wasn’t good news for everybody in the countries where the products were grown, especially for crops that were perishable and formed part of the local staple diet. While in the short term a surge in export sales meant higher prices for the growers, they also meant local consumers were priced out of the market. Indeed, Ethiopia eventually introduced a ban on Teff grain exports.
  - After a time prices fell back as the higher prices encouraged investment in new land and production techniques to increase supply. Also, fashions change and demand for one popular crop can fall away as different substitute superfoods are discovered.
  - (a) Define the terms (i) demand and (ii) supply.  
\_\_\_\_\_
  - (b) Identify the non-price factors affecting the demand for superfoods  
\_\_\_\_\_
  - (c) Using demand and supply analysis, explain the price movements in the market for one or more superfood products.  
\_\_\_\_\_

## EXAM TECHNIQUE – CHAINS OF REASONING

Longer written answers, in many cases, need to include more than just a statement or assertion that one thing causes another. A chain of reasoning (e.g. covering how's and why's, causes and effects) should be included to explain the steps involved in the process. Consider the question:

Explain the likely impact on the price of oil of a decision by OPEC (the Organisation of the Petroleum Exporting Countries) to reduce the level of their oil production. Rather than stating or asserting that the price of oil is likely to rise, a good answer will explain each link in the following chain of reasoning.

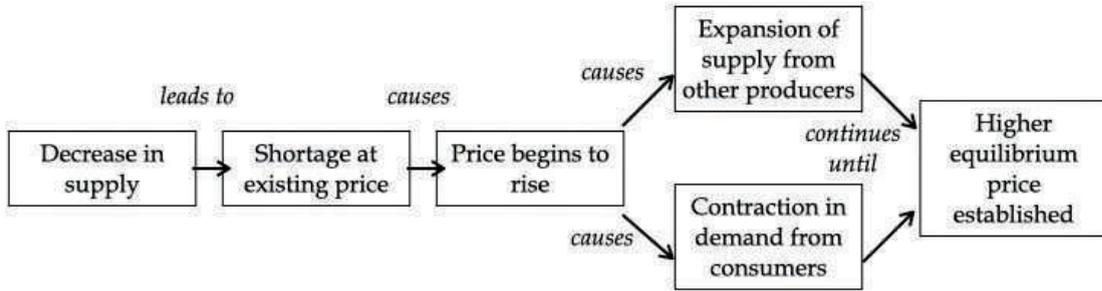


Fig 4.4

This explanation would need to be supported by a clearly drawn, fully labelled annotated microeconomic demand and supply diagram.

SO YOU THINK YOU UNDERSTAND MARKET EQUILIBRIUM	
Equilibrium condition	Six steps in moving from old equilibrium to new equilibrium 1 2 3 4 5 6
Condition for excess demand	Condition for excess supply
What is the market clearance price?	Three ways markets are connected

## REALITY CHECK

1. The table shows the demand and supply for shoes at various prices.

Price (\$)	Demand per week	Supply per week
25	200	60
50	150	80
75	100	100
100	75	120
125	50	140

A price of \$50 for the shoes will lead to:

- (a) Excess demand and a shortage of 70 pairs of shoes
  - (b) Excess supply and a surplus of 70 pairs of shoes
  - (c) Excess demand and a shortage of 140 pairs of shoes
  - (d) Excess supply and a surplus of 25 pairs of shoes
2. When a market is disturbed by an increase in demand, at the existing price there is now:
- (a) A shortage and the price will rise
  - (b) A surplus and the price will fall
  - (c) A shortage and the price will fall
  - (d) A surplus and the price will rise
3. A fall in demand for petrol cars caused by an increase in demand for electric cars will lead to:
- (a) a fall in the price of petrol cars but will not effect any other markets
  - (b) a rise in the price of petrol cars but will not effect any other markets
  - (c) a fall in the price of petrol cars and will effect many other markets
  - (d) a rise in the price of petrol cars and will effect many other markets



### SYLLABUS POINTS

- The concept, and measurement, of price elasticity of demand.
- Determinants of price elasticity of demand.
- The distinction between goods that are price elastic and price inelastic in demand.
- The link between price elasticity of demand and total revenue.
- The concept of price elasticity of supply.
- The distinction between goods that are price elastic and price inelastic in supply.
- Determinants of price elasticity of supply.
- The application of price elasticity of demand and supply to markets.
- The importance of price elasticity of demand and supply for business and government, including the incidence of a tax and price discrimination.

<b>OVERVIEW – ELASTICITY</b>	
1	Markets are constantly adjusting to changes in prices and non-price factors. The degree of adjustment depends on the size of disturbance and the extent of the response or reaction of consumers and producers to the disturbance. The term elasticity is used to describe the level of consumers' and producers' response when conditions in a market change.
2	There are three types of demand elasticity; price elasticity of demand (PED), income elasticity of demand (YED) and cross price elasticity of demand (XED) and one form of supply elasticity; price elasticity of supply (PES).
3	All types of elasticity are measured in the same way by comparing the percentage change in quantity demanded or supplied by the percentage change in the cause (i.e. the price of the product, the income of consumers or the prices of related goods). Note elasticity is a ratio of two percentages and not a comparison of changes in two levels.
4	The term 'elastic' is used to describe a relatively big reaction or response and the term 'inelastic' is used to describe a relatively small reaction or response.
5	PED is determined by two key factors; how necessary or urgent the purchase is and the number of substitute products that are available. Demand for a product is described as price elastic if the value of PED is greater than 1. Demand for a product is described as price inelastic if PED is less than 1.
6	Where demand for a product is inelastic, producers can increase their sales revenue by raising the price of the product. If demand for the product is elastic they will lose sales revenue if they raise the product's price.
7	A product is described as being normal if YED is positive (greater than zero) because there is a direct or positive relationship between demand and income for most products. A product is described as being inferior if YED is negative (below zero) because consumers tend to switch between poor quality and good quality products when real incomes change.
8	Changes in relative prices lead to adjustments in markets. Products are described as being substitutes if XED is positive because buyers may move to a substitute product when the price of a product rises. Products are described as being complements if XED is negative. Complementary goods, such as electrical goods and batteries, are jointly consumed and a rise in price of one of the products tends to reduce the demand for both products.
9	Elasticity of supply is a measure of the willingness and ability of producers to react or respond to a change in the price of their product. Normally, an increase in the price of the product leads to an increase in the level of supply. If quantity supplied rises by a bigger proportion than the rise in price supply elasticity is said to be elastic. If there is only a relative small change in supply, the price elasticity of supply is said to be inelastic.
10	Consumers, producers and governments need to be aware of the elasticity levels relevant to their areas of activity, so that they can make decisions and choices that help them achieve their goals and objectives.

## Part 1 – The concept of elasticity

Elasticity is one of the core concepts of economics and is a powerful tool of analysis. Elasticity is the term used by economists to describe the level of response, reaction to, sensitivity or impact on the quantity demanded or supplied to a change in some relevant factor such as its price, the price of other goods or income.

## Different types of elasticity

There are three types of elasticity that relate to demand and one that relates to supply.

### Demand elasticity

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Price elasticity of demand	Impact of changes in the price of the product on the quantity of a product demanded
Income elasticity of demand	Impact of changes in household income on the quantity of a product demanded
Cross elasticity of demand	Impact of changes in the price of other products on the quantity of a product demanded

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### Supply elasticity

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Price elasticity of supply	Impact of changes in the price of the product on the quantity of a product supplied to a market
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### The importance of elasticity for producers

- In order to achieve their business goals (e.g. profit or revenue maximisation or sales growth), producers need to understand what happens to sales and revenue when the price of their product is changed, when consumers have more or less income to spend, and when prices change in related or linked markets. The lower the consumers' reaction to an increase in price the more revenue and profit a firm can earn.
- A business can influence elasticity through its marketing mix. They can try to reduce consumers' sensitivity to changes in the market by, for example, building a strong brand image, and improving the quality and design of their product. They will not have control over consumers' income or the marketing mix of rival producers, unless they buy them out or force them out of the market.
- Under certain conditions a firm may be able to increase revenue by charging different prices to different groups of consumers or charging different prices for different quantities purchased by individual customers. For example, if demand for a product from one group of consumers is price inelastic they can be charged a higher price than customers who are more sensitive to prices. This practice is known as price discrimination. If firms can't easily separate their customers into groups based on different elasticity, they can offer several versions a their product and allow consumers to reveal their price sensitivity.

### The importance of elasticity for the Government and the Reserve Bank

- The Government may want to influence consumers' behaviour. They may want to encourage the use of merit goods such as public transport by providing a subsidy or discourage the consumption of demerit goods such as cigarettes, sugary drinks and cars in congested areas by introducing indirect taxation. These measures will be more successful where demand is price elastic.
- On the other hand the Government may want to raise tax revenue to finance, for example, social housing and roads. Governments raise more tax revenue when they tax products where demand is price inelastic because consumers will generally maintain demand for products despite the imposition of the tax.
- Competitive markets are important for an efficient allocation of resources in a market economy. Government competition policy is designed to prevent firms exploiting monopoly power in markets where demand is price inelastic.
- Finally, Governments may want to influence the level of aggregate demand by using fiscal policy (i.e. changes to direct tax and government spending) to influence consumers' income and hence aggregate demand. Also the Reserve Bank may want to use interest rates to change consumers' income or to influence the level of consumption, investment and borrowing. Low levels of income elasticity will make these policies less effective.

## Student Activity 5.1

1. What does elasticity measure?

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2. What are the three types of demand elasticity? In each case state what variable demand is reacting to.

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3. Explain how the concept of elasticity can be linked to each of the following.

(a) Firms try to reduce competition and build up monopoly power. Because there are fewer substitute products they can raise prices and increase profits without a fear of a big (elastic) reaction by customers.

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(b) Firms may produce several versions of basically the same product. For example airlines may have economy, premium economy, business class and first class seats on the same plane. They do this because they know some customers are less sensitive to price and are willing to pay a premium price (their demand is price inelastic). By charging people more airlines can increase revenue and profit.

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(c) Some products cause harm to consumers directly (these are called demerit goods) and their consumption can cause indirect harm to others (these effects are called negative externalities). Government's may wish to reduce consumption of these demerit goods by placing an indirect tax on their manufacture or purchase (these taxes are known as sin taxes). The extent to which these taxes achieve the desired reduction in consumption of these demerit goods depends on the consumers' reaction to the price increase caused by the tax. If consumers are addicted to using the product demand will be inelastic and the tax will have little effect on consumption.

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- (d) Perth Stadium (currently Optus Arena) started hosting AFL matches in 2018. Other sports, such as soccer and cricket have also been staged in the stadium that has a capacity of 60,000. Regardless of how much fans are willing to pay to watch sport at the stadium the capacity is fixed. Elasticity of supply is inelastic.

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- (e) Manufacturing industry in Australia is keen to see a depreciation in the value of the Australian Dollar against other currencies. This will cause the price of imported manufactured goods to rise and reduce the level of price competition faced by Australian producers. Australian manufacturers will also become more price-competitive in overseas markets as the price of their products falls in overseas currencies.

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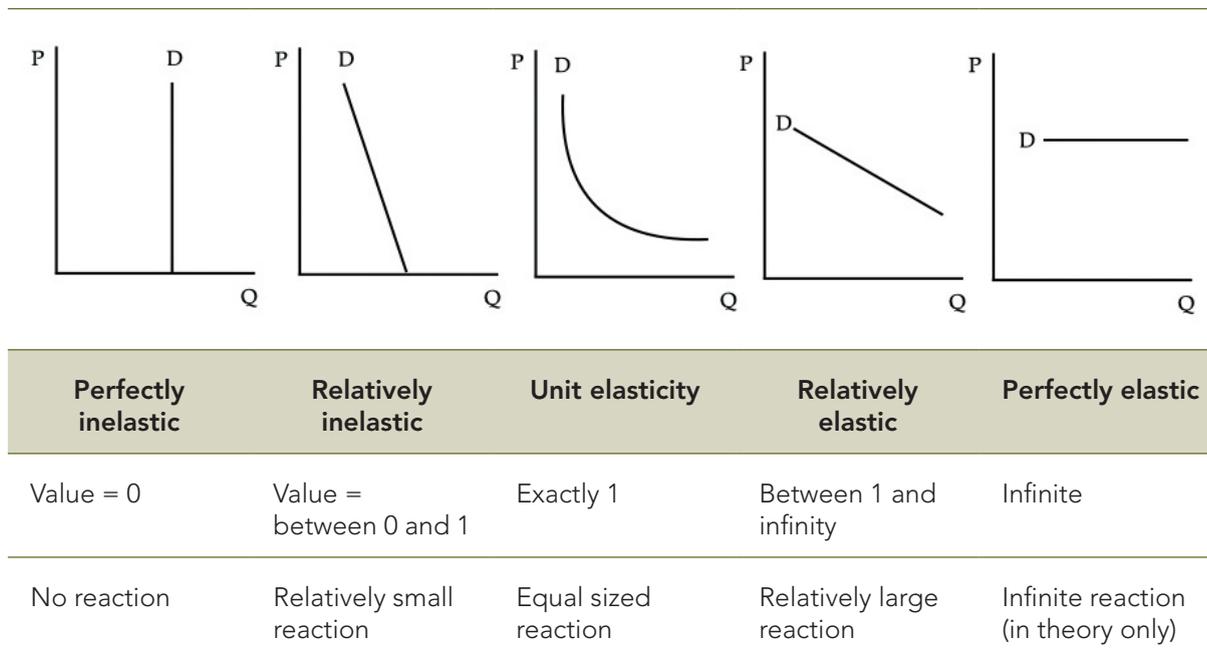
- (f) A passport is essential for overseas travel and often travel insurance is required. Both are, therefore, complementary products to overseas travel. The Government is, therefore, in a position to charge a relatively high price for a new passport and firms offering travel insurance also charge relative high prices. However, the price of a passport and insurance is usually relatively low compared to the total cost of the overseas travel.

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## Part 2 – Price elasticity of demand

Price elasticity of demand (PED) is a measure of the response or reaction in quantity demanded to a change in the price of that product. It is a ratio of the percentage change in quantity demanded and the percentage change in price causing the change.



**Fig 5.1:** Note: For straight-line downward sloping demand curves, the value of PED changes at different points on the line.

### Factors that affect the level of price elasticity of demand

There are a number of factors that affect the level of price elasticity of demand.

- **How necessary, urgent or important the purchase is:** Price elasticity is more inelastic when consumers need to continue buying a product even when the price of the product rises
- **Whether or not there are substitutes or alternative products available:** Price elasticity will be more inelastic when there are few substitutes products available
- **The definition or scope of the market:** PED for a broadly defined product, such as food, is likely to be relatively inelastic, but PED for a specific product, such as a certain brand of chocolate, is likely to be more elastic
- **Time to respond:** The demand for a product will be more price inelastic the shorter the time available for a consumer to respond to a price change
- **Proportion of income spent on the product:** The demand for the product will be more price inelastic when purchases of a product involve a significant proportion of a consumer's spending

While making a broad estimate of price elasticity of demand it is a relatively straightforward process, in practice it is very difficult to produce an accurate, precise measure. There are many factors that affect demand and it is difficult to isolate the impact of the change in price.

### Student Activity 5.2

1. Define the term 'price elasticity of demand'

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2. List three important factors that affect the level of price elasticity of demand

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3. Determine which of the following groups of goods and services relatively elastic price of demand and which of the groups has relatively inelastic price elasticity of demand.

	Group	PED
(a)	Milk, dental services, coffee	
(b)	Chocolate, chicken, air travel	
(c)	Overseas holidays, gym membership, visits to the movies	
(d)	Medicine, cigarettes and petrol	

4. What range of values of price elasticity indicates that demand is:

(a)	Highly responsive to a change in price	
(b)	Not at all responsive to a change in price	
(c)	Only slightly responsive to a change in price	
(d)	Relatively price elastic	
(e)	Relatively price inelastic	

5. What does it mean if the price elasticity of bread is 0.6 but the price elasticity for cakes is 1.6?

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### The link between price elasticity of demand and revenue

Producers and governments need to be aware of price elasticity of demand when they change prices because of its impact on revenue or consumer outlay. Revenue is the product of price paid or received and the quantity bought or sold.

<b>Demand is price elastic.</b>	A fall in price leads to an <b>increase</b> in a firm's total revenue.	Consumers are relatively responsive to changes in price. A small decrease in price leads to a larger increase in quantity demanded, meaning more revenue for firms.
<b>Demand is price inelastic</b>	A fall in price leads to a <b>decrease</b> in a firm's total revenue.	Consumers are relatively unresponsive to changes in price. A fall in price will lead to only a small increase in quantity demanded, so firms' total revenue declines.
<b>Price elasticity of demand is unitary</b>	If a fall in price leads to <b>no change</b> in a firm's total revenue.	Consumers respond to, say, a 10% fall in price with a 10% increase in quantity demanded, leaving the firm's total revenue unaltered.

A revenue box is a convenient way of showing the level of revenue or consumer outlay at different points on a demand curve. The area of the revenue box is price multiplied by quantity demanded at that price. Multiplying price and quantity demanded is also the way total revenue is calculated.

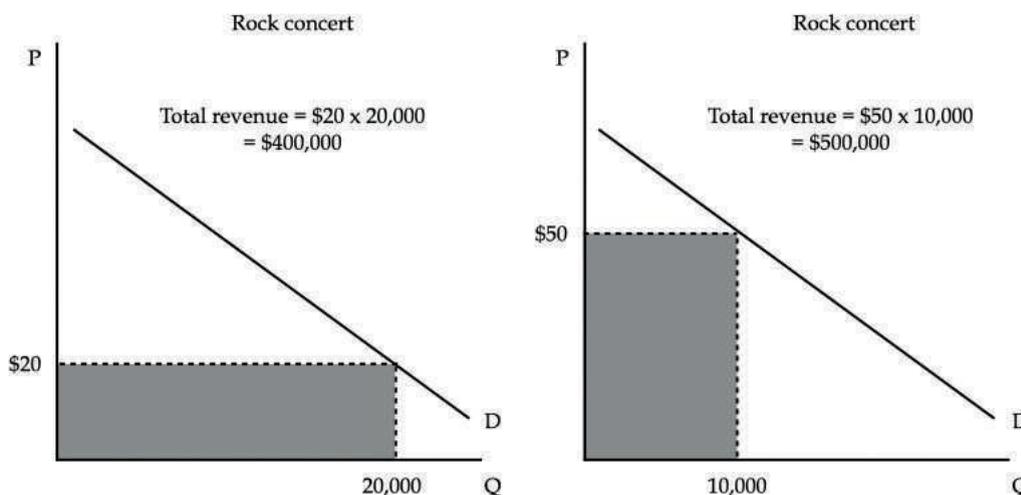
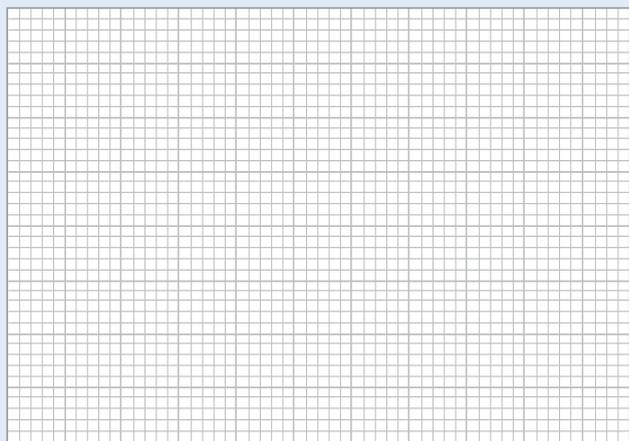


Fig 5.2; Revenue changes at different points on a demand curve

### Student Activity 5.3

- The following table shows the demand for a household for batteries each week at various prices.

Price of batteries	Demand per week	Revenue (price x quantity)
5	4	
4	6	
3	8	
2	10	
1	12	
0	14	



- Using the data in the table, calculate the spending each week on batteries by a household at each price level.
- Draw the demand curve, and the revenue boxes for price \$4 and price \$2.
- State whether demand was price elastic or price inelastic for a reduction in the price from \$4 to \$2 and explain the reason for your answer.

### The calculation of price elasticity of demand

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

- Elasticity is calculated by comparing two changes, each expressed as a percentage. The mathematical value of elasticity is known as the coefficient of elasticity. The coefficient of

elasticity is simply a number. It has no units of measurement such as dollars or degrees. Given the law of demand, the inverse relationship between the price of a product and the quantity demanded, would always result in a negative value for PED. The convention in economics is to take the absolute value of PED and ignore the negative sign.

- The percentage change in a value can be calculated using one of the formulae below. Knowing how to do it will allow you check that your calculator has got it right.

<b>Formula 1</b> $\% \text{ change} = \frac{\text{size of change}}{\text{value before change}} \times 100$	<b>Formula 2</b> $\% \text{ change} = \frac{\text{new value}}{\text{value before change}} - 1 \times 100$
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The price of a cake falls from \$4 to \$3.60. What is the percentage fall in price of the cake?	$\% \Delta = \frac{\text{actual change}}{\text{original value}} \times 100$ OR $\% \Delta = \frac{\text{new value}}{\text{value before change}} - 1 \times 100$	$= \frac{0.40}{4} \times 100 = 10\%$  $= \frac{3.60}{4} - 1 \times 100 = 10\%$
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Demand for a cake rises from 1000 to 1200 per day. What is the percentage change in quantity demanded?	$\% \Delta = \frac{\text{actual change}}{\text{original value}} \times 100$ OR $\% \Delta = \frac{\text{new value}}{\text{value before change}} - 1 \times 100$	$= \frac{200}{1000} \times 100 = 20\%$  $= \frac{1200}{1000} - 1 \times 100 = 20\%$
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If the fall in price of the cake from \$4 to \$3.60 caused the rise in quantity demanded from 1000 to 1200, what is the level of price elasticity for the cake?	$\text{PED} = \frac{\% \Delta \text{ in quantity demanded}}{\% \Delta \text{ in price}}$	$= \frac{20}{10} = 2$
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Because PED changes at each price level on most demand curves you get different answers (or a range of possible answers) depending on the ‘original value’ taken for calculation of percentage change in price and quantity. There are two options:

- Calculate point elasticity – calculation based on start or original value. If a price rises from \$1 to \$2 the change in price is 100% ((1/1) × 100 = 100%). But if a price falls from \$2 to \$1 the change in price is 50% ((1/2) × 100 = 50%). These calculations refer to the same part on a demand curve but produce different coefficients of price elasticity, which could be confusing or unhelpful.
- Calculate mid-point elasticity – calculation based on the mid-point between the start (or original) and the end (or new or final) value. So if a price rises from \$1 to \$2 or falls from \$2 to \$1 the elasticity coefficient is the same ((1/1.5) × 100 = 67%).

### Student Activity 5.4

1. Assume Apple needs to set the price for a new iPhone. If the price is \$600 they would sell 10,000 units a day and at a price of \$400 sales would be 27,000 units per day.

- (a) What would be their revenue at each of these price levels?

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(b) What, therefore, would be the price elasticity of demand for the iPhone?

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2. Suppose tension in the Middle East causes oil supplies to fall, increasing the price per barrel of oil from \$100 to \$120 and as a result oil consumption falls from 1m barrels to 900,000 barrels a month. Calculate PED for oil in this situation. How might this value for PED be interpreted?

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3. The data in the table shows the level of demand at various ticket prices for a concert. The venue for the concert has a capacity of 800 seats.

Price	Ticket sales	Total Revenue
125	0	
100	200	
75	400	
50	600	
25	800	
0	1000	

(a) What price should the concert organisers set? State why.

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(b) What can be inferred about the price elasticity of demand when the price is cut from \$200 to \$75?

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(c) What can be inferred about the price elasticity of demand when total revenue is at its highest level?

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(d) Why will a firm avoid fixing the price of its product at a point on the demand curve where price elasticity of demand is relatively inelastic?

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4. Firm A produces scented candles. Market research suggests that lowering the price from \$4 to \$3.60 for a candle will increase demand per week from 600 sales to 630 sales. Firm B sells pizza. Market research suggests that lowering price for a family size pizza from \$15 to \$13.50 will increase sales per night from 600 to 720.

		Firm A	Firm B
(a)	Calculate the percentage change in price and quantity demanded		
(b)	Calculate the level of price elasticity of demand		
(c)	Calculate the change in consumer outlay as a result of the price change		
(d)	State whether or not it was sensible for the firm to make the price change		

### Part 3 – Income elasticity of demand

Income elasticity (YED) measures the response of quantity demanded to a change in income. It is the ratio of the percentage change in quantity demanded and the percentage change in income of households.

$$YED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$$

Negative signs matter with YED. Normal goods have a positive income elasticity of demand, but inferior goods, with an inverse relationship between income and demand, have a negative value.

The terms are used for the different levels of income elasticity are shown below.

YED	Term	Interpretation
Positive	Normal product	For most products, extra income increases demand
Greater than 1	Luxury product, income elastic	Consumers spend their extra money on these products
Between 0 and 1	Necessity, income inelastic	Consumers were already buying necessities
Negative	Inferior	As income rises consumers switch to better products

- Firms will be interested in how the demand for their products is affected by changes in income. The level of economic activity is not stable, and may follow a pattern known as the business or economic cycle.
- Households maybe interested in how a change in income will affect the budget share of certain products they buy. The budget share is the proportion of a person's income taken up in spending on a product. Income elasticity indicates the extent of the change in budget share for a particular product.
- Governments will be interested in income elasticity. As economies grow and develop, incomes rise. As incomes rise the pattern of spending changes. This will alter the relative sizes of the primary, secondary and tertiary sectors of their economies and lead to structural changes in the economy. Also, Government and Reserve Bank policy is more effective when demand is income elastic. If confidence or expectations are high, a rise in disposable income will lead to a rise in aggregate demand, so, for example, reducing direct tax or reducing interest rates may be effective. If confidence or expectations are low, a rise in disposable income will have little effect on the level of aggregate demand and fiscal and monetary policy will be less effective.

### Student Activity 5.5

1. Define the term 'income elasticity of demand'.

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2. Define the terms 'normal good' and 'inferior good'. What determines whether income elasticity is positive or negative?

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3. A market researcher working for a travel agency found that demand for holidays varies considerably when incomes change. They found that when incomes rose by 5%, demand for holidays in 5 star hotels increased from 250 per week in high season to 300 per week. Holidays using 3 star hotels increased by 4% and demand for camping holidays went from 100 in high season to 90 per week.

Calculate the income elasticity of demand for the three different types of holiday. Predict what will happen to demand for the different types of holiday if there is a drop in incomes by 2% next year.

Type of holiday	Income elasticity of demand	Predicted change in demand next year
5 star hotels		
3 star Hotels		
Camping		

4. Given the levels of income elasticity shown in column 2, allocate the products listed below to an appropriate row in column 1. The products are: Bread, Computer Games, Milk, Tobacco, Vegetables and Wine.

Product	YED	Classification/Reasoning
	-0.8	
	-0.5	
	0.6	
	0.9	
	2.5	
	3	

5. In an economic downturn, incomes fall. Suggest three markets where demand has fallen because the product is relatively income elastic, three markets where demand for the product will only have fallen a little because demand for the product is relatively income inelastic and three products where demand is expanding because the product has negative income elasticity.

Demand falls in recession	Demand falls a little in recession	Demand rises in recession

6. Show how a rise in income will affect demand in each diagram below.

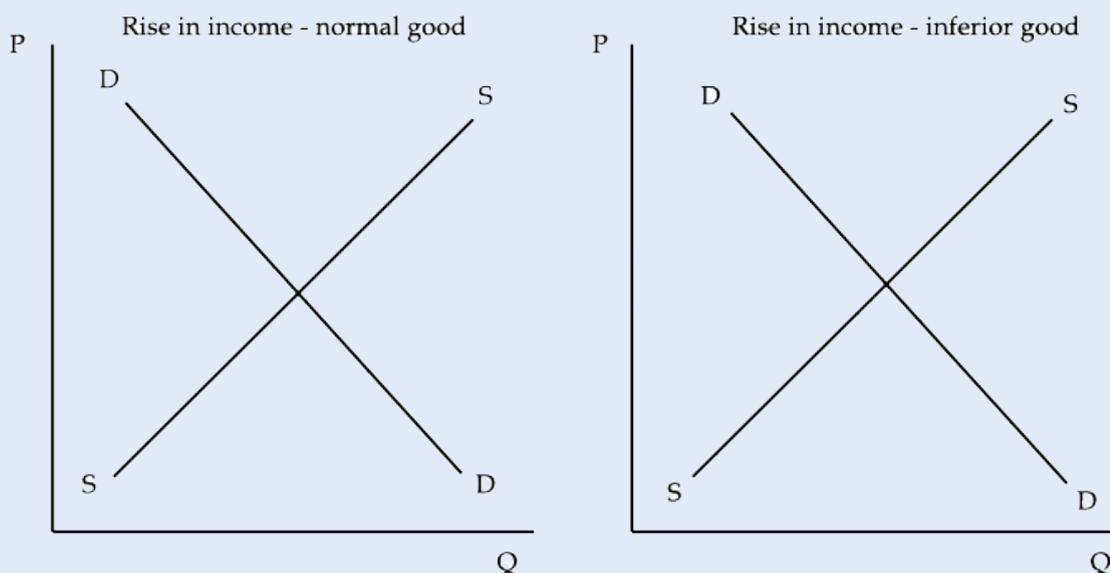


Fig 5.3:

7. **MINI CASE STUDY – Diamond demand rises strongly**

The world price of diamonds has risen following the growth in demand from countries in South-East Asia such as India and China. Economic growth in these emerging economies has meant rising incomes and this, combined with falling stocks of diamonds, has helped push up the world price. Incomes in China are said to have grown by as much as 18% bringing about an overall 5% increase in the price of diamonds. China's imports of diamonds grew by 80% according to the Gem Promotion Council.

(a) What has happened to the level of income in China and India?

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(b) Using a demand and supply diagram, describe the causes of the rise in the price of diamonds.

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(c) Using data in the passage calculate the income elasticity of demand for diamonds in China.

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8. Imagine an airline has undertaken some economic research about air travel between Brisbane and Sydney and Brisbane and Hamilton Island. The research included the price and income elasticity of demand coefficients shown in Table 1 below. The research also identified the mix of passengers flying on the two routes (see Table 2 below).

**Table 1: Price and Income Elasticity of Demand for Air Travel**

Route	Price Elasticity	Income Elasticity
Brisbane/Sydney (Capital City/Capital City)	0.9	1.2
Brisbane/Hamilton IS (Capital City/Resort)	1.4	1.9

**Table 2: Purpose for travel**

Route	Business	Holiday	Other
Brisbane/Sydney (Capital City/Capital City)	35%	55%	10%
Brisbane/Hamilton IS (Capital City/Resort)	5%	90%	5%

Answer the following questions using economic terms, concepts and models to communicate your understanding.

- (a) Distinguish between price elasticity of demand and income elasticity of demand.
- 
- (b) Explain the relationship between the 'Purpose for travel' (Table 2) and the 'Price elasticity of demand (Table 1).
- 
- (c) The management of the airline has asked for advice on the impact of a proposal to decrease ticket prices on its Brisbane/Sydney route rather than the Brisbane/Hamilton Island route. Explain the advice that you would give to them.
- 

## Part 4 – Cross price elasticity of demand

$$XED = \frac{\% \text{ change in the demand for product A (e.g. apples)}}{\% \text{ change in the price of product B (e.g. oranges)}}$$

Cross-price elasticity of demand (XED) is a measure of the response in demand for a product when the price of a related or linked product changes. For example, it measures how sensitive demand for apples is if there is a change in the price of oranges. Negative signs also matter with XED. If goods are complementary, there is an inverse relationship between the price change for one product and the demand change for the other product, so XED is negative!

Elasticity type	Value	Term
Cross price elasticity	High + Positive	Goods are close substitutes
Cross price elasticity	Low + Positive	Goods are remote substitutes
Cross price elasticity	Zero	Goods are independent or unrelated
Cross price elasticity	Low + Negative	Goods are remotely complementary
Cross price elasticity	High + Negative	Goods are close complements

It's probably best to work out whether XED for substitutes is positive or negative using a simple example each time you need to know.

- If the price of beef fell and as a result the quantity of chicken demanded fell there is a direct relationship, so the items must be substitutes. The coefficient for cross price elasticity will show the degree to which quantity demand of chicken falls as a result of the fall in the price of beef. For substitute products XED will be positive.
- If the price of heating electricity fell it may induce some to people to install air-conditioning units in their houses. A fall in the price of electricity means a rise in the demand for air-conditioning units. There is an inverse relationship suggesting the products are compliments. For complementary products XED will be negative.

- Data about cross-price elasticity provides firms with important market information. The more substitute products there are the more competition a firm faces. For example, in the air travel market Qantas needs to adjust to changes made by other airlines. Firms also need to be aware of how changes in the market for complementary products may affect demand for their product. For example iron ore producers need to be aware of changes in the demand for steel.

### Student Activity 5.6

- Complete the following table

Term	Value of cross price elasticity of demand	Real world example
Complementary products		
Substitute products		
Independent products		

- Show on the following diagrams (a) the impact on demand of the stated event (b) an estimate of the value of cross price elasticity of demand.

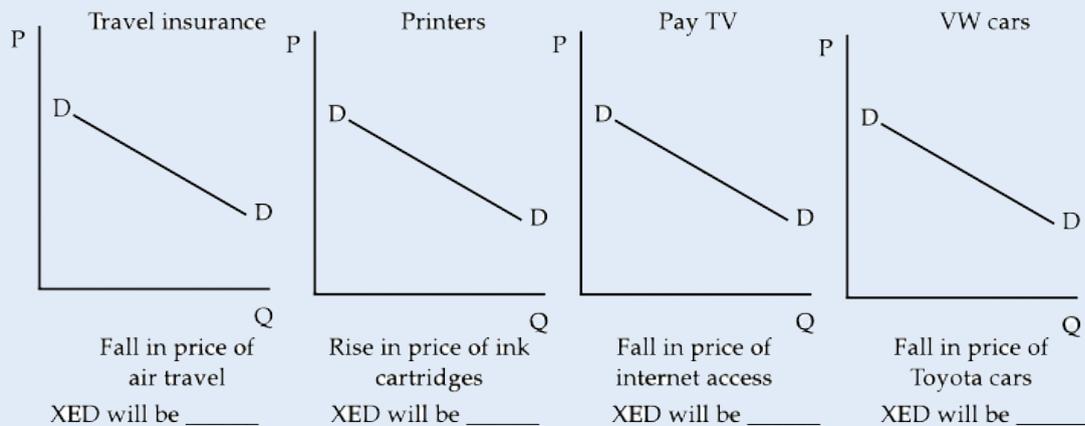


Fig 5.4

- A gaming firm produce children's games that can be downloaded from the company website at a price of \$40. The demand for computers has increased by 20% over the past two years as computer prices fell by 10%. Over the same period demand for the firm's games for has increased by 25% despite no change in the price of the games.
  - Calculate the price elasticity of demand for home PCs.
  - What is the cross-price elasticity of demand for games with respect to the price of computers?
  - If the income elasticity of demand for games is 1.4 calculate and briefly comment on the effect of a rise in incomes from \$40,000 to \$48,000 per year.

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4. Assume the price of oil is \$100 a barrel and the demand for ethanol is 1m barrels a day and when the price of oil rises to \$130 a barrel the demand for ethanol rises to 1.1m barrels a day.

- (a) Calculate the cross elasticity of demand for ethanol in respect to changes in the price of oil
- (b) Describe the relationship between oil and ethanol.

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5. Assume the price of tennis balls is \$10 and the quantity of tennis racquets demanded is 80 per month. Tennis balls then fall in price to \$8 each and, as a result, the number of tennis racquets purchased rises to 110 per month.

- (a) Calculate the cross elasticity of demand for tennis racquets in respect to changes in the price of tennis balls.
- (b) Describe the relationship between tennis racquets and tennis balls.

6. Complete the table below.

(a)	If the price of Caltex petrol rises (and Shell petrol does not rise) what happens to the demand for Caltex petrol?	
(b)	If the price of Caltex petrol rises (and Shell petrol does not rise) what happens to the demand for Shell petrol?	
(c)	Is Caltex petrol a substitute or a complement for Shell petrol?	
(d)	Will the cross-price elasticity of demand for these two products positive or negative? Will the coefficient of cross elasticity be high or low?	

7. Complete the following table

Related products	Description of relationship	Strength of relationship	Value of XED
Apples/Oranges			
Petrol/Cars			
Food/Clothes			
Coke/Pepsi			
Passports/Overseas travel			
Vegetables/DVDs			
Cars/Car insurance			

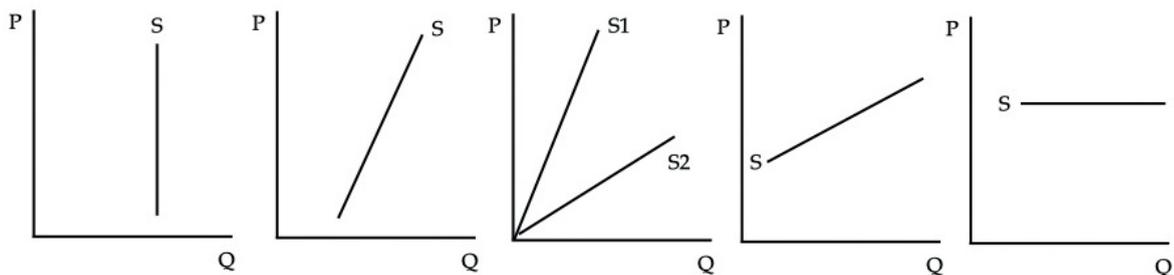
8. A supermarket sells green apples, red apples and chicken. When they raise the price of green apples from \$4kg to \$5kg sales drop from 1500kg a day to 1000kg a day. At the same time, sales of red apples rise from 2000kg a day to 2200kg a day, even though the price of red apples are unchanged at \$4.50kg. They also cut the price of chicken by 10% and sales rise by 7.5%.

(a)	Calculate the PED for green apples	
(b)	Calculate what happens to revenue received for green apples following the price rise.	
(c)	Describe relationship between green and red apples.	
(d)	Calculate XED for red apples with respect to price changes in green apples	
(e)	Calculate the impact of the price rise for green apples on revenue for green and red apples together.	
(f)	Calculate the PED for chicken	
(g)	Comment on IGA's pricing decisions	

## Part 5 – Elasticity of supply

Elasticity of supply is a measure of the reaction or response of a firm in quantity supplied to a market following a change in price of the product. It is the ratio of the percentage change in quantity supplied and the percentage change in price of the product. For example, if there was a 5% fall in the supply of gold following a 10% fall in the price of gold, the value of elasticity of supply would be 0.5.

$$PES = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price of the product}}$$



Perfectly inelastic	Relatively inelastic	Unit elasticity	Relatively elastic	Perfectly elastic
Value = 0	Value = between 0 and 1	Exactly 1	Between 1 and infinity	Infinite
No reaction	Relatively small reaction	Equal sized reaction	Relatively large reaction	Infinite reaction (in theory only)

The main factor affecting elasticity of supply is time. Economists use three terms to describe different time periods:

- **The short-run:** The supply of at least one factor or production (or resource) is fixed (e.g. the size of the factory).
- **The long-run:** The supply of all factors or resources can be varied but no new technology is available.
- **The very-long run:** The supply of all factors or resources can be varied and new technology can be built into production processes.

Whether or not extra resources can be used will depend on factors such as:

- **Technical complexity:** The more complex the production process, the longer the time it will take to create new capacity.
- **Mobility of resources:** Ability and willingness to move resources to new locations.
- **The ability to hold stocks or inventories:** Products may be perishable.
- **The amount of unused capacity:** With spare capacity production can be increased quickly.
- **Whether or not supply relies on an external factor:** There could be interruptions to a producer's supply chain, e.g. because of trade restrictions.

Supply elasticity is important because price inelasticity of supply causes relative large fluctuations in prices. This is particularly true in rural, energy and mineral markets. For example, agricultural production depends on many factors beyond farmers' control such as drought, pests, floods, frosts and other natural disasters as well as periods of ideal weather conditions that occur over short periods of time. Not only do prices fluctuate, but so do farm incomes.

### Student Activity 5.7

1. What term is used to describe a product where supply is relatively unresponsive to a change in its market price?

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2. Draw a series of supply curves to illustrate the following levels of supply elasticity.

Perfectly inelastic supply	Relatively inelastic supply	Unit elasticity of supply	Relatively elastic supply	Perfectly elastic supply

3. Complete the table below.

(a)	If Coles and Woolworths reduce the farm gate price of milk they buy from farmers by 10% and, as a result farmers supply 5% less milk to them, what is the price elasticity of supply of this milk?	
(b)	Assume pay rates for bus drivers rises from \$25 to \$32.50 an hour, and, as a result the number of applicants rises from 500 to 600. Use this information to calculate the elasticity of supply of bus drivers.	

4. Sort the following into two groups, one group for products where elasticity of supply is elastic over a 1 year period and the other group for products where elasticity of supply is inelastic over a 1 year period. In each case write down an important factor influencing your allocation.

- (a) Iron ore
- (b) T-shirts
- (c) Seats at a movie theatre
- (d) Gold
- (e) Computer software
- (f) Apartments in or near the centre of a city
- (g) Antiques
- (f) Personal trainers in a gym

Elastic elasticity of supply	Inelastic elasticity of supply

5. Re-read the Superfood case study in Chapter 2

(a) Explain what happens over time to the elasticity of supply for a grain or berry that becomes a fashionable superfood as a result of celebrity endorsement.

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(b) Why is an understanding of elasticity of supply important for existing and potential producers of these fashionable superfoods?

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## EXAM TECHNIQUE

### Multiple Choice Questions 2

- Take care when values or numbers are used in questions. Work out the correct answer carefully on rough paper before you check the alternative answers provided.
- If the alternative answers include two options that are essentially opposites, the correct answer is likely to be one of these two options.

Now attempt the following questions. Select your answers before looking at the explanations below.

1. A firm is experiencing a rise in production costs for one of its products. The firm operates in an economy where real average income per person is falling. Which one of the following elasticity coefficients the firm faces will cause it LEAST concern?
  - (a) Price elasticity of demand = +2 (i.e. price elastic)
  - (b) Income elasticity of demand = +1.5 (i.e. income elastic)
  - (c) Cross price elasticity of demand relating to a similar product produced by a competitor = +2 (i.e. products are substitutes)
  - (d) Elasticity of supply over 6 month period = +1 (i.e. supply elastic)
2. A good has a price elasticity of demand of +0.8. At present, the quantity demanded of the good is 200 units per week at a market price of \$800 per unit. If the price rises to \$1000 per unit then the quantity demanded per week would:
  - (a) Increase to 250 units.
  - (b) Increase to 240 units.
  - (c) Increase to 360 units.
  - (d) Decrease to 160 units.
3. The price elasticity of supply for coffee beans is found to be 0.4 for a given time period. Which of the following is the most likely explanation for this value?
  - (a) Stocks of coffee beans are below normal
  - (b) Coffee beans are a necessity for producers
  - (c) Farmers are able to supply coffee beans at low cost
  - (d) Coffee producers have plenty of spare capacity

#### Answer explanation

Question 1		
A	INCORRECT	It will worry about putting prices up in order to cover the increased production costs. It may consider 'shrinking' the product to keep prices the same.
B	INCORRECT	It will worry that sales will fall as a result of the fall in income.
C	INCORRECT	It will worry about a loss of sales if the competitor cuts their price
D	CORRECT	It can reduce supply if sales fall

**Question 2**

A	INCORRECT	PED = 0.8 = $\% \Delta Q / \% \Delta P$ . Change in price is 25%, so change in quantity demanded must be 20% if PES is 0.8. A 20% increase in demand = 240 units.
B	CORRECT	
C	INCORRECT	
D	INCORRECT	

**Question 3**

A	CORRECT	PES is inelastic. They have limited stock to release to the market
B	INCORRECT	This is not related to supply elasticity
C	INCORRECT	This reflect the position of the supply curve, not its slope
D	INCORRECT	If this was the case, supply could be increased quickly

SO YOU NOW THINK YOU UNDERSTAND ELASTICITY	
<b>Define price elasticity of demand / Quote formula</b>	<b>Define cross price elasticity of demand/Quote formula</b>
<b>Five determinants of PED</b> 1 2 3 4 5	<b>Two determinants of XED</b> 1 Number of substitutes 2
	<b>Values and terms</b> XED = positive = XED = 0 = YED = negative =
<b>Values and terms</b> PED = infinity = PED = >1 = PED = 1 = PED = 0 to 1 = PED = 0 =	<b>Significance</b>
<b>PED and revenue</b> If revenue fall after price cut = If revenue rises after price cut =	<b>Define price elasticity of supply / Quote formula</b>
<b>Define income elasticity of demand/Quote formula</b>	<b>Five determinants of PES</b> 1 2 3 4 5
<b>Determinant of YED</b>	<b>Values and terms</b> PES = 0 = PES = 0 to 1 = PES > 1 =
<b>Values and terms</b> YED = positive = YED = negative =	<b>Significance</b>
<b>Significance of YED</b>	

*See answer section for completed table*

## REALITY CHECK

1. An increase in the price of petrol by 5% results in households reducing the number of journeys they make in their cars by 2.5%. Which one of the following statements explains this?
  - (a) Petrol and car journeys are in joint supply.
  - (b) There is positive cross elasticity of demand between the price of petrol and car journeys.
  - (c) The price elasticity of demand for petrol is relatively inelastic.
  - (d) The price elasticity of demand for petrol is 2.
  
2. A value of price elasticity of demand for a product is 0.5. If the price of this product increases by 10%, then total revenue will:
  - (a) Rise by more than 10%; (b) Rise by less than 10%; (c) Fall by more than 10%; (d) Fall by less than 10%.
  
3. If the cross price elasticity of demand between two goods has a negative value, this means the two goods are:
  - (a) Complementary to each other; (b) Both inferior goods; (c) Unrelated to each other; (d) Substitutes for each other.
  
4. Which one of the following is true when the income elasticity of demand for bus travel is  $-1.5$ ?
  - (a) A 10% increase in fares will lead to a 15% decrease in passengers.
  - (b) Bus travel is an inferior good.
  - (c) Bus travel has a negative cross elasticity of demand.
  - (d) More people will use buses when the rate of unemployment falls
  
5. An increase in incomes in Australia leads to an increase in demand for overseas holidays and a decrease in demand for holidays in Australia. Therefore:
  - (a) Holidays in Australia are an inferior good while overseas holidays are a normal good.
  - (b) The demand for overseas holidays is income inelastic while the demand for holidays in Australia is income elastic.
  - (c) There is a negative cross price elasticity of demand between overseas holidays and holidays in Australia.
  - (d) Demand for overseas holidays is relatively price elastic demand for holidays in Australia is relatively price inelastic.
  
6. An inferior good always has:
  - (a) Positive price elasticity of demand.
  - (b) Many substitutes.
  - (c) Negative cross elasticity of demand.
  - (d) Negative income elasticity of demand.
  
7. Which one of the following is a correct statement about the price elasticity of supply of wheat?
  - (a) It is less elastic in the long run than in the short run.
  - (b) It is determined by the availability of substitutes.
  - (c) In the short run it depends on the stocks of wheat available.
  - (d) It is more elastic when there are restrictions on the amount of wheat that can be imported.

8. The price elasticity of supply for most goods is  
Zero; (b) Between zero and  $-1$ ; (c) Between  $-1$  and minus infinity; (d) Positive.
9. Demand for a good is relatively inelastic when:  
(a) There are many substitute products  
(b) The product is a luxury purchase  
(c) The product is expensive  
(d) The product is complementary with another more expensive product
10. In a market where there are many suppliers offering very similar products demand for the produce of any one seller will be:  
(a) Price elastic; (b) Price inelastic; (c) Income inelastic; (d) Cross price inelastic with other products



### SYLLABUS POINTS

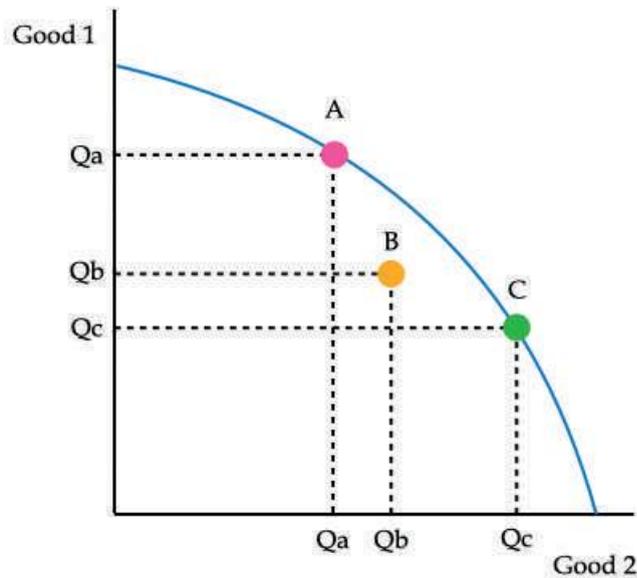
- The concept of market efficiency in a perfectly competitive market
- The concepts of consumer surplus, producer surplus, total surplus, deadweight loss
- The efficiency of market equilibrium, i.e. maximising total surplus
- How under- and overproduction in a market can result in a deadweight loss
- The effects of a tax and a subsidy on a market
- The effects of a price ceiling and a price floor on a market

OVERVIEW – MARKET EFFICIENCY	
1	Given the basic economic problem of relative scarcity, it is important that resources in an economy are used efficiently and not wasted. An efficient economy is one where the economy's limited resources are used in a way that maximises the welfare or living standards of the people in the economy.
2	There are two aspects to economic efficiency, productive or technical efficiency and allocative efficiency.
3	Productive or technical efficiency refers to the costs of production. For any given product of a certain quality, if production takes places at the lowest average or unit cost possible then it is being produced in a productive or technically efficient way. Allocative efficiency refers to the value consumers place on the product. If the benefit consumers receive from consuming the product reflects the cost of making it, production can be described as being allocatively efficient.
4	To be economically efficient an economy must be productively and allocatively efficient.
5	Most economists believe a deregulated, competitive market economy, for the most part anyway, generates higher levels of economic efficiency than other government controlled methods.
6	Markets create welfare or surplus for both consumers and producers.
7	Buyers receive consumer surplus when they buy a product in a market because the market price they pay will be less than (or for the last customer equal to) their marginal benefit or willingness to pay. On a demand and supply diagram the level of consumer surplus is the triangular area below the demand curve and above the market price.
8	Suppliers receive producer surplus when they sell a product in a market because the market price they receive is more than (or for the last unit supplied equal to) their marginal cost or willingness to supply. On a demand and supply diagram the level of producer surplus is the triangular area above the supply curve and below the market price.
9	Consumer surplus plus producer surplus equals community surplus or total welfare.
10	Deadweight loss occurs when there is a reduction in the level of total welfare. Markets are said to fail when their operation fails to maximise total welfare. Market failure is the subject of Chapter 7.

## Part 1 – The efficient use of resources

The economic problem is the relative scarcity of resources. Economic resources are limited but wants are unlimited. An efficient economy is one where the economy's limited resources are used in a way that maximises the welfare or living standards of the people in the economy. An economy operates efficiently if it is not wasting any of its resources. Waste might occur because of:

- Productive or technical inefficiency, where the production process used to make a good or service is wasteful, resulting in a higher cost of production than is necessary.
- Allocative inefficiency, where the price of a product being supplied to the market is higher than the value that consumers place on it.



**Fig 6.1:** Different levels of efficiency

In fig 6.1, assuming consumers prefer to have more of Good 1 than Good 2, combination A is a Pareto optimum combination because production is both productively and allocatively efficient, combination B is neither productively nor allocatively efficient and combination C is productively efficient but not allocatively efficient.

Most economists believe in market efficiency because, for the most part, deregulated, competitive markets generate higher levels of economic efficiency than other government controlled methods. At the same time, most economists also accept that there are some situations where markets fail to produce an efficient outcome and where governments can intervene to correct what is known as market failure. These situations are explained in Chapter 7. The economic role of the government is covered further in Chapter 14.

The term Pareto efficiency (or even Pareto Optimality) can be used to describe a situation where economic efficiency is being maximised. If resources are being used in the most efficient way they cannot be used differently to make someone better off without making someone else worse off.

Term	Explanation
Economic efficiency	Productive (or technical) efficiency plus allocative efficiency
Productive efficiency	Products are produced at the lowest average cost of production
Allocative efficiency	Consumers value products above the opportunity cost of making them
Market efficiency	Belief that market economies generate economic efficiency
Pareto efficiency	A situation where economic efficiency is maximised
Market failure	Situations where markets do not maximise welfare

## Student Activity 6.1

1. Define the term 'economic efficiency'. What are the two forms of efficiency that combine to create economic efficiency?

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2. Using a realistic example, describe a situation where a producer is likely to be operating in a productively inefficient way.

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3. Using a realistic example, describe a situation where a producer is likely to be operating in an allocatively inefficient way.

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4. Use the production possibility curve model to illustrate an economy that is operating in a productively and allocatively inefficient manner. Explain the main points of your diagram.

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## Part 2 – Markets create welfare

In most competitive markets everybody is a winner because both buyers and sellers gain from trading in the market. If trade was not worth their while buyers and sellers would simply opt out of the trade. The total welfare or community surplus created in a market is the sum of consumer surplus and producer surplus.

### What is consumer surplus?

- As long as consumers act rationally, the value or marginal benefit to them of the product they have bought will be greater than the price they have paid for the product.
- Put another way, in a free market, people won't buy things that are worth less to them than the asking price. For example, all buyers of Cherry Ripes demonstrate by buying the Cherry Ripes that they would rather have the Cherry Ripe than keep the money or buy an alternative product.
- Everybody that buys something in a market gets a bonus because the benefit or pleasure they receive is greater than the price they have to pay. This bonus is called consumer surplus and it contributes to their total welfare.

### What is producer surplus?

- As long as producers are rational, the market price they receive from supplying a product to a market will exceed the cost of making it.
- Producers won't sell products (at least not for long) where the marginal cost of production is more than the revenue they receive for selling them. If they did they would not make a profit and would go out of business. For example, Cadbury get a bonus when someone buys a Cherry Ripe because the money they receive for the sale is greater than its production cost. This bonus is called producer surplus and it contributes to their welfare or profit.

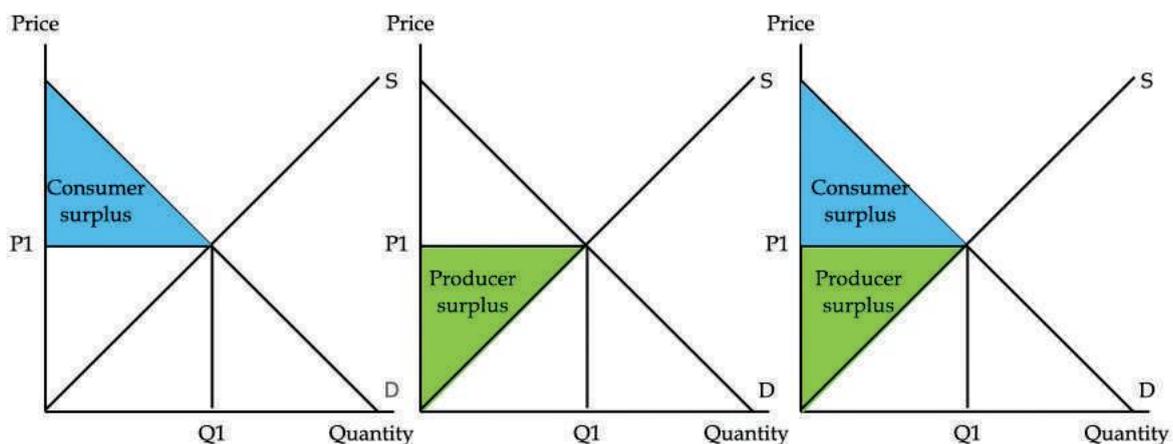


Fig 6.2:

### Why does a market maximise welfare?

Consumers and producers simply opt out of a market when they don't get their bonus or surplus. This opting out process occurs when market equilibrium quantity is reached. If trade continued beyond this point consumers and producers would lose some of their consumer and producer surplus. Equally if they opted out before the equilibrium point they would be foregoing some consumer and producer surplus.

Term	Explanation
Consumer surplus	The difference between the extra benefit or satisfaction consumers receive from buying a product and the price they have to pay for the product. It is the area below the market demand curve and above the equilibrium market price.
Marginal benefit	The extra benefit, pleasure or satisfaction consumers receive from the consumption of a product.
Market price	The clearance price in a market, where quantity supplied equals quantity demanded
Producer surplus	The difference between the market price a producer receives from selling a product and the marginal or extra cost of producing the product. It is the area above the market supply curve and below the equilibrium market price.
Marginal cost	The extra production costs of one more unit of output
Community surplus	The sum of consumer surplus and producer surplus
Total welfare	The same as community surplus

### Student Activity 6.2

1. Define, with the use of an example, the meaning of the term 'consumer surplus'. Who receives consumer surplus and when do they receive it?

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2. Define, with the use of an example, the meaning of the term 'producer surplus'. Who receives producer surplus and when do they receive it?

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3. What is the sum of consumer surplus and producer surplus?

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4. Choose a product and draw a demand and supply diagram that shows the market for that product. Shade in the areas of consumer surplus and producer surplus. Explain why community surplus or total welfare is maximised at the market equilibrium price and quantity.

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5. Discrete products can only be bought in whole units e.g. cows. A farmer can buy 1 cow or 2 cows but not 1.45 cows. The demand curve for cows is, therefore, a step function rather than a linear function. Assume the data in table 6.1 shows a farmer's demand for cows and that the price of a cow is \$60.

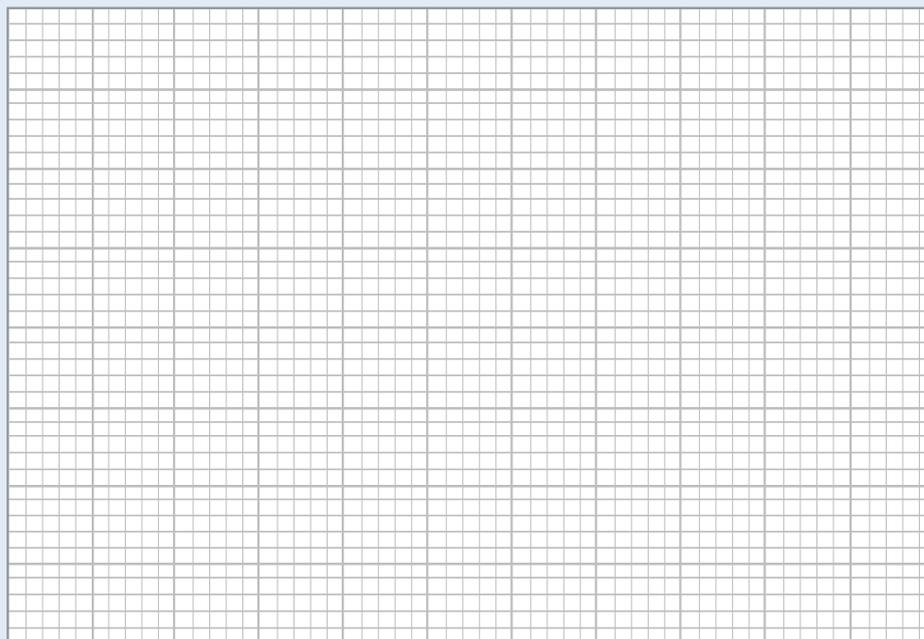
Table 6.1		
Number of cows	Willingness to pay (\$)	Consumer surplus
1st	100	
2nd	90	
3rd	80	
4th	70	
5th	60	
6th	50	
7th	40	
8th	30	
9th	20	
10th	10	

- (a) How many cows will the farmer buy (assuming the 'break-even' cow is bought)?
- (b) Complete the third column by calculating the level of consumer surplus the farmer receives for each cow he buys.
- (c) What, therefore is the total level of consumer surplus the farmer receives from buying 5 cows?

6. Divisible products, such as sheep dip, can be bought in precise or exact quantities. You can buy 1 litre of sheep dip or 2 litres or 1.45 litres. The demand curve for sheep dip is, therefore, a linear function. Assume the data in table 6.2 shows a farmer's demand for sheep dip. The price of sheep dip is \$60 per litre.

Table 6.2	
Price of sheep dip (\$)	Quantity demanded
100	1
90	2
80	3
70	4
60	5
50	6
40	7
30	8
20	9
10	10

- (a) How much sheep dip will the farmer buy?
- (b) Calculate the level of consumer surplus the farmer receives from buying 5 litres of sheep dip.
- (c) Sketch the demand curve and work out the areas of the triangle between the demand curve and the market price of \$60.



7. Table 6.3 shows the data about the market for widgets.

Table 6.3		
Price (\$)	Quantity demanded per month	Quantity supplied per month
0	210	0
5	190	15
10	170	30
15	150	45
20	130	60
25	110	75
30	90	90
35	70	105
40	50	120
45	30	135
50	10	150

- Draw, accurately, the demand and supply curves for the widget market shown in the table.
- Which of the lines shows the marginal cost of producing different quantities of widgets?
- Which of lines shows the marginal benefits received by people buying widgets?
- What is the price and quantity at the market equilibrium position?
- Complete Table 6.4 below.

Table 6.4		
Price (\$)	How many people are willing to pay this price to get a widget?	How many people value a widget at least as much as this price?
45		
30		
15		



(f)	What is the minimum level of marginal benefit that widget buyers who are prepared to pay \$40 for the widget must receive?	
(g)	If widget buyers who are prepared to pay \$40 for a widget only have to pay \$30 what is the level of consumer surplus these buyers receive?	
(h)	What was the total consumer surplus in this market?	
(i)	What is the total level of sales revenue (price x quantity) of widget producers in this market?	
(j)	What is the level of producer surplus in this market?	
(k)	What is the total level of community surplus (or net economic welfare) generated in the widget market?	
(l)	What would happen to the level of community surplus in this market if the government fixed the price of widgets at \$20. Show what would happen on a diagram?	
(m)	What would happen to the level of community surplus if the government limited supply to 50 units a month by restricting licences to make widgets? How can this be shown on a diagram?	

### Part 3 – Deadweight Loss

Deadweight loss is the difference between the actual level of welfare generated in a market and the maximum possible level of welfare. Deadweight loss occurs when markets do not operate at the most efficient point. This may happen because, for some reason, the market is not operating at the equilibrium point. There may be under-production or over-production, and prices may be set above or below the equilibrium or clearance price.

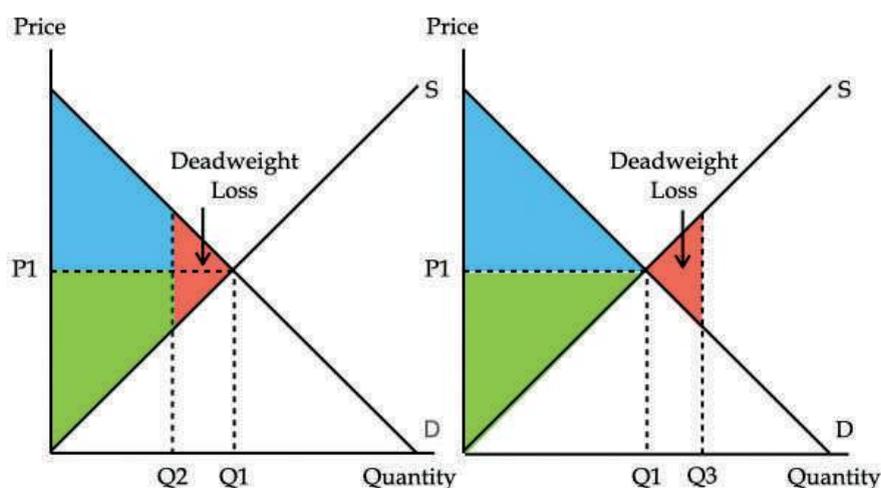


Fig 6.3: Under production (LHS) and Over-production (RHS)

The term 'market failure' means that resources are not being allocated to markets in an optimal manner, and, as a result, community surplus or welfare is not being maximised. This can happen, for example, when:

- Producers have a degree of monopoly power, their production generates positive or negative production externalities or they 'satisfice' rather than aim for maximum profits
- Consumers' decisions are based on bounded rationality because of limited or incorrect information, because they suffer from cognitive biases or because their consumption creates positive or negative consumption externalities.

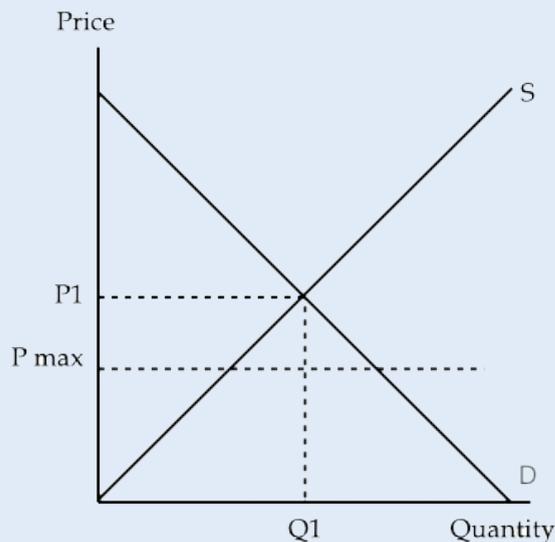
### Student Activity 6.3

1. What is 'deadweight loss'? When does it occur?

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2. Suppose Great Southern Land (GSL) celebrates its national day on April 1st.



*Fig 6.4: Impact of setting a maximum price*

The left wing, socialist government has introduced a law that sets a maximum price for standard chocolate eggs ( $P_{\max}$ ). Standard eggs are a popular gift on GSL's national day. Demand for eggs is high at this time of year but the official price of a standard egg can't go above the government's maximum price.

- (a) Explain why the government's intervention in the free market for chocolate eggs has caused a loss of community surplus and a deadweight loss.

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- (b) Identify and explain two reasons why the government might have introduced the maximum price law.

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### CASE STUDY: Wi-fi

Many expensive hotels and cruise ships charge for Wi-fi while most budget hotels and ships provide it for free. Many coffee shops and restaurants offer free Wi-fi but some don't. Microeconomic theory offers us a number of insights into the market for Wi-fi.

- **Consumer surplus and producer surplus:** Expensive hotels are hoping to convert some of the consumer surplus guests have received into producer surplus by charging for Wi-fi (and by offering expensive breakfasts and drinks in a mini-bar). Offering Wi-fi for free (and charging lower prices for breakfast and drinks) would mean the expensive hotels were foregoing producer surplus. People who stay in budget hotels may be more sensitive to prices and not receive as much consumer surplus.
- **Price elasticity of demand:** Hotels (and cafés and restaurants) are more likely to charge for Wi-fi if demand is price inelastic. Demand will be relatively price inelastic when there are few acceptable alternatives available to customers and when customers have revealed their willingness to pay by choosing an expensive room. They are, therefore, less likely to worry about relatively small extra charges for Wi-fi, breakfast and drinks from the mini-bar. There are probably more budget hotels to choose from, so demand for them is relatively price elastic and the Wi-fi is provided free.
- **Sunk cost fallacy:** A person may think that as they have already paid a lot for their room (e.g. \$250 a night) they might as well pay an extra \$15 for Wi-fi. A rational consumer, however, should ignore the room cost and only consider whether the extra benefit of the Wi-fi (e.g. convenience, communication and entertainment) is worth the extra cost.
- **Price discrimination:** Some hotels offer two (or more) levels of Wi-fi, a basic service (slow and/or limited time, for free or low cost) and a premium service (fast and/or unlimited time, for a higher price). This allows people to reveal the intensity of their demand.
- **Marketing mix:** Wi-fi enhances the overall quality of the product offered to customers. In cafés free Wi-fi may lead to customers occupying places for long periods of time (while organising their work or reading a book). This may be to the cafés advantage if the customers spend more money but to their disadvantage if other customers can't find somewhere to sit.
- **Principal-Agent Problem:** Business customers may not be paying for their hotel room or their Wi-fi. The fact that someone else is paying can lead to different patterns of consumption.

### Possible discussion points:

- (a) Should all Wi-fi in public places be provided free of charge
- (b) What factors affect the price elasticity of demand for Wi-fi?
- (c) Why do expensive hotels charge for Wi-fi and smaller, cheaper hotels offer free Wi-fi?
- (d) Why do a number of local councils provide free Wi-fi hotspots?
- (e) Why do telecommunications companies provide free hotspots for their domestic subscribers?

SO YOU THINK YOU NOW UNDERSTAND MARKET EFFICIENCY	
<p><b>Importance of economic efficiency</b></p>	<p><b>How a market creates welfare</b></p>
<p><b>Four different types of efficiency</b></p> <p>1 Productive efficiency =</p> <p>2 Allocative efficiency =</p> <p>3 Economic efficiency =</p> <p>4 Market efficiency =</p>	<p><b>What is consumer surplus?</b></p> <p><b>What is producer surplus?</b></p>
<p><b>Five conditions for market efficiency</b></p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p>	<p><b>What is deadweight loss?</b></p> <p><b>When does it occur?</b></p>

## REALITY CHECK

1. An economy is economically efficient when:
  - (a) All economic resources are being used.
  - (b) Output is as high as possible.
  - (c) Total welfare is maximised.
  - (d) Incomes are transferred to less well-off members of society.
  
2. An economy is always productively efficient if it:
  - (a) Continually increases society's standard of living.
  - (b) Undertakes investment in capital goods.
  - (c) Is operating with no unemployed workers.
  - (d) Can produce more of one good only by producing less of another.
  
3. Output is productively efficient if:
  - (a) Average or unit costs of production are at the lowest possible level.
  - (b) It cannot increase current production even if demand for its product increases.
  - (c) Output per worker cannot increase.
  - (d) An increase in production will decrease average costs.



## SYLLABUS POINTS

- The concept of market failure
- Market power
  - The characteristics of an imperfectly competitive market
  - The concept and causes of market power
  - How market power can influence market efficiency, i.e. a deadweight loss
  - Policy options to influence market power, including regulation/deregulation and legislation
- Externalities
  - The concept of externalities, i.e. positive and negative externalities
  - The influence of externalities on market efficiency, i.e. a deadweight loss
  - Policy options to correct for externalities, including the use of taxes and subsidies
- Public goods and common resources
  - The classification of goods, i.e. based on rivalry and excludability
  - Public goods and the free rider effect
  - Common resources and the tragedy of the commons
- Policy options to reduce market failure associated with public goods and common resources

## OVERVIEW – MARKET FAILURE

<b>1</b>	Markets do not always lead to efficient outcomes and maximise total welfare. If market demand curves don't reflect the private and social benefits received by society and market supply curves don't reflect the private and social costs of production experienced by society, there is no guarantee of an efficient outcome. Market Failure is said to occur when markets operate inefficiently.
<b>2</b>	Information gaps, System 1 thinking, and cognitive bias distort market demand and supply curves. Buyers and sellers seldom have perfect knowledge about marginal benefits and costs. Processing information may be poor because of time pressures or misjudgments. Where information is available it can be ignored. In this case products are described as merit or demerit goods.
<b>3</b>	In markets where producers have a degree of monopoly market power, decreased supply leads to higher prices. While higher prices increase producer surplus they reduce consumer surplus and, overall, reduce total welfare.
<b>4</b>	The production and consumption of many products affects third parties as well as those directly involved in decision-making. Unless these externalities are included market demand and supply curves will be in the wrong place for society as a whole and will lead to 'incorrect' or sub-optimum outcomes.
<b>5</b>	Other cases of market failure develop if products are non-rival and non-excludable. 'Non-rival products' are collectively consumed (e.g. footpaths), whereas 'rival products' can only be consumed individually. One person using a footpath doesn't (normally) stop someone else from using the same footpath.
<b>6</b>	'Non-excludable products' can be consumed by non-payers or free-riders. Free-riding occurs when owners of a product can't prevent non-payers benefitting from it. Without payment, suppliers will not supply and, with the opportunity to free-ride, consumers can benefit without having to pay.
<b>7</b>	A market where consumption is non-rival but excludable develops into a natural monopoly. One supplier comes to dominate a market such as Pay-TV and electricity, gas and water supply. Consumers can be exploited by monopolists.
<b>8</b>	Where products are made with non-excludable but rival resources, a situation known as the 'tragedy of the commons' develops. The common access resource is damaged by over-use e.g. fish stocks and the earth's atmosphere.
<b>9</b>	Non-rival and non-excludable products are known as 'public goods'. Examples of public goods include lighthouses, and national defence. There is no private sector supply of a public good so there is no market to produce an equilibrium price and quantity and allocate resources to these products.
<b>10</b>	Governments use a number of policies to prevent or correct market failure. In general these aim to penalise and discourage bad behaviour and reward and encourage good behaviour. Measures include indirect taxes and subsidies, regulation, setting up 'cap and trade' secondary markets, competition policy, providing information and direct provision.

## Part 1 – Market failure

Market failure occurs when markets lead to an inefficient allocation of resources and total welfare or community surplus is not maximised. The degree or extent of market failure varies from situation to situation but it is present in the following situations:

- **Information Gaps, Systems 1 thinking and cognitive bias:** Buyers and/or sellers who have insufficient information to make rational decisions may make quick decisions using selected information or make misjudgments as a result of muddled thinking.
- **Market Power:** One or more producers and/or consumers has monopoly power in a market.
- **Merit and demerit products:** Buyers consume fewer merit goods and/or more demerit goods than society thinks is desirable.
- **Externalities:** Side-effects experienced by by-standers as result of other peoples' decisions.
- **Public Goods:** Products where there is no private sector demand or supply.
- **The Tragedy of the Commons:** Common access resources are exploited and damaged through over-use.
- **Club goods and natural monopolies:** Economies of scale create conditions where only one firm can profitably supply a market.

### Student Activity 7.1

#### 1. Over a million plastic bottles a minute

Over a million plastic bottles are bought around the world every minute creating an environmental crisis as serious as climate change according to some campaigners. Demand is driven by the insatiable desire for bottled water and the spread of a western 'on-the-go' culture in China and the Asia Pacific region with China's demand for bottled water accounting for nearly 25% of global demand.

Most plastic bottles used for soft drinks and water are made from polyethylene terephthalate (Pet), which is recyclable but less than half of Pet bottles were collected for recycling and less than 10% turned into new bottles. The rest are either burnt, end up in landfill or leak into the environment and oceans. Drinking bottles could be made out of 100% recycled plastic, known as RPet, using 75% less energy than virgin plastic bottles. This would make the plastic bottle industry more 'circular' but so far supplies of recycled plastic are relatively scarce and the RPet bottles don't look as attractive to customers. The industry is resisting the imposition of taxes or charges to reduce demand for single-use plastic bottles.

Plastic bottles are a big part of the huge surge in usage of a material first popularised in the 1940s. Most of the plastic produced since then still exists as the petrochemical-based compound takes hundreds of years to decompose. About 10m tonnes of plastic leaks into the world's oceans each year to be ingested by sea birds, fish and other organisms and some of it is already finding its way into the human food chain.

(Source: Adapted from news stories)

Discuss whether the allocation of resources to the production of plastic bottle is efficient and whether total welfare or community surplus is being maximised.

- #### 2. Identify three situations your consumer surplus was not maximised because of deadweight loss. In each case identify the cause of the deadweight loss.

## Part 2 – Information Gaps, Systems 1 thinking and Cognitive Bias

- Information gaps are a source of market failure because, without good quality information, consumers and producers can't calculate if they are making rational decisions. Prices become distorted and resources misallocated. For example, there may be an imbalance of knowledge and power between parties engaged in a transaction because of asymmetric information (such as buying health insurance or a second-hand car). One party may exploit the other or, due to a lack of trust, trade may not take place at all. Information gaps also create situations of moral hazard. Moral hazard occurs where a person chooses a risky option because they know that someone else will have to bear the burden should losses occur.
- However, providing more and better information doesn't guarantee rational or even just better decision-making. For many transactions people are often happy to make 'good enough', rather than perfect, decisions based on the information and time available. Behavioural economists call this process bounded rationality and satisficing. People make rational decisions within the bounds of the data and time they have and are content with 'satisficing', accepting a satisfactory outcome rather than delaying and spending time searching for an optimal solution.
- Systems 1 thinking (a term introduced by Daniel Kahneman) occurs when people 'think fast' about decisions. People often use 'mental short cuts' or 'rules of thumb' (known as heuristics) to help them make decisions quickly when a full evaluation of each and every consumption option would be too complex and time-consuming. Thinking fast is intuitive, automatic and emotional and often produces acceptable results. It can, however, also result in poor decisions resulting from systematic, and often predictable, bias (cognitive bias). Decisions can be improved if more 'effort' is devoted to considering the alternatives available. Kahneman's 'System 2', or 'thinking slow', is deliberate, rigorous, thoughtful and logical but requires more effort and is often avoided, particularly for routine decisions.
- Behavioural economists have identified many mental short cuts and situations of cognitive bias. Some key mental short cuts are listed in the table below.

Bias	Explanation	Example
Default bias	Habitual behaviour – carrying on as before. Repeat previous choices.	Brand preference Addiction
Anchoring	People rely too heavily on a piece of information which may or may not be relevant as a point of reference or benchmark to judge whether a deal or offer is good or bad.	In a market where there is no fixed price, first person states ambit price. Suggested donations to charity. Advertisements that highlight a few low prices.
Herd behaviour	Decisions are based on what the group thinks rather than what the individual thinks. It is difficult to believe the large group is wrong. The group knows something the individual doesn't.	Use of ratings websites (e.g. trip advisor) Following fashion. Going with the crowd.
Scarcity bias	People make hasty decisions and often pay too much through a fear of missing out.	Book now! Pay now! Only 5 seats left
Availability bias	People pay undue attention to recent events, especially new pieces of information or experiences that are highly emotive.	People put off flying because of news about recent plane crash (or swimming because of a recent shark attack). People play lotto because of news of a winner living nearby.
Halo effect	Future judgement is influenced by the first impressions (i.e. good first impressions lead to positive views later, bad first impressions lead to negative reaction later)	Selection of applicants for jobs. Not admitting decisions have been poor.

- Finally, thinking fast makes decision makers more likely to be influenced by ‘choice architecture’, and the ‘framing’ of a choice. These concepts refer to the context and manner in which choices are offered and made. Sellers are likely to design their marketing to take advantage of peoples’ fast thinking and cognitive bias and ‘nudge’ people to influence their behaviour, e.g. a gym may choose to advertise the cost of membership at \$25 per week rather than \$1,300 per year, and a shop may place popular, premium goods near the front of their stores.

## Part 3 – Information and comprehension gaps

Markets may fail because consumers and producers:

- Lack the information to make rational decisions because the necessary information is unavailable or too expensive to access – e.g. the prices and quality of all the other competing products
- Do not understand the information because it is too complex e.g. financial planning services and most electrical and mechanical products
- Ignore the information because they choose not to understand it – e.g. consuming products that cause climate change and smoking
- Don’t have the same quantity or quality of information as other people so knowledge is asymmetrical or one-sided – e.g. insurance, and medical services
- Take a short-term rather than a long-term view – e.g. smoking and binge drinking
- Don’t take into account negative or positive externalities – e.g. use of plastic, education and health care

Consumers have access to many sources of information. Private sector businesses may provide information to consumers or producers, e.g. by providing comparison websites such as Trip Advisor and Compare the Market. The Consumers’ Association provides information through its website and Choice Magazine and information can be picked up from friends and social media sources.

The government may also help close information gaps, for example by:

- Regulating the consumption and production of products – e.g. financial services, swimming pool fences, bicycle helmets
- Prescribing producers provide certain information – e.g. food labelling, energy efficiency and information about used cars
- Protecting consumers from exploitation through the *Competition and Consumer Act 2010*
- Educating and informing consumers through government websites.

### Student Activity 7.2

1. Compile a report to explain why consumers may act irrationally. Include in your report answers to the following:
  - What is rational behaviour?
  - Why might people not want to act rationally all the time?
  - Why can’t decisions be made on a purely rational basis?
  - What might the seller do to encourage irrational behaviour?
  - What do people do instead? Explain three decision-making short-cuts people may use.
2. Provide examples of people who pay more for things than they have to. Explain why these people act in this way.

## Part 4 – Market Power

A lack of competition between producers can cause market inefficiency and deadweight loss. The term ‘degree of monopoly power’ refers to the extent of a firm’s influence over prices and quantity of output in a market. A pure monopolist has complete control in a market, but examples of pure monopoly are very rare. The existence of other suppliers and alternative substitute products reduces the degree of market power. In a relatively common market form called oligopoly there are a few dominant firms and market power can be reduced if they tacitly collude with their rivals, for example by matching prices and marketing strategies. In other market forms known as monopolistic competition and perfect competition there are many competing firms and each firm has very little market power.

Indicators of market power include:

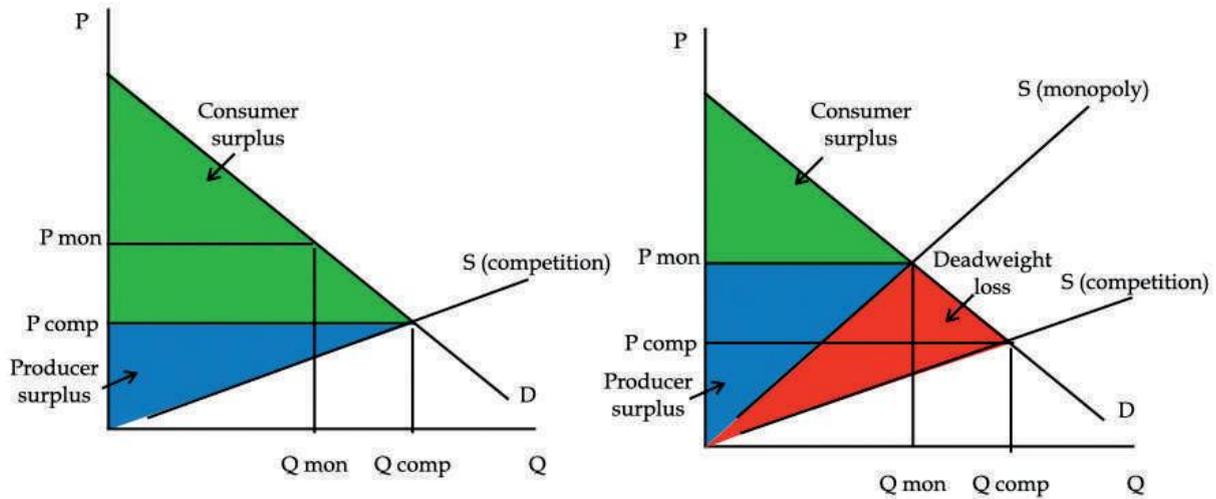
- **Market share:** A firm’s sales expressed as a proportion of the total sales in the market, e.g. Google would have a 90% market share if 90% of internet searches used Google
- **Concentration ratios:** The market share of the biggest firms e.g.  $CR_2 = 75\%$  describes Coles and Woolworths share of the Australian supermarket industry
- **Size of profit:** The ability to set a price well above the costs of production is a strong indicator of market power.

Once a firm has achieved a degree of market power they will want to protect their power in order to make monopoly profits. There are a number of ‘barriers to entry’ that help it do this. These can be grouped into three categories; structural, strategic and legal.

Group	Source/Explanation	Examples
<b>Structural Barriers</b>	<b>Economies of scale:</b> Economies of scale are cost advantages a firm enjoys as a result of increasing the scale or size of their operations. They create a barrier to entry because firms wishing to enter the market, given their smaller scale of operations, will be unable to match these low production costs.	<ul style="list-style-type: none"> <li>• Supermarkets buying power over suppliers</li> <li>• Access to cheaper finance</li> <li>• Specialisation</li> <li>• Agglomeration</li> </ul>
<b>Strategic Barriers</b>	<b>Control of supply:</b> Control of the supply of a key resource needed to produce the good will keep other firms out of the market.	<ul style="list-style-type: none"> <li>• Russian gas supplies to Europe</li> <li>• Restrictions on rival firms in shopping centres</li> <li>• Telstra’s copper network</li> </ul>
	<b>Brand loyalty:</b> Customers may be loyal to the existing brands in the market. Firms may ‘lock in’ their customers with loyalty schemes.	<ul style="list-style-type: none"> <li>• Clothing brands</li> <li>• Frequent Flyer Schemes</li> <li>• Eponymously named products (i.e. known by their brand name)</li> </ul>
	<b>Anti-competitive behaviour:</b> An existing monopolist may have sufficient power to defend its position by, for example: <ul style="list-style-type: none"> <li>• <b>Predatory pricing:</b> Cutting prices until new entrants are forced out of the market</li> <li>• <b>Bundling:</b> Using price discrimination to capture customers</li> <li>• <b>Tacit collusion:</b> Matching strategy of rival firms e.g. through price signalling</li> </ul>	<ul style="list-style-type: none"> <li>• Airlines</li> <li>• Mobile phones</li> <li>• Concrete suppliers</li> <li>• Fuel discounts offered by supermarkets</li> </ul>

Group	Source/Explanation	Examples
<i>continued</i>		
<b>Legal Barriers</b>	<b>Protection of intellectual property:</b> Firms have a legal right to benefit from their intellectual property. A patent or copyright law can prevent rival firms free-riding on their research and development.	<ul style="list-style-type: none"> <li>Genetically modified crops</li> <li>Medical equipment (hearing aids)</li> </ul>
	<b>Government regulation:</b> Governments may control entry to a market to allow a firm to meet broader social and economic goals.	<ul style="list-style-type: none"> <li>Electricity, gas and water distribution</li> <li>Broadcasting rights (Fox Sports)</li> <li>Passports and licences</li> </ul>

Compared to competitive markets, markets where firms have monopoly power generate lower levels of total welfare or community surplus and redistribute the surplus in favour of producers. Monopoly market power allows firms to reduce supply and increase prices.



**Fig 7.1:** Deadweight loss caused by monopoly power

In the diagrams above:

- P Comp and Q Comp show the price and output level in a competitive market.
- P Mon and Q Mon show the price and output level in a market where producers have monopoly market power.

The outcome when firms have monopoly market power is:

- Higher consumer prices, reduced sales and reduced consumer surplus.
- Higher prices received by producers, reduced sales and increased producer surplus.
- Overall welfare is reduced (there is deadweight loss) due to the reduced level of sales.

Market power, in markets where producers can identify and keep different groups of customers apart, allows producers to further increase their surplus and reduce consumer surplus through price discrimination, a practice of charging different groups different prices for essentially the same product.

Monopoly can be an inefficient market structure. However, it is not always inefficient. Monopolists may operate in a relatively efficient way without government regulation if:

- They achieve economies of scale: The large scale of their operations allows them to reduce costs of production

- There is a potential entrant to the market: A monopolist may not exploit their market power too much because they fear a new entrant will be attracted to the market.
- They undertake finance research and development: A monopolist may earn sufficient profit to finance research and develop new, improved products for consumers

Where there is abuse of market power, the Government relies on the Competition and Consumer Act, 2010 (formerly known as the *Trade Practices Act*) and the Australian Competition and Consumer Commission (ACCC) that administers the Act. The Act provides general consumer protection (e.g. against misleading advertising) but deals with monopoly market power on a case by case basis, concentrating on behaviour that is clearly anti-competitive, such as market sharing arrangements, third-line forcing (sale of one product is conditional on purchase of another), predatory pricing (to force new, weaker rivals to make a loss), boycotts (a refusal to supply) and resale price maintenance (insisting all sellers charge at a certain price for their product).

### Student Activity 7.3

1. Define the term 'monopoly market power'. Describe how could the 'degree of monopoly market power' be measured?  


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2. Define the term 'barrier to entry'. Describe three possible barriers to entry that might prevent the entry of another firm into a market already dominated by firms with monopoly market power.  


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3. Using a demand and supply diagram, show how monopoly market power can (i) cause deadweight loss, (ii) reduce consumer surplus and (iii) increase producer surplus.  


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4. Research examples of firms undertaking what might be considered to be anti-competitive. A good starting point for the research is the Australian Competition and Consumer Commission website at <https://www.accc.gov.au/>. What did they do? What allowed them to do it? What was the outcome?

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## Part 5 – Merit and demerit goods and services

- Information and comprehension gaps can lead to the over-consumption and/or under-consumption of products known as merit and demerit goods. Information about the product and the externalities or side-effects of consuming the product may be available to buyers and sellers but they may not be able to understand it or they may simply choose to ignore it.
- Merit goods and services are products that in society’s opinion are under-consumed. Merit goods and services are also associated with positive externalities or side effects. Examples include education and health care services and arts facilities (e.g. libraries, galleries and museums).
- Demerit goods and services are products that in society’s opinion are over-consumed. Demerit goods are associated with negative externalities as their consumption can impose spin-off costs on bystanders or third parties. Examples include drug taking, smoking, accessing pornography, gambling, and drinking sugary drinks or eating fast food.

### Student Activity 7.4

1. **Fees for tertiary education**

The government has proposed deregulating the fees charged by Australian tertiary education providers. It is likely that when fees rise and students will review whether or not to undertake a further education course. Studies show that a further education qualification can provide a return on investment of between 10% to 15% per year, as a result of improved chances of employment, career advancement and, therefore, higher lifetime earnings. People who complete higher education courses are also more likely to make significant contributions to society, for example by paying more tax, living more healthy lifestyles, providing for the material well-being and wealth of other members of society of individuals and the wealth of society, engaging in voluntary work and understanding political issues.

- (a) Give examples of significant information gaps that affect those making choices about further education?

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- (b) Discuss whether further education providers should be able to raise their fees.

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2. **Sugary drinks**

Some scientists argue that sugar is as toxic to the liver as alcohol and over-consumption is at the root of obesity and certain types of liver disease. They propose that sugar should be regulated in the same way as alcohol and tobacco because its increasing use in processed foods poses a significant danger to public health. They advocate controlling sales to children under 17, regulating advertising and taxing sugary foods.

- (a) What form of market failure leads to the over-consumption of sugar?

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- (b) Using a demand and supply diagram, show how the measures suggested in the extract (or other measures you are aware of), can correct the over-consumption of sugary foods.

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3. The Australian Stock Exchange (ASX), like all other exchanges, imposes continuous disclosure obligations on ASX listed companies. Companies are required to disclose market sensitive information, e.g. about factors that will affect its future profit performance, to correct or prevent a false market. Explain the importance of the ASX continuous disclosure rules.

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4. Information gaps lead to misplaced demand and supply curves in some markets that would probably not be classed as either merit or demerit goods. Two of these are second-car markets and insurance. Why do these markets fail? Can you think of other examples?

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## Part 6 – Externalities

Externalities exist when bystanders or third parties are affected by other peoples' economic decisions or choices. For example, if a business pollutes the water in a nearby river, costs are imposed on people external to the business, those who benefit from using the river and its water. These costs are called negative production externalities.

If externalities that result from consuming a product are ignored, the market demand curve for that product will be in the wrong position. If externalities that result from producing a product are ignored, the market supply curve for the product will be in the wrong position. Therefore, it is most unlikely that the market equilibrium price for the product will be at the correct level and overproduction or underproduction of the product will result. Scarce resources will be wasted and total welfare will fall.

Externalities can be positive or negative. By-standers benefit from positive externalities and are harmed by negative externalities. Externalities can result from other peoples' consumption or from other peoples' production. Therefore, economists need to consider four situations.

Positive consumption externalities	Positive production externalities
<p>Consumption creates benefits for people not directly involved in making that consumption decision.</p> <p><b>Examples</b></p> <ul style="list-style-type: none"> <li>• Flu vaccinations</li> <li>• Education</li> </ul> <p><b>Result if not corrected</b></p> <ul style="list-style-type: none"> <li>• Social benefit is greater than private benefit</li> <li>• Demand curve is too far to left</li> <li>• Products are under-consumed</li> </ul> <p><b>Role of the government</b></p> <ul style="list-style-type: none"> <li>• Raise consumption to correct level for society</li> <li>• Internalise the externality</li> <li>• Reward consumers for socially good behaviour</li> </ul>	<p>Production of a product reduces costs for people not directly involved in making that production decision</p> <p><b>Examples</b></p> <ul style="list-style-type: none"> <li>• Training workers</li> <li>• Renewable resources to produce energy</li> </ul> <p><b>Result if not corrected</b></p> <ul style="list-style-type: none"> <li>• Social costs lower than private costs</li> <li>• Supply curve is too high (too far to the left)</li> <li>• Products are under-produced</li> </ul> <p><b>Role of the government</b></p> <ul style="list-style-type: none"> <li>• Increase production to correct level for society</li> <li>• Internalise the externality</li> <li>• Reward producers for socially good behaviour</li> </ul>

### Negative consumption externalities

Consumption imposes loss of benefits for people not directly involved in making that decision.

**Examples**

- Using mobile phone when driving
- Smoking in public

**Result if not corrected**

- Social benefit less than private benefit
- Demand curve too far to the right
- Product is over-consumed

**Role of government**

- Reduce consumption to correct social level
- Internalise the externality
- Make consumers pay for socially bad behaviour

### Negative production externalities

Production imposes costs on people not directly involved in making that production decision

**Examples**

- Using fossil fuels to produce electricity
- Musical festivals

**Results if not corrected**

- Social costs more than private cost
- Supply curve is too low
- Product is over-produced

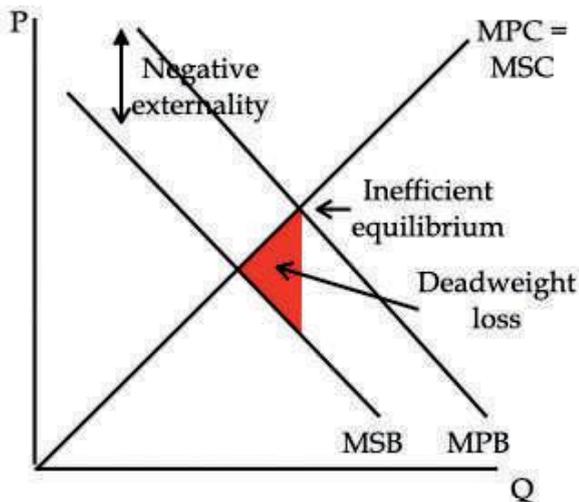
**Role of the government**

- Reduce production to correct social level
- Internalise the externality
- Make polluters pay for socially bad behaviour

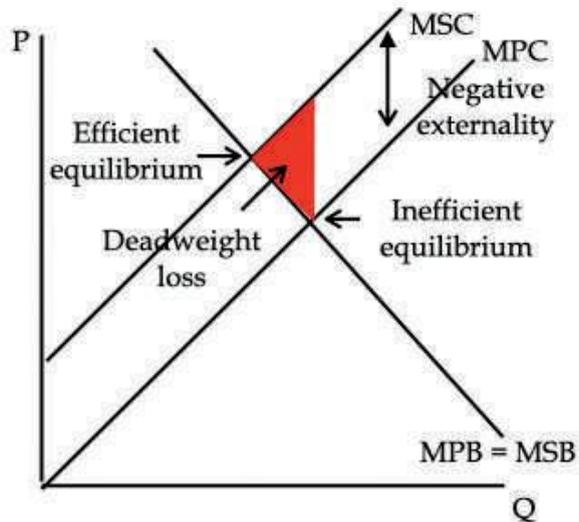
## Part 7 – Use of graphs to show deadweight loss

The graphs below look challenging but they can be mastered if you understand the following points common to each graph.

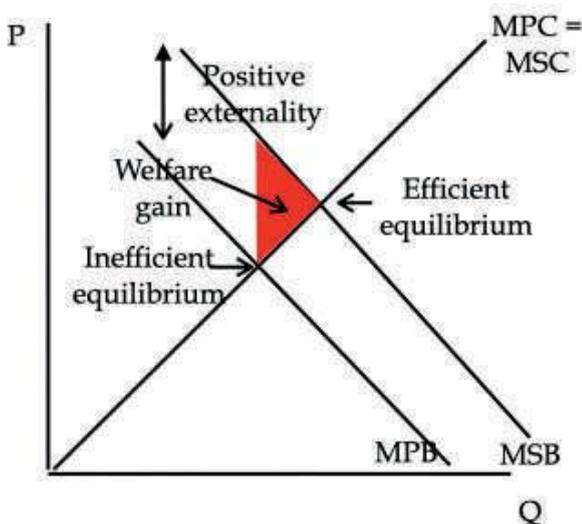
Negative consumption externalities



Negative production externalities



Positive consumption externalities



Positive production externalities

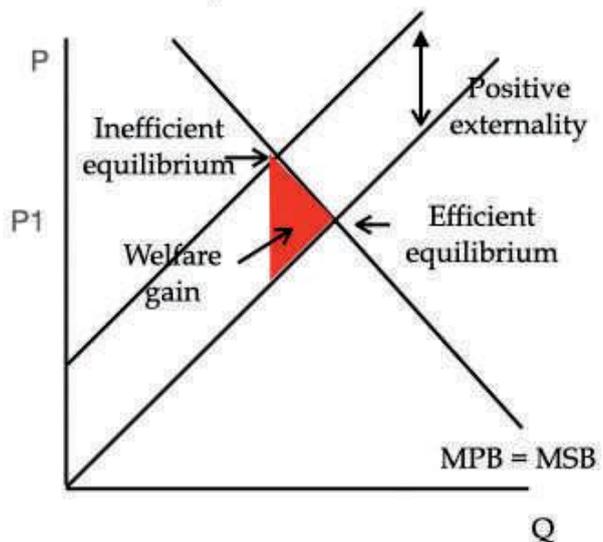


Fig 7.2: Negative and positive consumption and production externalities

- Demand curves become marginal benefit curves. Marginal private benefit curves are labelled MPB and marginal social benefit curves (when consumption externalities are included) are labelled MSB.
- Supply curves become marginal cost curves. Marginal private cost curves are labelled MPC and marginal social cost curves (when production externalities are included) are labelled MSC.
- The inefficient equilibrium position is P1 and Q1 and is where private benefits (demand) and private costs (supply) are equal.
- When the impact of a consumption externality is shown, the marginal benefits curve is moved – to the right for a positive externality and to the left for a negative externality.
- When the impact of a production externality is shown the marginal cost curve is moved – upwards for a negative externality and downwards for a positive externality.
- The efficient or socially correct equilibrium position is P2 and Q2 and is where social benefits (demand) and social costs (supply) are equal.
- The deadweight loss is always the area of triangle pointing to the efficient or socially correct equilibrium.

## Part 8 – Policies to reduce deadweight loss

Positive consumption externalities	Positive production externalities
<p><b>Objective</b></p> <ul style="list-style-type: none"> <li>• Raise consumption to socially correct level</li> <li>• Internalise the externalities</li> <li>• Reward people for socially good behaviour</li> </ul> <p><b>Shift MPC down</b></p> <ul style="list-style-type: none"> <li>• Provide a subsidy to producers (e.g. reduce public transport fares)</li> <li>• Provide a subsidy or voucher to consumers (e.g. school fees, child care)</li> <li>• Government provides free or at reduced cost (e.g. social housing)</li> </ul> <p><b>Shift MPB to the right</b></p> <ul style="list-style-type: none"> <li>• Educate people about benefits of consumption (e.g. eat five fruit and veg a day)</li> <li>• Regulate for good behaviour (e.g. wearing cycle helmets)</li> </ul>	<p><b>Objective</b></p> <ul style="list-style-type: none"> <li>• Raise consumption to socially correct level</li> <li>• Internalise the externalities</li> <li>• Reward people for socially good behaviour</li> </ul> <p><b>Shift MPC down</b></p> <ul style="list-style-type: none"> <li>• Pay producers a subsidy (e.g. wind-farms, training and research grants)</li> <li>• Allow gains from the sale of permits (e.g. emissions trading scheme)</li> </ul> <p><b>Shift MPB to the right</b></p> <ul style="list-style-type: none"> <li>• Educate producers (e.g. benefits of corporate social responsibility policies)</li> <li>• Regulate behaviour (e.g. compulsory training programs)</li> </ul>
Negative consumption externalities	Negative production externalities
<p><b>Objective</b></p> <ul style="list-style-type: none"> <li>• Cut consumption to socially correct level</li> <li>• Internalise the externalities</li> <li>• Make people to pay for bad behaviour</li> </ul> <p><b>Shift MPC upwards</b></p> <ul style="list-style-type: none"> <li>• Tax consumers (e.g. cigarettes)</li> </ul> <p><b>Shift MPB to the left</b></p> <ul style="list-style-type: none"> <li>• Educate people about harm they are doing (e.g. sugary drinks)</li> <li>• Reward people for substituting better behaviour (e.g. better public transport services)</li> <li>• Regulate against socially harmful behaviour (e.g. alcohol consumption, dangerous driving)</li> </ul>	<p><b>Objective</b></p> <ul style="list-style-type: none"> <li>• Cut consumption to socially correct level</li> <li>• Internalise the externalities</li> <li>• Make people to pay for bad behaviour</li> </ul> <p><b>Shift MPC upwards</b></p> <ul style="list-style-type: none"> <li>• Encourage corporate social responsibility</li> <li>• Regulate (pass laws) to cut bad behaviour</li> <li>• Tax producers for behaving badly</li> <li>• Make producers buy permits to behave badly</li> </ul> <p><b>Shift MPB to the left</b></p> <ul style="list-style-type: none"> <li>• Pressure from consumers and interest groups</li> </ul>

## Student Activity 7.5

1. Complete the tables, following the example provided below.

Use of mobile phone while driving		
Type of externality Negative consumption externality	What is the cost or benefit for others? Accidents, injury, damage	Shift in MPB or MPC? Shift demand curve to left
Examples of government response and outcome of government correction Regulation and enforcement Educate and promote car producers to install hands-free devices		

(a) Smoking cigarettes in public places		
Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

(b) Electricity production using fossil fuels		
Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

(c) Outdoors music festival		
Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

(d) Flu vaccination		
Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

(e) Tertiary education		
Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

**(f) Training staff in a business**

Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

**(g) Scientific or medical research**

Type of externality	What is the cost or benefit for others?	Examples of government response
Outcome of government correction		

**2. MINI CASE STUDY – THE \$200 BURGER**

The production of beef produces negative externalities. It has been estimated that, if these externalities are fully internalised, burgers will cost \$200 each. The difference between the externalities generated by feeding cows grass or corn is a matter of debate, but, whichever way they are fed, the externalities are considerable.

	Grass-fed	Corn-fed beef
Advantages	<ul style="list-style-type: none"> <li>• Grass is free (has no opportunity cost) – land often not useful for growing crops</li> <li>• Rainwater is free</li> <li>• Arguably produces better tasting beef</li> <li>• Pastoral process ‘natural’ – no animal welfare concerns</li> </ul>	<ul style="list-style-type: none"> <li>• Cows ready for market in half the time</li> <li>• Half the level of methane</li> <li>• Large supply capacity</li> <li>• Economies of scale from large scale production in feedlots</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• Cows belch out lots of methane – a major form of greenhouse gas (one cow creates as much greenhouse gas as one family car per year)</li> <li>• ‘Domestic’ production model limits supply capacity</li> <li>• Fewer opportunities for economies of scale – higher private production costs</li> </ul>	<ul style="list-style-type: none"> <li>• High opportunity cost of land used to grow corn, soybeans or maize</li> <li>• Negative externalities caused by land clearance and deforestation to expand production of corn, soybeans and maize e.g. loss of habitat and biodiversity</li> <li>• 40% of corn, soybeans and maize output is fed to cattle rather than humans raising the price people have to pay to consume these products</li> <li>• Feedlots use lots of water</li> <li>• More ‘food miles’ involved</li> <li>• Quality of output lower e.g. more marbled (fatty) product, issues with added hormones and antibiotics</li> <li>• Feedlots ‘industrial’ – factory farming animal welfare concerns</li> </ul>

For further information Google *‘The value of nothing – the \$200 hamburger by Raj Patel’*

- What is the cause of the over-production of, and misallocation of resources to, beef?
- Draw a diagram to illustrate the deadweight loss caused by externalities.
- Why is it difficult to measure the extent of these externalities?
- Suggest three ways the externalities can be reduced.

## EXAM TECHNIQUE

### Multiple Choice 3

Read questions carefully, especially when they ask for options that are **LEAST LIKELY** to happen or are **LOWEST** values.

Multiple-choice question

The table below shows the private and external costs of four products. Which product, A, B, C or D has a market price that takes least account of negative externalities? Select your answer and then check the answer given below.

Product	Private cost per unit of output (\$)	External cost per unit of output (\$)	Market price (\$)
A	10	2	12
B	12	5	15
C	16	7	22
D	22	8	24

Answer

Question 1		
A	INCORRECT	External cost fully accounted for ( $10 + 2 = 12$ )
B	INCORRECT	Market price is \$2 less than overall social cost ( $12 + 5 = 17$ )
C	INCORRECT	Market price is \$1 less than overall social cost ( $16 + 7 = 23$ )
D	CORRECT	Market price is \$6 less than overall social cost ( $22 + 8 = 24$ )

## Part 9 – Public Goods

**Property rights:** Property rights determine the way resources and products are owned and controlled. Private property rights are an important feature of a market economy. A person who legally holds a receipt, contract, certificate or title document for a resource or product has legal ownership of it. For example, the owner of a Certificate of Title for an apartment can decide how the property is used and they can earn income from it, sell or transfer ownership to someone else and legally enforce these property rights. In many cases private property rights are easily identified and enforced but there are some important exceptions.

**Non-rival products:** Non-rival products are products where consumption by one person does not reduce or prevent consumption by another person. Therefore, people can collectively consume public goods. For example, one person walking along a footpath doesn't normally prevent another people walking along the same path. Rival products, however, are products where consumption by one person does reduce or prevent consumption by another person. For example, when someone eats all of a chocolate bar others are prevented from eating it.

**Non-excludable products:** Non-excludable products are products where the buyer or seller can't stop other people from benefitting from a product. Once provided, owners or providers can't stop 'free-riders' benefitting from the product. Free riders are people who can consume products without paying for them. People can be free riders when products are non-excludable. For example, the beam from a lighthouse can't just be made available to selected ships that have paid to see the light and excluded to non-payers. However, excludable products are those where providers can exclude non-payers from benefitting from the product. For example, people can be kept out of a private game park by fencing and park rangers.

**Public goods:** Examples of public goods are lighthouses, streetlights, national defence systems, flood barriers, transport infrastructure, footpaths and national parks. Pure public goods are said to be 'non-rival' and 'non-excludable'. People don't demand them or supply them because of their non-rival, non-excludable characteristics. Without demand and supply, a market can't set a price. No price signals are sent to producers and consumers. There are also a number of quasi-public goods where the non-rival and/or non-excludable characteristics are not absolute (e.g. tolls or fees could be charged for using a road).

The lack of clear property rights and a glut of free-riders lead to market failure. Producers will not be able to make a profit because they won't be able to exclude non-payers from consuming their product. Consumers will be reluctant to pay for something where free-riding is a possibility. For example, a private individual is most unlikely to pay for the construction of a flood barrier that protects many people in a town. The barrier is likely to be expensive. It will be difficult to determine which people will benefit from the barrier and to get enforce payment for these benefits.

The government can provide public goods themselves. For example, governments build railway networks and roads. They provide for border protection and national defence. The government can form a partnership with private sector providers to supply public goods. For example, there are several 'freeways' in the eastern states of Australia that were built and operated by the private sector under contract from the government. Private operators are contracted by the WA government to provide hospital and prison services.

## Student Activity 7.6

1. Add information to the table for Public Goods. Select the correct cell, and use the information provided about Private Goods as a guide.

	Rival products	Non-rival products
Excludable	<b>Type: Private Goods</b> <b>Features:</b> <ul style="list-style-type: none"> <li>• Property rights</li> <li>• No free-riders</li> </ul> <b>Examples:</b> Chocolate Bar	
Non-excludable		

2. Complete the statements below using one of the following terms; *Rival product*, *Free riders*, *Property rights*, *Non-rival*, *Excludable*, *Non-excludable*. You may only use each term once.
- (a) People who own products can legally prevent other people from using their products. They are said to hold \_\_\_\_\_ for these products.
  - (b) People who enjoy benefits from someone else's consumption (e.g. their purchase of a fire extinguisher) are said to be \_\_\_\_\_.
  - (c) When one person eats fish and chips, no one else can eat that portion of fish and chips. The product is said to be a \_\_\_\_\_.
  - (d) When one person drives into Fremantle across the bridge other people can also cross the bridge. The use of the bridge is said to be \_\_\_\_\_.
  - (e) When one person eats fish and chips they can, if they choose, prevent other people from getting any benefit from this portion of fish and chips. The fish and chips are \_\_\_\_\_.
  - (f) Street lights light the road for everybody, not just the person who might pay for them to be erected. Street lights, therefore, are said to be \_\_\_\_\_.
3. (a) What determines whether a product is a 'rival product' or a 'non-rival product'?
- (b) Give an example of a rival product and a non-rival product.

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4. (a) What determines whether or not the exclusion principle applies to a product?
- (b) Give an example of an excludable product and a non-excludable product.

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5. What do 'free-riders' do, and why are they able to do it?

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6. What is the difference between non-rival products and non-excludable products?

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7. Complete the following table.

		Excludable (E) or Non-excludable (XE)	Rival (R) or Non-rival (XR)	Public good Yes (Y), No (N), Quasi (Q)
(a)	Pedal – Flipper Hire, Rottnest Island			
(b)	Quokka Arms Rottnest Island			
(c)	Thomson Bay Rottnest Island			
(d)	Bathurst lighthouse Rottnest Island			

8. With reference to a specific example of your choice, explain why the free markets fail to provide public goods.

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## Part 10 – Common resources and the Tragedy of the Commons

A common resource is a resource shared by group of people where the ownership of property rights is not clear. The common resources are available to everyone and, because no one owns them, there is no payment for their use. Common resources are, therefore, non-excludable.

If the use of a free of common resource is sustainable there is no problem or tragic outcome. The resource is non-rival and there is no opportunity cost when an extra user accesses the resource. However, if too many users access the resource, it is in danger from over-exploitation and a potential ‘tragedy’ is created. The additional users become rivals in the use of the resource and an opportunity cost is created. Examples of situations where a ‘tragedy of the commons’ is evident include depletion of fish stocks, environmental damage to National Parks, climate change caused by greenhouse gases, deforestation of Amazon, logging of old growth forests, water use and traffic congestion.

Voluntary rationing would prevent unsustainable use of a common resource but it is unlikely to occur if people don’t trust others to co-operate or stick to an agreement. It is better to get whatever private short-term benefits there are if you think other people will be taking the same approach. Unilateral rationing won’t save the resource if others continue to exploit it. For example, until all governments agree to and enforce policies that reduce greenhouse gases and climate change it is in the short-term interest of individual countries to avoid incurring the costs of joining an emissions trading or carbon pricing scheme. Optimists think people will eventually learn the benefits of co-operation.

There are a number of measures governments can use to reduce these problems.

- Regulate the use of the common resource e.g. set a catch quota for fishermen
- Assign or sell property rights to private owners e.g. promote private game parks
- Establish a ‘cap and trade’ parallel market, such as an emissions trading scheme
- Educate people about the dangers of overuse

## Student Activity 7.7

1. Add information to the table for Common Resources. Select the correct cell, and use the information already provided as a guide.

	Rival products	Non-rival products
Excludable	<b>Type: Private Goods</b> <b>Features:</b> <ul style="list-style-type: none"> <li>• Property rights</li> <li>• No free-riders</li> </ul> <b>Examples:</b> Chocolate Bar	
Non-excludable		<b>Type: Public Goods</b> <b>Features:</b> <ul style="list-style-type: none"> <li>• Non-rival consumption</li> <li>• Free-riders</li> <li>• Property rights unclear</li> </ul> <b>Examples:</b> Lighthouse, National Park

2. Why, if there are no clear property rights for an economic resource, will there be tragic results?

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3. Choose one example of a common resource where actual or potential ‘tragedy of the commons’ is developing. For example, you could consider the earth’s atmosphere (greenhouse gas and climate change), logging of old growth forests, use of cars in congested areas, commercial fishing, elephants (poached for ivory) or sharks (caught for their fins).

State the common access resource – what makes access free or non-excludable?	
Why has the resource become ‘rival’ – what negative externalities are evident?	
Draw a diagram to show the resulting deadweight loss	
Explain two ways of preventing a tragedy of the commons	
Evaluation of correction strategies – effectiveness, problems that have to be overcome	

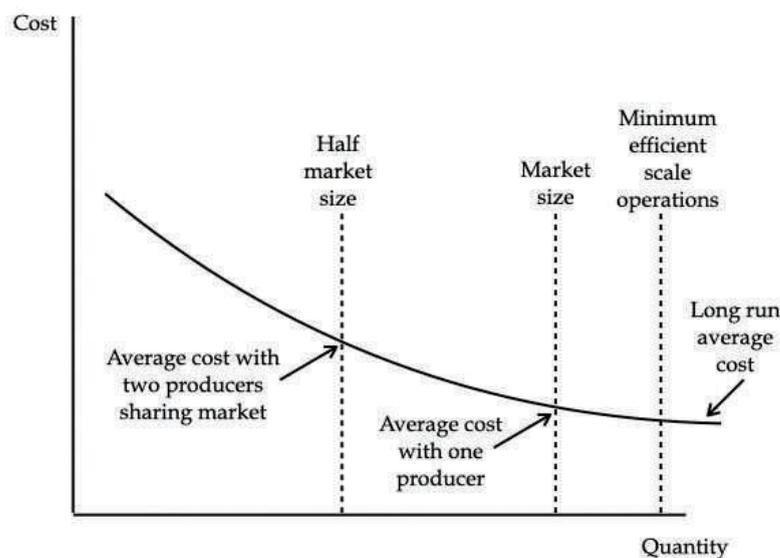
## Part 11 – Club goods and natural monopolies

**Club goods:** Club goods are products that are non-rival but excludable. Consumers can ‘join the club’ but they have to pay. There is no limit to membership because there is enough for everyone. One person’s consumption does not reduce the quality or quantity of another person’s consumption. Examples of club goods include Pay TV, electricity, gas and water supply.

**Natural monopolies:** Markets for club goods develop naturally into monopoly markets. Natural monopolies have two key characteristics

- High set up or start up costs (for example, the construction of electricity distribution grids)
- Continuous economies of scale or falling long-run average costs as the scale of their operations grows (e.g. average cost per customer of broadcasting rights to a sporting event falls as more people subscribe to the Pay TV provider)

Together these characteristics mean that the most technically or productively efficient scale of operations will not be achieved until producers capture a large proportion of the total market. The most successful provider gradually gains market power as it is uneconomic for more than one firm to supply the market.



*Fig 7.3: Natural monopolies*

To operate efficiently the supplier of a club good needs to capture the most of a market. But firms with monopoly market power can restrict output, raise prices and earn monopoly profits. See section 7.3 for further discussion about monopoly market power.

If governments allow natural monopolies to operate in the private sector they can:

- Regulate how the natural monopolist behaves, for example, controlling their price or requiring certain level of supply
- Ensure that markets are ‘contestable’, that is there is potential for new firms to take over the supply in the industry.

The Government may choose to operate the natural monopoly themselves to pursue broader social and economic objectives than just profit maximisation.

The government can’t break-up the natural monopoly without reducing efficiency. For example, twin railways lines, multiple electrical plugs or water taps in houses, and rival car-parks at Perth Airport would cause higher production costs, higher prices and reduce demand.

## Student Activity 7.8

1. Add information to the table for club goods and natural monopolies in the only cell remaining.

	Rival products	Non-rival products
<b>Excludable</b>	<b>Type: Private Goods</b> <b>Features:</b> <ul style="list-style-type: none"> <li>• Property rights</li> <li>• No free-riders</li> </ul> <b>Examples:</b> Chocolate Bar	
<b>Non-excludable</b>	<b>Type: Common resources</b> <b>Features</b> <ul style="list-style-type: none"> <li>• Free riders</li> <li>• Over-use reduces quality of resource for everybody</li> </ul> <b>Examples</b> Fish stocks, cars in city centres, earth's atmosphere	<b>Type: Public Goods</b> <b>Features:</b> <ul style="list-style-type: none"> <li>• Non-rival consumption</li> <li>• Free-riders</li> <li>• Property rights unclear</li> </ul> <b>Examples:</b> Lighthouse, National Park

2. (a) What is a natural monopoly?

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- (b) What causes 'natural monopoly'? What diagram can be used to show this?

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- (c) Give two examples of markets that are natural monopolies?

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- (d) Why does Perth only have one International Airport, Economics textbook and electricity supply?

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- (e) What are the problems with a natural monopoly?

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(f) What solutions can be applied to solve the problems of natural monopoly?

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3. **Western Power**

Western Australia's power provider is separated into four stand-alone businesses. This is to encourage competition in the electricity market. It allows Western Power's four businesses, Synergy (retail), Horizon (regional), Verve Energy (generation) and Western Power (the poles and wires network), to focus on their area of expertise. All four businesses continue to be owned by the State Government.

- (a) Which of the four functions are examples of natural monopoly, where there can be no competition?
- (b) Why do you think the State Government wants to own and operate all four of the new businesses?

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4. **Wi-Fi Case Study continued**

Read the following points and, after discussion, decide (a) what kind of product Wi-Fi is and (b) whether Wi-Fi in public places provides examples of market failure.

- Wi-Fi (in public places) could only be a private good if its use were rival (one person's use prevents another person's use) and excludable (e.g. by use of a password).
- Once Wi-Fi has been installed the extra or marginal cost of another customer logging-in is zero so this suggests it is a 'non-rival' good. As a non-rival and excludable product Wi-Fi appears to be a natural monopoly (or club good). Without regulation producers could try to exploit this monopoly power.
- Wi-Fi can be provided as a public good by local governments or councils (e.g. in tourist areas). In this case the Wi-Fi is non-rival and non-excludable (not password protected).
- Free, uncontrolled Wi-Fi is a common access resource. Where this freedom leads to over use the quality of users' experience drops as customers fight for bandwidth. This is a common experience at busy times in coffee shops such as McDonalds and could be an example of 'the tragedy of the commons'.

SO YOU NOW THINK YOU UNDERSTAND MARKET FAILURE	
<p><b>Definition or meaning of market failure</b></p>	<p><b>Meaning of terms rival and non-rival</b> 1 2</p> <p><b>Meaning of term excludable and non-excludable</b> 1 2</p>
<p><b>What is monopoly market power?</b></p> <p><b>Two problems with monopoly power</b> 1 2</p>	<p><b>Four types of product based on rival and excludable features</b> 1 2 3 4</p>
<p>Two reasons why information gaps are a problem 1 2</p> <p><b>Reasons why information gaps exist</b> 1 2 3 4</p>	<p><b>Definition of public goods</b></p> <p><b>What is the problem?</b></p>
<p><b>Two characteristics of merit goods</b> 1 2</p> <p><b>Two characteristics of de-merit goods</b> 1 2</p>	<p>Definition of common resources</p> <p>What is the problem?</p>
<p><b>Definition of an externality</b></p> <p><b>Four types of externality</b> 1 2 3 4</p> <p><b>Showing the deadweight loss</b> DWL triangle always points to ...</p>	<p><b>Definition of club goods and natural monopolies</b></p> <p><b>What is the problem?</b></p> <hr/> <p><b>Six solutions for market failure</b> 1 2 3 4 5 6</p>

## REALITY CHECK

1. Monopoly market power will lead to a misallocation of resources if:
  - (a) Other firms try to enter the industry.
  - (b) Prices are higher than they would be under competitive conditions.
  - (c) Output is increased to boost revenue.
  - (d) The firm is able to achieve economies of scale.
  
2. Which one of the following is most likely to be a source of monopoly power?
  - (a) The employment of more skilled workers by a firm as it increases its size.
  - (b) Economies of scale continue beyond the total size of the market.
  - (c) The Australian Competition and Consumer Commission threatens to prosecute firms acting in a way that restricts competition.
  - (d) The merger of two small firms in a large industry.
  
3. Positive externalities occur when:
  - (a) Production creates private benefits.
  - (b) Social benefits are more than private benefits.
  - (c) Private benefits are greater than private costs.
  - (d) Social costs exceed private costs.
  
4. Junk food is a demerit good. In the market for junk food:
  - (a) Marginal social cost (MSC) is higher than marginal private cost (MPC).
  - (b) Marginal social benefit (MSB) is lower than marginal private benefit (MPB).
  - (c) Marginal social benefit (MSB) is greater than marginal private benefit (MPB).
  - (d) Marginal social benefit (MSB) equals marginal private benefit (MPB).
  
5. One reason why Governments in Australia provide education is because:
  - (a) The private benefit from education is more than the social benefit of education.
  - (b) Education cannot be provided in free market economies.
  - (c) Education is a merit good providing private and social benefits.
  - (d) Education is non-excludable and can be jointly consumed.
  
6. The government has a choice between four capital investment projects costing \$10b. The government's budget is only \$10b. The table below shows the estimated value of the private and external costs and benefits that each project is expected to yield.

	Hospital (\$b)	Training Centre (\$b)	Railway (\$b)	Housing (\$b)
Private benefits	8	12	12	5
Private cost	10	10	10	10
Positive externalities	7	2	6	8
Negative externalities	1	1	3	3

Which project should the government undertake?

- (a) Build the hospital; (b) Build training centre; (c) Build the railway; (d) Build houses.

7. Which one of the following provides a reason why governments intervene in a market economy?

- (a) Small firms are less efficient than large firms because they are not in a position to benefit from economies of scale.  
 (b) Free riders lead to the overproduction of public goods  
 (c) The social benefits of some private goods are greater than the private benefits  
 (d) Private firms are unable to produce merit goods in a market economy

8. The diagram shows the demand and supply curves for a good. The production of the good creates negative production externalities.

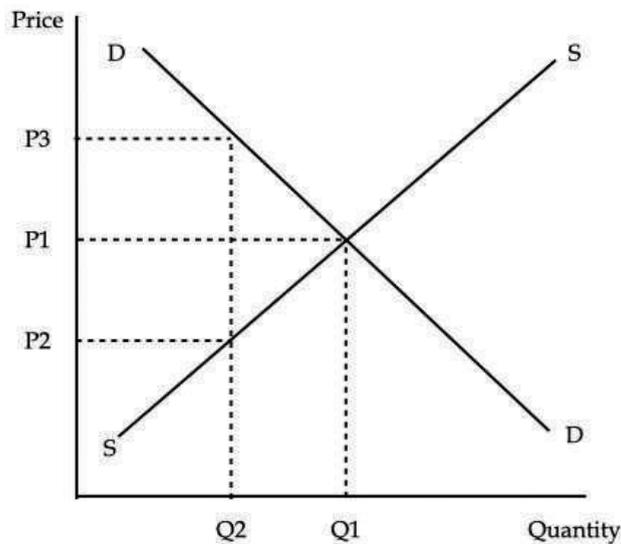


Fig 7.4:

To reduce the consumption and production of the good to Q2, the government could impose:

- (a) a price ceiling at price level 0P3  
 (b) A tax of 0P3 minus 0P2  
 (c) A minimum price at price level 0P2  
 (d) A tax of 0P2 minus 0P1

9. The table shows possible sources of market failure in Australian markets. Which combination of example and policy are consistent with the source of the market failure identified.

	Source of market failure	Example	Policy
A	Public good	Law and Order	Government provision
B	Public consumption externalities	Education	Minimum price
C	Merit good	Petrol	Indirect taxation
D	Negative production externalities	Electricity generation	Pollution permits

10. The four diagrams show the market for visits to a hospital. The services are provided free. It has been suggested that patients should pay \$20 a visit to reduce pressure on the hospitals fixed capacity and reduce waiting time. Which of the diagrams (A, B, C or D) best shows the effects of such a policy?

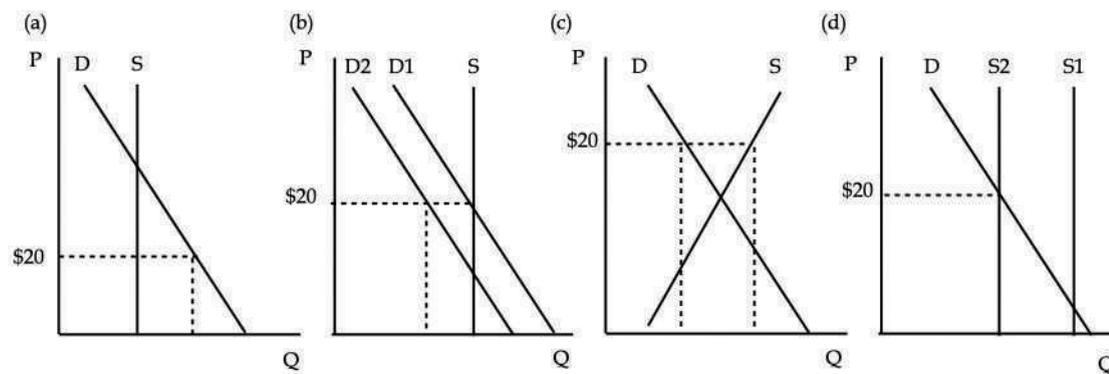
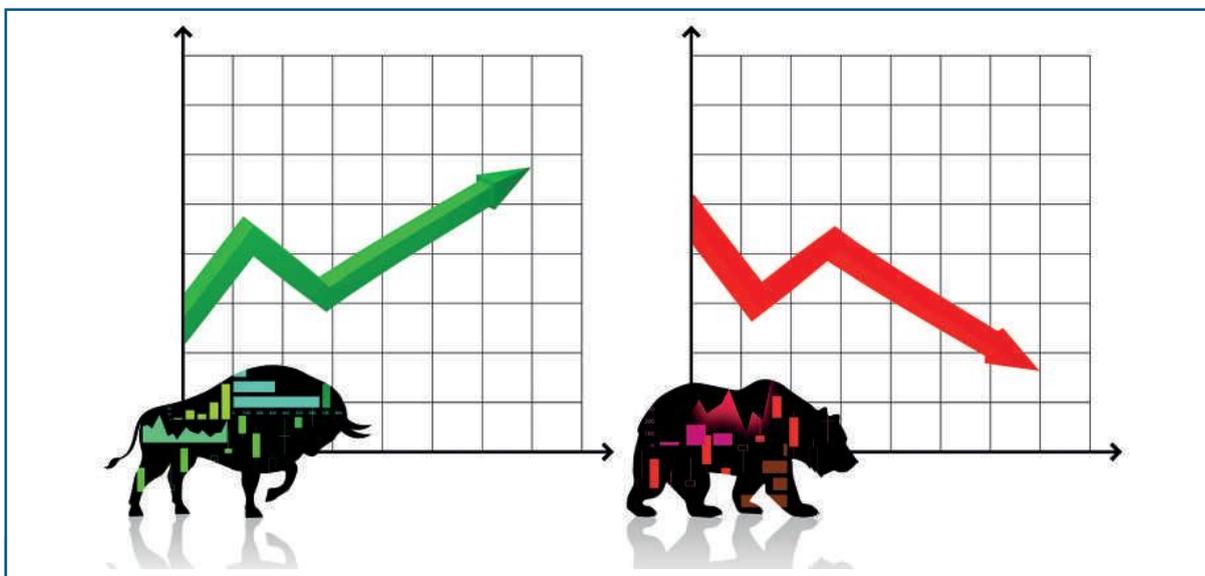


Fig 7.5:



### SYLLABUS POINTS

- The concept of macroeconomics
- The concepts of total spending, total output and total income and the relationship between them
- The concept of the five sector circular flow of income
- The concepts of equilibrium, leakages and injections in the circular flow of income
- The effect of changes in leakages and injections on the level of equilibrium in the circular flow of income model
- The concept of Gross Domestic Product (GDP)
- The expenditure approach to measuring GDP, i.e.  $GDP = C+I+G+(X-M)$

## OVERVIEW – INTRODUCTION TO MACROECONOMICS

<b>1</b>	Macroeconomics is a branch of economics that studies the operation of the economy as a whole, as opposed to the microeconomic focus on individual products and markets. An understanding of macroeconomics provides a context for decisions made by businesses, consumers and the government.
<b>2</b>	Macroeconomic activity involves the production of goods and services, earning income and undertaking spending. These three activities are closely interlinked. Incomes are paid when firms buy resources and produce goods and services and incomes provide households with the money to buy these goods and services.
<b>3</b>	The circular flow of income model provides a simplified map of the macro-economy. It shows the flow of resources and money between the firms or producer sector and the household sector. It also shows the money flows into and out of the banking or financial sector, the government sector and the overseas or international sector.
<b>4</b>	Money that is withdrawn or leaks out of the main flow between firms and households reduces the level of economic activity. These leakages are caused by saving, the payment of tax and the purchase of imports. Money that is injected into the main flow between firms and households increases the level of economic activity. These injections are caused by spending on planned investment, spending by the government and the sale of exports.
<b>5</b>	The level of activity in the macro-economy is set when the economy is in equilibrium. This occurs when planned leakages equal planned injections, aggregate demand equals aggregate supply and aggregate expenditure equals national income.
<b>6</b>	Aggregate or total expenditure in the economy over a period of time is the sum of consumption spending plus the value of injections (planned investment, government spending and exports) minus anything that has been imported.
<b>7</b>	Consumption is household spending on goods and services. It is mainly determined by the level of household income but it also affected by non-income factors such as the level of wealth, consumer confidence and the rate of interest.
<b>8</b>	Planned investment is business spending on producer or capital goods such as machines, equipment and vehicles and household spending on new homes. Government investment spending, e.g. on hospitals and roads, is recorded as government spending. Planned investment is mainly determined by real interest rates but it is also affected by business confidence, government regulations and output.
<b>9</b>	Governments undertake both consumption and investment spending. They produce public and merit goods, regulate the market economy and redistribute incomes. The level of structural spending depends on the political philosophy of the government of the day. Cyclical spending is an attempt to control the business cycle.
<b>10</b>	The value of exports minus the value of imports is known as net exports. International trade flows are affected by structural factors (e.g. how competitive producers are), cyclical factors (e.g. growth rates in overseas countries) and shocks (e.g. droughts).

## Part 1 – The concept of macroeconomics

Macroeconomics is the branch of economics that studies the operation and performance of the economy taken as a whole. It is concerned with aggregates or totals, such as total expenditure and total income, and overall economic performance, such as the rate of economic growth or rate of inflation.

There are many indicators or pieces of data that describe the macroeconomic conditions in the economy. These data refer to:

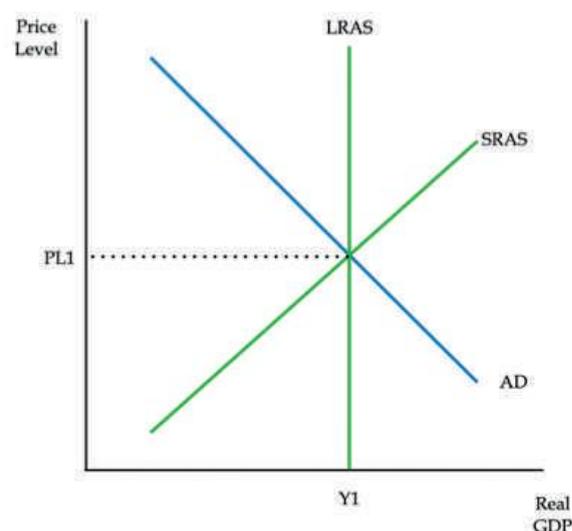
- Macroeconomic objectives (e.g. growth rates, inflation rates and unemployment rates).
- Economic models (e.g. whether the economy is operating close to full capacity).
- The separate components of aggregate demand (i.e. consumption, planned investment, government spending and net exports).
- Economic policies (e.g. the size of the budget deficit and the level of the cash rate)
- Other visible signs of high or low levels of economic activity (e.g. cranes on a city skyline, types of cars in car showrooms, levels of concrete and electricity production and, apparently, hemlines and length of hair).

Looking at the trend path of an indicator, comparing it with past performance and benchmarking it against levels in other countries is more informative than looking at a single observation.

Demand and supply is still important in macroeconomics but instead of the demand and supply in a single market, in macroeconomics it is aggregate or total demand and aggregate or total supply that is important. A good deal of macroeconomic analysis is concerned with the relative levels of aggregate demand and aggregate supply.

- **Aggregate demand:** The total amount of spending in the economy on final goods and services that have been produced by firms in the economy over a given period of time
- **Aggregate supply:** The total value of final goods and services produced in the economy over a period of time

Aggregate demand and aggregate supply can be compared on an aggregate demand and aggregate supply model. The axes on the model are the price level (as opposed to a single price in the microeconomic model) and real Gross Domestic Product (as opposed to the quantity of a product in the microeconomic model). Aggregate demand (AD) slopes downwards to the right. Short-run aggregate supply (SRAS) slopes upwards to the right. SRAS can be considered to be the sum of all the microeconomic supply curves. Long run aggregate supply (LRAS) is a vertical line at the level full capacity level of GDP. LRAS is assumed to be independent of the price level.



**Fig 8.1:** The Aggregate supply and aggregate demand model

## Macroeconomic objectives

The Commonwealth Government and Reserve Bank of Australia aim to achieve a number of macroeconomic goals or objectives. These are shown in the table below.

Sustainable economic growth	As much growth for as long as possible without causing inflation.
Increasing the standard of living	Promoting the welfare of people in the economy through a rise in the material standard of living.
Low inflation (or price stability)	Low inflation, interpreted as inflation between 2% to 3% per year over the life of the economic cycle.
Low unemployment or 'full employment'	This interpreted as the minimum level of unemployment needed to prevent inflation accelerating. The acronym NAIRU stands for the non-accelerating inflation rate of unemployment.
Equity in income distribution or distributive justice	A distribution of income that balances the need for fairness with the need to provide incentives in order to achieve efficiency.
Efficient resource allocation	Economic efficiency = allocative + productive efficiency. Recognition of impact of 'externalities' on environment

Generally speaking if aggregate demand falls relative to the level of aggregate supply, economic growth will fall, inflation will fall and unemployment will rise. If aggregate demand rises compared to the level of aggregate supply economic growth will rise, inflation will rise and unemployment will fall.

Given the global nature of the Australian economy there are no specific goals or targets for the external performance of the economy, such as the level of the trade balance, the exchange rate value of the Australian Dollar or the level of foreign liabilities.

## Student Activity 8.1

1. Complete the table below by stating whether the the things listed are studied in microeconomics or macroeconomics.

	Macro or micro?		Macro or micro?
The overall price level in the economy		The price of sunblock	
The wage of a shop worker		The average wage in the economy	
The economic growth rate		An increase in milk production	
The profit of an engineering firm		The level of unemployment	
The rate of interest for a home loan		The Reserve Bank's cash rate	
The level of concrete production		A new hair style	

2. The table shows the macroeconomic performance of five hypothetical economies during a year. Which country, in your opinion, is performing the best? Give two reasons to support your answer.

	Growth Rate (% per year)	Inflation Rate (% per year)	Unemployment Rate (%)	Budget balance (% of GDP)	Cash Rates (%)
A	2.4	2.1	5.9	-2.4	1.5
B	-0.4	4.0	13.6	-8.9	0.25
C	6.9	1.2	3.9	-1.5	2.5
D	2.0	2.2	4.3	-3.2	1.0
E	1.7	1.4	9.3	-1.5	1.5

3. A visitor from Mars (using Duolingo perhaps) asks you to summarise the current performance of the Australian economy. What would you tell them?

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## Part 2 – The concepts of total spending, total output and total income and their relationship

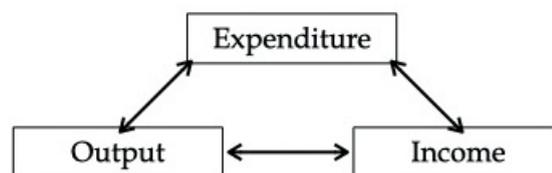
There are three different forms of interdependent economic activity:

- **Output/Production:** Making things, adding value, processing
- **Incomes:** Earning wages or salaries, rent, interest and profit
- **Spending:** Consumption, Planned investment, Government Spending, Net Exports

There are three corresponding measures of economic activity:

- **Aggregate output:** This is the value of the real flow of goods and services produced by businesses in the economy. This is related to the concept of aggregate supply.
- **Aggregate income:** This is the value of money flow earned by the households in the economy as a result of their work. This is national income.
- **Aggregate spending:** This is the value of money flows spent by firms, the government and households in the economy, spending on exports to other economies less the value of anything that was imported. Therefore aggregate spending or expenditure consists of consumption spending, planned investment spending, government spending and net exports ( $C+I_p+G+X-M$ ). This is related to the concept of aggregate demand.

The three forms of economic activity are clearly related. Income is spent on output, and making output generates incomes. Households spend some their income on output from producers.



*Fig 8.2: Expenditure, output and income are interrelated*

## Part 3 – The concept of the five sector circular flow of income

- The Circular Flow of Income model is a picture of the way the economy operates. It is a simplified view of real and money flows between five key sectors in an economy. The model shows how people in the different sectors depend on each other. If one sector fails to perform efficiently overall performance is reduced.
- It is important to remember that an economic model or diagram is not intended to provide an exact picture of what goes on. Although the model does not include everything that happens in an economy it highlights its important features and provides a useful way of thinking about macroeconomic activity.

The building blocks of the Circular Flow of Income model are described in the table below.

### There are five sectors

**Households:** Households provide resources to the business sector and buy goods and services from firms with the incomes they earn.

**Firms or producers:** They buy resources from households and provide households with an income. They use these resources to make goods and services that are sold in product markets.

**Financial Sector:** The financial sector, including banks and the stock exchange, recycles savings to provide, amongst other things, investment finance for business.

**Government Sector:** The government collects tax revenue and injects government spending into the economy.

**Overseas Sector:** People in other countries buy our exports and sell us imports

### There are two main flows

**Real flow:** Real flows round the economy are physical resources from households to firms (e.g. the supply of labour) and physical goods and services from firms to households (e.g. food and clothing).

**Money flow:** Money flows between the various sectors in the economy in the form of consumption (C), saving (S), planned investment (Ip), tax (T), government spending (G), imports (M) and exports (X).

### There are four markets

**Factor or resource market:** This is where resources are sold by households to firms.

**Product market:** This is where goods and services are sold by firms to households.

**Financial markets:** These are where lenders or savers and borrowers interact and trade.

**Overseas markets:** These are where exports and imports are bought and sold.

### There are three types of leakages (or withdrawals)

**Saving:** Saving is income that is not spent on consumption

**Tax:** This is a compulsory payment to the government

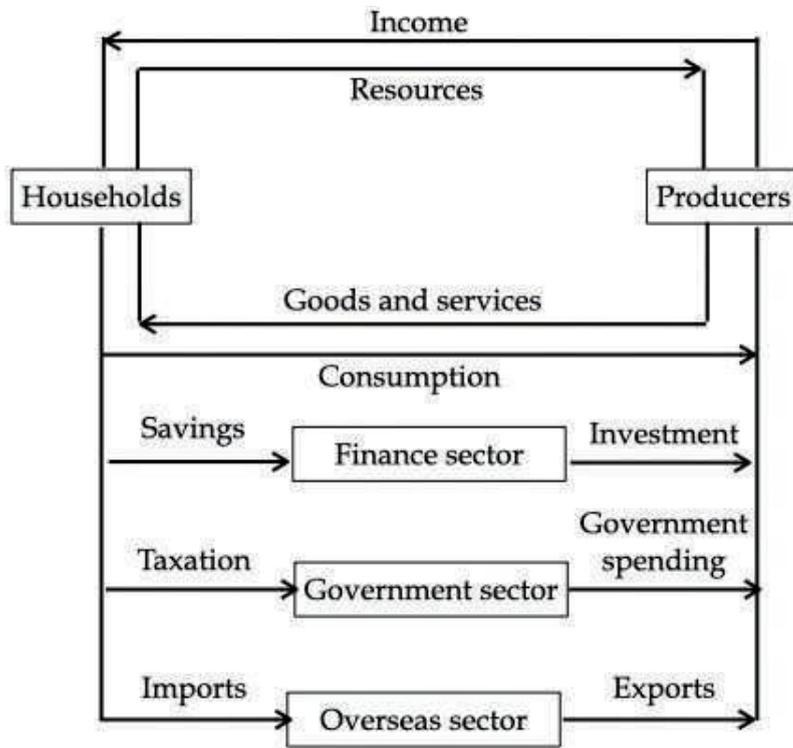
**Imports:** Imported goods and services made overseas but purchased in Australia

### There are three types of injections

**Planned Investment:** This is the purchase of capital goods such as buildings, machinery, and equipment.

**Government spending:** This is expenditure by Commonwealth, State and Local governments around Australia.

**Exports:** Exports are goods and services produced in Australia but bought overseas.



**Fig 8.3:** The Circular Flow of Income Model

- The main money flow circulates between households and firms. Money flows from households to firms in the form of consumption spending. Money flows from firms to households in the form of income.
- Not all household income flows on to firms within the economy. Some of it leaks out (or is withdrawn) because households save money, pay taxes and buy imported products from producers in other economies.
- Not all the money firms receive comes directly from Australian households. Money is injected into Australian firms when banks provide finance for planned investment, when the government spends money and when people in overseas countries buy our exports.

The level of economic activity can be measured at three places in the model.

- **Aggregate output:** This is the value of the real flow of goods and services leaving the firms sector. This is related to the concept of aggregate supply.
- **Aggregate income:** This is the value of money flow entering the household sector. This is national income.
- **Aggregate spending:** This is the value of money flow entering the firms sector. This consists of consumption spending, planned investment spending, government spending exports less the value of anything that was imported ( $C+I_p+G+X-M$ ). This is related to the concept of aggregate demand.

## Student Activity 8.2

1. (a) Which sector is assumed to own the economy's resources or factors of production? (b) What does this sector earn when they sell their economic resources? (c) What do they buy with their incomes?

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2. (a) Which sector buys resources from the household sector? (b) What do they do with these resources? (c) What money flow passes to households when this sector buys resources?

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3. (a) Which sector safeguards households' savings and recycles these to finance investment spending? (b) Which sector collects tax revenue and spends money in the economy for example on public goods, merit goods, and social security transfers? (c) Which sector in the circular flow model buys Australian exports and sells us imports?

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4. In the circular flow of income model state the following:

- (a) The owners of the factors of production or resources
- (b) The real flow sold by households to business
- (c) The sector that uses resources to make goods and services
- (d) The money flow from business to households as payment for resources
- (e) The real flow from business to households
- (f) The money flow from households to business to pay for consumer products
- (g) The income of households not spent on consumption that goes to financial institutions of one kind or another
- (h) The sector where savings go
- (i) The money flow borrowed from the banking sector
- (j) The money flow from households to the government
- (k) The sector that collects the tax
- (l) The money flow from the government that creates a revenue stream for business
- (m) The money flow from households to businesses overseas
- (n) The sector to which exports are sold and which makes products that our consumers import
- (o) The money flow from overseas that creates a revenue stream for business

5. Complete the following table

Type of flow	Direction	Name
Real	From households to firms	
Real	From firms to households	
Money	From households to firms	
Money	From firms to households	

6. Complete the following table

Type of flow	Direction	Name
Leakage	From circular flow into banks	
Leakage	From circular flow into government	
Leakage	From circular flow overseas	
Injection	From banks into circular flow	
Injection	From government into circular flow	
Injection	From overseas into circular flow	

### Equilibrium, leakages and injections in the circular flow of income

In economics, equilibrium is a situation in which related economic forces, such as aggregate supply and aggregate demand, are in balance. In the absence of external influences or shocks, when these forces are in balance the values of variables such as Gross Domestic Product (GDP) and the level of unemployment are stable and will not change.

In the circular flow model two relevant forces are leakages and injections. The term ‘leakage’ (L) refers to income that is withdrawn from the direct flow between households and firms. It is income that does not pass directly to Australian producers in the form of consumption spending. Leakages take three forms:

- **Saving (S):** Income that is not spent on consumption
- **Tax (T):** Compulsory payments to the Government
- **Imports (M):** Products purchased from firms in overseas countries

The term ‘injection’ (J) refers to money received by Australian producers that has not come directly from Australian households. It is money that does not flow directly from Australian households to Australian firms in the form of consumption spending. Injections, also, take three forms:

- **Planned Investment (Ip):** Money borrowed from the financial sector or in capital markets, or held in company reserves, for the purchase of capital goods.
- **Government spending (G):** Spending by the government e.g. on public and merit goods and on transfers such as pensions and welfare payments.
- **Exports (X):** Products made in Australia and sold to consumers in overseas countries.

## Changes in the levels of leakages and injections

The relative values of leakages and injections determine whether the level of economy activity is stable, rises or falls.

- If total leakages (S+M+T) are equal to total injections (Ip+G+X) all income and expenditure is being recycled within the economy and the level of economic activity will not change. The economy will be in equilibrium.
- If total leakages (S+M+T) exceed total injections (Ip+G+X) there is a net leakage from the main income and expenditure flow and economic activity will fall. The economy will be in a downturn or recession.
- If total leakages (S+M+T) are less total injections (Ip+G+X) there is a net injection into the main income and expenditure flow and economic activity will rise. The economy will be in a recovery or upswing.

### Student Activity 8.3

1. Classify the following as leakages (L), injections (J) or neither (N).

	L or J or N		L or J or N
Exports of iron ore		Imports of petrol	
Deposits in a bank account		Purchase of new machine	
Purchase of a Cherry Ripe		Payment of income tax	
Construction of new rail line		Income of lawyers	

2. What will happen to the economy in each of the following cases?

Planned leakages greater than planned injections	
Planned leakages less than planned injections	
Savings = \$50b; Investment = \$80b; Taxes = \$30b; Government spending = \$35b; Imports = \$25b; Exports = \$30b.	
Savings = \$70b; Investment = \$50b; Taxes = \$40b; Government spending = \$30b; Imports = \$50b; Exports = \$40b.	

3. What is the relationship between leakages and injections in the following situations?

The economy experiences economic growth	
Cyclical or demand-deficient unemployment increases	
The rate of demand-pull inflation falls	

## Part 4 – The concept of Gross Domestic Product (GDP)

Based on the circular flow concept, economists have developed national income accounting systems to measure economic activity. There are three main aggregates that are used.

- **Total Output:** The output method aims to add up the value of final output by firms in the economy over a given period of time. This is the same as adding up all the value added by firms in the economy. Data is grouped according to the various production sectors (i.e. primary, secondary, tertiary) or industries in the economy.
- **Total Income:** The income method aims to add up all incomes earned in the economy as a result of economic activity over a given period of time.
- **Total expenditure:** The expenditure method aims to add up the value of all forms of spending in the economy over a given period of time.

Although the three methods use different data to measure economic activity, the result from each method should be the same. Aggregate output should equal aggregate income and aggregate expenditure. In practice, however, this doesn't happen due to errors, omissions and definitional issues.

Data from the National Accounts are used, for example, to:

- Produce a 'report card' for the economy e.g. by showing the rate of economic growth
- Compare economic performance between different countries
- Help policy makers manage the economy e.g. through adjustments to fiscal and monetary policies
- Allow economists to develop and test models that help them understand how the economy works
- Allow businesses to make forecasts about the future level of demand for their products
- Aid consumers in planning their household budgets

Gross domestic product (GDP) is commonly used as an indicator of economic activity in Australia. GDP is the total value of all final goods and services produced in a country over a given period of time (usually a year) or the total value of all final expenditures in the economy over a given period of time. When the expenditure method is used GDP is the sum of consumption, planned investment, government spending and net exports ( $C+I_p+G+X-M$ ).

There are a number of issues that have to be addressed when measuring economic activity.

Problem	Example	Solution
Double counting	The value of intermediate products, or products that are used to make other goods, could be counted more than once.	Count only final goods or measure value added at each stage
Foreign ownership of businesses	A number of products are made in Australia by firms that are wholly or partially foreign owned. Also some Australian owned businesses produce goods overseas.	Have two different measures. <ul style="list-style-type: none"> <li>• <b>A domestic measure:</b> Count all economic activity that takes place in Australia regardless of ownership</li> <li>• <b>A national measure:</b> Count all economic activity resulting from Australian owned businesses regardless of where it takes place</li> </ul>
Depreciation	Capital wears out during the production process.	Have two different measures. <ul style="list-style-type: none"> <li>• <b>A gross measure:</b> No allowance is made for capital depreciation</li> <li>• <b>A net measure:</b> An allowance is made for capital depreciation</li> </ul>
Inflation and deflation	Output, income and spending are measured in dollars. A change in the price level changes the value recorded.	Have two different measures. <ul style="list-style-type: none"> <li>• <b>A nominal measure:</b> Value activity at current prices</li> <li>• <b>A real measure:</b> Values adjusted for inflation using constant prices</li> </ul>

### Study Activity 8.4

1. What are the three methods or approaches to measuring economic activity?

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2. What are the four components of aggregate expenditure?

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3. What kind of income is earned by each factor of production?

Land	Labour	Capital	Enterprise
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4. Suppose an Australian owned mining company operates and makes a profit in Zaire. In which country will this activity will be recorded if it is measured in both countries as (a) gross national product and (b) gross domestic product?

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5. There is a significant amount of foreign direct investment in Australia. Which measure, therefore, will be the greater for Australia, GDP or GNP?

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6. Assume that in a period of war output is increased to support the war effort. Machinery and factories begin to wear out and people become progressively weary. In this economy:

- (a) Will gross domestic product or net domestic product be greatest  
(b) Will the gross domestic product or net domestic product provide an accurate reflection of living standards in the country?

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7. Using a real world example, explain why national income can't simply be calculated by adding up the output of all firms in the economy.

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8. Use the data in the table below to calculate the following values.

Consumer expenditure	\$15b
General government final consumption	\$8b
Gross domestic investment	\$6b
Value of total exports	\$3b
Value of total imports	\$4.5b
Capital consumption (depreciation)	\$2.5b

- (a) Gross Domestic Product  
(b) Net Domestic Product

## The expenditure approach to measuring GDP

There are four components of aggregate expenditure or spending. Hence GDP is the sum of consumption (C), planned investment (Ip), government spending (G) and net exports (X-M)

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Consumption spending ≈ 55-60% of the total	Planned investment ≈ 15-20% of the total	Government spending ≈ 23-26% of the total	Net exports ≈ -3 to +3% of the total
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The two biggest components, consumption and government spending, tend to be relatively stable over time, while the contributions of planned investment and net exports are more unstable.

### Consumption

Households undertake consumption expenditure when they buy goods and services. They may buy:

- **Non-durable goods:** Goods that are consumed quickly after purchase. Examples of non-durable goods include food, clothing and transport. Sometimes they are single-use goods that can only be used once, such as a Cherry Ripe or a firework.
- **Durable goods:** Goods that are expected to last or provide satisfaction for three or more years. Examples of durable goods include white goods, electrical goods and cars. Spending on durable goods tends to be discretionary. Purchases can often be brought forward or delayed according to economic circumstances. These goods are, therefore, multiple-use goods.
- **Services:** Services are non-commodity items (and hence can't be dropped on your foot or loaded onto a ship). Examples of services include education, health and recreation.

Consumption goods and services can be further classified as:

- **Necessities:** These are 'can't do without' products, for example, a smart phone. Not surprisingly, spending on necessities is relatively stable regardless of the state of the business cycle.
- **Luxuries:** These products don't have to be purchased or the purchase can be postponed, for example, a second smart phone. Spending on luxuries is more likely to vary during the business cycle.

The level of household consumption will be influenced by factors such as disposable income, wealth or debt levels, borrowing costs and consumer confidence or expectations.

The consumption function model shows how consumption spending (C) varies with disposable income (Y). Survival or necessary consumption is not greatly affected by changes in income, but discretionary consumption on luxuries rises as income rises. The gradient (or rise over run) of the consumption function is called the marginal propensity to consume (MPC or b in the diagram). MPC indicates the change in consumption spending as income changes. When there is a change in a non-income factor, such as a rise in debt, a rise in interest rates or a fall in consumer confidence, the whole consumption function shifts position, in this example moving in a downwards direction. The 45° line (or C = Y line) provides a convenient way of showing where consumption is less than income (i.e. saving is taking place) and where it is more than income (i.e. dis-saving or borrowing is taking place).

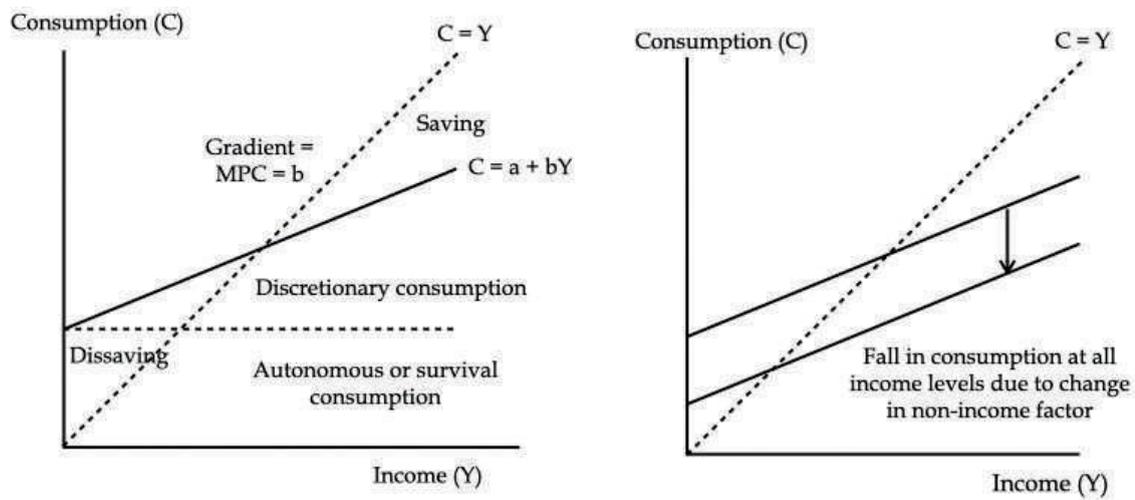


Fig 8.4: Consumption functions

## Student Activity 8.5

- The data in the table below refers to a hypothetical economy.

Disposable income (\$b)	Consumption (\$b)	Saving (\$b)
0	60	-60
100	120	
200	180	20
300		60
400		100
500	360	
600	420	180

(a)	Calculate the missing consumption and savings data in the table.	Enter your answers in the table
(b)	What is the level of autonomous consumption?	
(c)	What is the value of the marginal propensity to consume?	
(d)	How can households (legally) save -\$60b?	
(e)	What is the equation of i) the consumption function and ii) the savings function?	
(f)	Sketch consumption and savings function. Shade in an area that shows dis-savings (borrowing or using up past savings) and an area that shows positive savings.	
(g)	What is the sum of (i) MPC + MPS; (ii) APC + APS; (iii) C + S	
(h)	If consumption spending were the only component of aggregate expenditure in the economy what would be the equilibrium level of income?	

2. List three non-income factors that affect consumption spending. Describe what happens to consumption when there is a rise in each of these factors.

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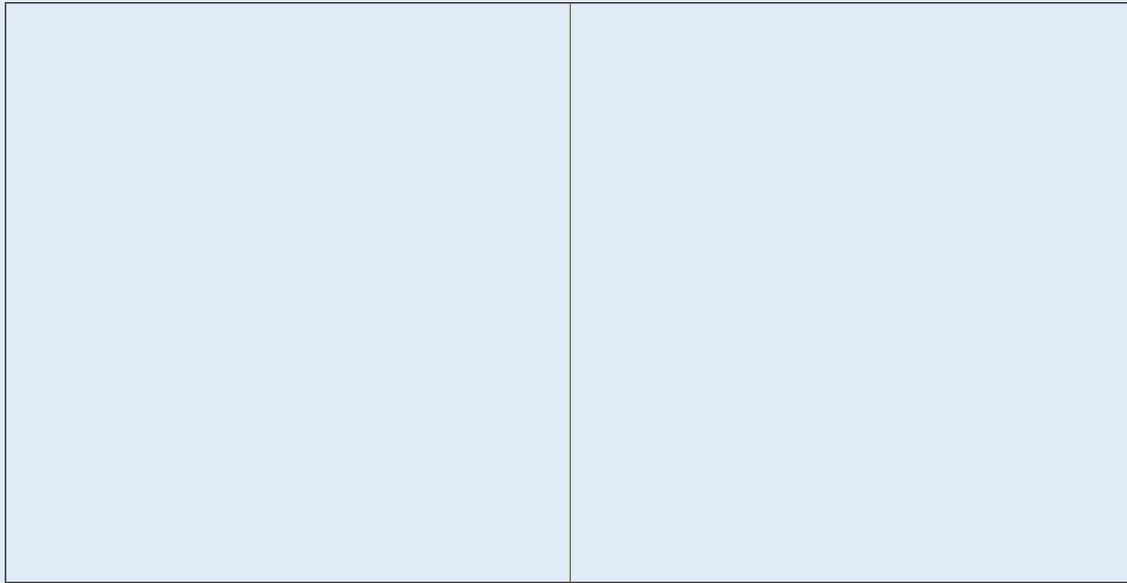


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3. Sketch two consumption function diagrams to show the difference in impact on consumption of (a) an increase in income and (b) a positive change in non-income factors.

The image shows two large, empty rectangular boxes side-by-side, intended for sketching consumption function diagrams. The boxes are separated by a vertical line and are contained within a larger light blue rounded rectangle.

### Planned investment

Planned Investment is spending on producer or capital goods that are used by businesses to produce goods and services. Investment spending includes:

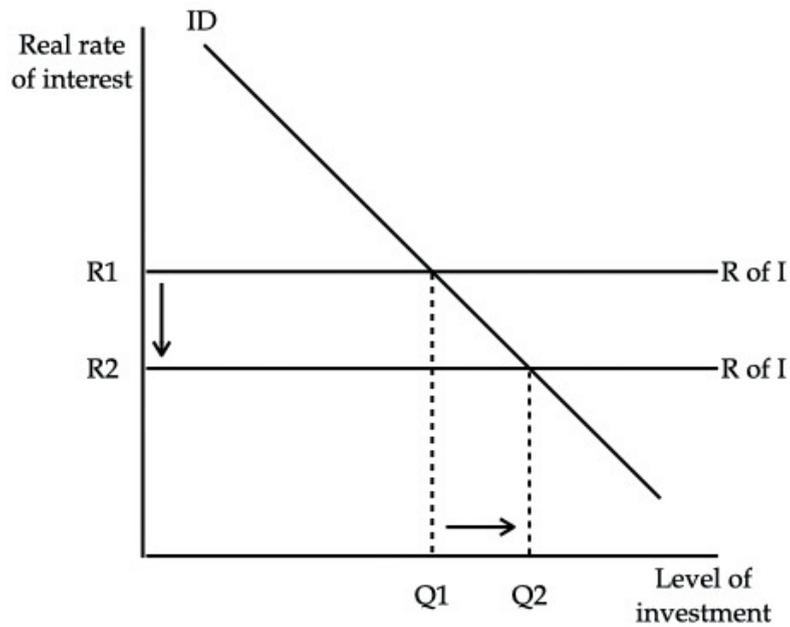
- **Fixed investment:** Purchase of machines, buildings, construction and equipment
- **Residential fixed investment:** New housing
- **Working capital:** Stocks and inventories

Planned investment refers to changes in the capital stock. When businesses change the level of planned investment, other things being equal, the level of aggregate expenditure or demand changes and this, in turn, causes a change in macroeconomic equilibrium. However, while a rise in the level of stocks or inventories of unsold goods is also defined as investment, it is often unplanned. It is a reaction or response to an unexpected change in aggregate demand rather than a cause of a change in aggregate demand.

The level of planned investment is influenced by:

- **The degree of risk and uncertainty:** The reward for investment comes in the future. The decision to invest, therefore, involves an assessment of risk and uncertainty. Many factors can make planned investment risky, such as political decisions, events overseas and changes in consumer tastes.
- **The real rate of interest:** Other things being equal, the real rate of interest and the level of investment are inversely related. For example, higher real interest rates increase the cost of borrowing money and raise the opportunity cost of using internal finance. These increased costs will cause some planned investment projects to become unprofitable. Note the emphasis is on real interest rates. The real rate of interest is the nominal or money rate of interest adjusted for inflation. If nominal rates are 10% and inflation is 3% the real rate of interest is 7%. Real rates are more appropriate than nominal rates when planning investment spending. Figure 7.6 shows an investment demand model. As the real rate of interest falls from R1 to R2, other things being equal, the level of planned investment rises from Q1 to Q2.
- **Business expectations and confidence:** Given the level of uncertainty about the future, deciding whether or not to undertake planned investment is difficult. The decision to go ahead with an investment project may depend on the level of optimism or pessimism of the decision makers and their willingness to take a chance.

- **Changes in level of output:** The accelerator theory of investment links the level of investment to changes in current (or previous) levels of output.



*Fig 8.6: The level of planned investment*

### Student Activity 8.6

1. How would the following events affect the level of planned investment and be illustrated using the investment demand curve model?

Event	Impact on planned investment	How would this be shown on the investment demand model?
An economic recovery		
A rise in interest rates		
A fall in forecast profit levels		
A fall in the cost of borrowing money		

2. Select one major planned investment project that has recently been completed in WA or a future investment proposal.

What capital or producer goods are being created through this planned investment project?	
Which business or government organisation is undertaking this planned investment?	
Is it likely that the project will be profitable? What demand will the new facility satisfy?	
What risk or uncertainties could affect the returns received from the project?	

## Government Spending

Commonwealth Government expenditure accounts for about 25% of total expenditure. Government spending is an injection into the circular flow. The level of government spending includes:

- **Structural expenditure:** This is allocative expenditure to provide resources for public and merit goods such as health, education, defence and transport infrastructure, regulatory expenditure to control areas of the market economy and redistributive expenditure to transfer money to households to provide social security
- **Cyclical expenditure:** This is expenditure to stabilise the business cycle.

## Net Exports

The term net exports refers to the balance on goods and services or value of exports minus the value of imports. This is also called the trade balance. Some of the factors that affect the level of exports and imports are shown in the table below.

	Exports	Imports
Structural factors	Changes to the exchange rate International competitiveness New free trade agreements	Changes to the exchange rate International competitiveness New free trade agreements
Cyclical factors	Growth in rest of world (e.g. a fall in China's growth rate)	Growth in Australia given our high level of imports Capital goods imports
Shocks	Drought	Changes to oil prices

## Student Activity 8.7

### CASE STUDY – PRELUDE FLNG PROJECT

The biggest vessel the world had ever seen was ordered by Royal Dutch Shell in 2017 to operate 500km north of Broome off Australia's northwest coast. It was built at Samsung's shipyard in Korea and cost Shell about \$16b. The Prelude floating liquefied natural gas (FLNG) facility was 50 per cent longer and six times the weight of the world's largest aircraft carrier. The Prelude facility control centre is in a custom-built office within Shell's Perth CBD headquarters but about 120 people work on the barge.

FLNG technology replaces traditional land-based LNG plants. The barge is positioned directly over remote offshore gas fields, removing the need for long underwater pipelines and allowing the exploitation of reservoirs previously considered too far from shore to warrant a dedicated onshore LNG plant. Environmental damage caused on land by new LNG facilities is also avoided.

The West Australian FLNG venture, was expected to yield 3.6 million tonnes of LNG a year for 25 years and was to be followed by others in Western Australia, the Timor Sea and offshore Malaysia. But the world of oil and gas has changed significantly since Shell approved Prelude for development in 2011. The days of \$US100-a-barrel oil that inspired Australia's LNG construction boom are well and truly over and other planned FLNG projects have been put on hold.

### Discussion points

1. What form of expenditure did Shell undertake in buying the 500m-long Prelude floating LNG barge?
2. What problems face companies when they plan this type of expenditure?
3. What is the likely short-term and long-term impact on the circular flow and level of activity in the Australian economy from the Prelude project?

SO YOU THINK YOU UNDERSTAND MACROECONOMIC ACTIVITY	
<b>What is macroeconomics?</b>	<b>Three forms of injection into the circular flow</b> 1 2 3
<b>Key difference between macro and micro-economics?</b> Macro = Micro =	<b>Equilibrium condition for circular flow model</b>
	<b>Components of aggregate expenditure</b> 1 2 3 4
<b>Three forms of economic activity</b> 1 2 3	<b>Equilibrium condition involving aggregate expenditure</b>
	<b>Main determinant of consumption</b>
<b>Two sectors in main circular flow</b> 1 2 <b>Three other sectors in circular flow model</b> 1 2 3	<b>Four non-income determinants of consumption</b> 1 2 3 4
	<b>Main determinant of planned investment</b>
<b>Two types of flows shown in circular flow model</b> 1 2 <b>Four markets shown in the circular flow</b> 1 2 3 4	<b>Two non-interest rate determinants of planned investment</b> 1 2
	<b>Two types of government spending</b> 1 2
<b>Three forms of leakage from main circular flow</b> 1 2 3	<b>Three factors affecting net exports</b> 1 2 3

*See answer section for completed table*

## REALITY CHECK

- Which one of the following is NOT studied as part of macroeconomics?
  - The level of inflation
  - The rate of unemployment
  - Market efficiency
  - The level of economic growth
- Which one of the following is NOT a measure of economic activity?
  - Gross domestic product; (b) Gross domestic income; (c) Gross domestic wealth; (d) Gross domestic expenditure
- In the circular flow of income model, the real flow from producers to households involves:
  - Capital goods; (b) Goods and services; (c) Consumption expenditure; (d) Resources
- Which one of the following has a similar effect on the circular flow in an economy as a fall in planned investment in the mining sector?
  - A rise in exports of LNG and iron ore
  - A rise in government spending on port infrastructure in Broome
  - A fall in tax revenue received by the government from mining companies
  - A rise in imports purchased by households
- During a year, total leakages were \$200b and total injections were \$225b. As a result economic activity:
  - Decreased by exactly \$25b
  - Increased by exactly \$25b
  - Increased by more than \$25b
  - Decreased by more than \$25b
- In an economy during a year, consumption was \$500b, planned investment was \$100b, Government spending was \$200b, Exports were \$75b and Imports were \$90b. Aggregate expenditure, therefore, was:
  - \$785b; (b) \$800b; (c) \$875b; (d) \$965b
- In an economy during a year, total consumption is \$600b of which \$150b is spending on necessities or survival consumption and the level of income is \$900b. The marginal propensity to consume in this economy is therefore:
  - 0.45; (b) 0.50; (c) 0.60; (d) 0.90
- Which one of the following would cause a decrease in consumption spending and, therefore, a shift in the consumption function in a downward direction?
  - A fall in the rate of interest
  - A fall in consumer confidence
  - A fall in household debt
  - A fall in unemployment
- A fall in interest rates will:
  - Reduce spending on consumption and planned investment
  - Reduce spending by the government and on net exports
  - Increase spending on consumption and planned investment
  - Reduce spending on planned investment and by the government

10. If during a year in an economy aggregate demand is \$800b and aggregate supply is \$775b:
- (a) the economy is in equilibrium
  - (b) the economy is growing
  - (c) the economy is contracting
  - (d) the price level in the economy is falling



## SYLLABUS POINTS

- The concept and measurement of economic growth
- The distinction between nominal Gross Domestic Product (GDP), real GDP, and real GDP per capita
- GDP as a measure of economic welfare
- The demonstration of economic growth using the Production Possibility Frontier (PPF) and Aggregate Production Function (APF)
- The determinants of economic growth
- The costs and benefits of economic growth
- The trends in economic growth in Australia over the last five years

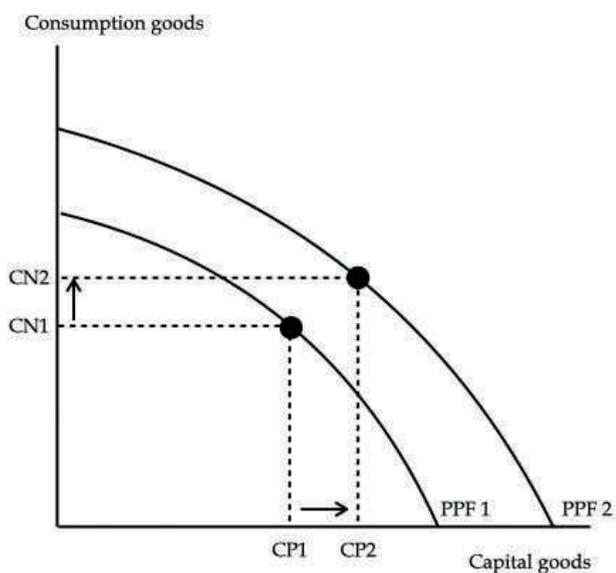
## OVERVIEW – ECONOMIC GROWTH

1	Economic growth is defined as an increase in the capacity of the economy to produce goods and services over time. Economic activity involves the production of goods and services, earning incomes and spending.
2	The growth rate is the real (inflation adjusted) change in Gross Domestic Product (GDP). This is a measure of output rather than capacity and is defined as an increase in the real value of final goods and services produced in an economy over a given period of time. The measurement of GDP takes into account depreciation (gross rather than net), foreign ownership (domestic rather than national) and inflation (real rather than nominal). Economic capacity is difficult to measure.
3	Sustained economic growth requires a combination of increased aggregate demand and supply. Production Possibility Frontier and Aggregate Demand/Aggregate Supply models can show growth. Aggregate demand rises with more consumption, planned investment, government spending and/or net exports. Aggregate supply requires the use of more and better resources (land, labour, capital and enterprise) and/or a rise in efficiency.
4	An increase in aggregate supply may involve an increase in population, participation and/or productivity. In turn, productivity growth depends factors such as the adoption of new technology, investment in capital, better levels of education, improved health standards and better management.
5	Economic growth is a macroeconomic goal in most countries and has become central to economic planning and policy. Growth often leads to increased living standards and better opportunities. However, the contribution growth makes to overall living standards and the quality of life depends on the composition and methods of production, the distribution of income and the pattern of expenditure.
6	Production causes problems of resource depletion and product disposal e.g. greenhouse gas emissions and climate change, plastic pollution of oceans, air pollution, falling fish stocks, deforestation and too much landfill. On a global scale, continuing growth in its current form is problematical.
7	As a measure of standards of living or well-being GDP leaves a lot to be desired. Some economic activity is missed out altogether, some is under-valued and some is over-valued. Problems of interpretation include income distribution, changes in population, changes in the terms of trade and changes in the quality of products.
8	Comparison of growth rates between countries is even more problematical because of the use of different exchange rates, differences in customs and culture and the quality of statistics.
9	Making growth more sustainable in the long-term requires major structural changes e.g. decarbonising the energy supply, changing diets (e.g. less red meat and palm oil) and reducing air travel.
10	Australia experienced variable but positive rates of economic growth between 1991 and 2000. Restoring growth after coronavirus pandemic will be a major task.

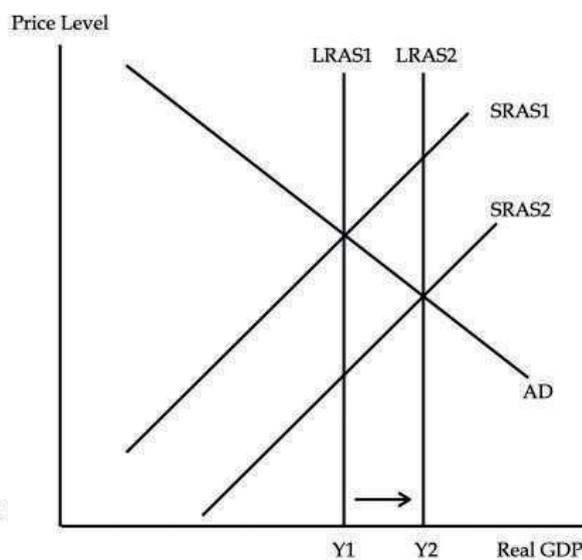
## Part 1 – Explanation of economic growth

Economic growth is an increase in the capacity of an economy to produce goods and services over time. Economic growth means an increase output, incomes and expenditure and allows people in the economy to enjoy a higher material standard of living. It is important to note that the definition of economic growth focuses on the capacity to produce goods and services or the supply-side of the economy rather than the actual level of production or the demand-side of the economy. That said, economic growth is sustained only when there is an increase in both aggregate supply and aggregate demand.

Figure 9.1 is a production possibility frontier model. The increase in capacity from PPF1 to PPF2 allows an increase in output from CN1 consumption goods and CP1 capital goods to CN2 consumption goods and CP2 capital goods. Figure 9.2 is an aggregate demand/aggregate supply model. Capacity has increased from LRAS1 to LRAS2. Real GDP has risen from Y1 to Y2.



**Fig 9.1:** Production possibility frontiers



**Fig 9.2:** Aggregate demand and aggregate supply

Measuring the capacity of the economy to produce goods and services in a given time period is not an easy task. It is much easier to measure the actual value of production, income and spending in an economy over a given period of time, and this is what Gross Domestic Product (GDP) attempts to do. If an economy's resources are fully employed there is no difference between productive capacity and actual production, but if the economy is in a recession the difference is significant.

Potential economic growth	The rate of increase in the capacity of the economy to satisfy the needs and wants of people in an economy.
Actual economic growth	The rate of change in real gross domestic product over a given period of time.
Trend economic growth	The average rate of change in real gross domestic product over a number of years.

## Student Activity 9.1

1. The table shows the actual level of GDP and the full capacity level of GDP for a hypothetical economy over 6 years.

Year	Actual level of GDP (\$b)	Actual growth rate (%)	Capacity of economy	Growth in capacity (%)	GDP gap (\$b)
1	160.0	–	164.0	–	
2	163.2		168.1		
3	168.1		173.1		
4	174.8		179.2		
5	180.1		184.6		
6	185.5		188.3		

Calculate, accurate to 1 decimal place, the following:

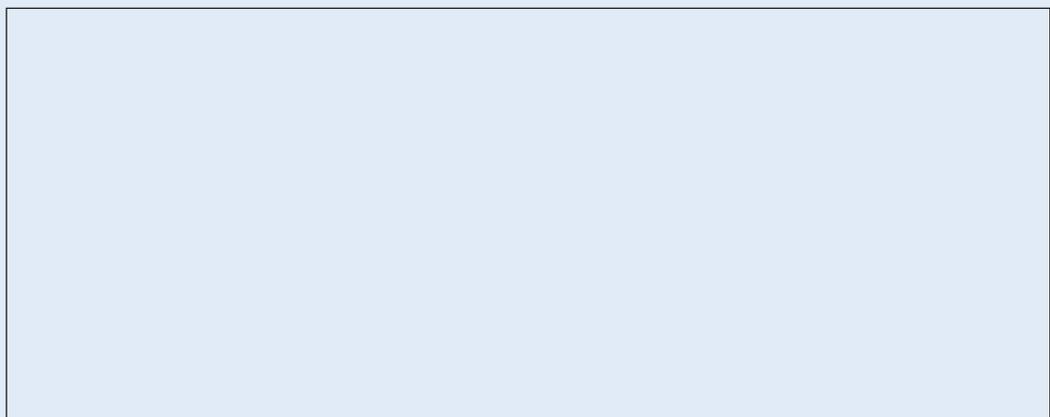
- The actual growth rate in years 2 to 6
  - The trend or average growth rate for years 2 to 6
  - The growth in capacity for years 2 to 6
  - The GDP gap for years 1 to 6
2. Describe the concept of economic growth. Draw a production possibility diagram to illustrate a period of economic growth.

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## Part 2 – Sources of economic growth

The ability to sustain long-term growth depends on both supply-side factors and demand-side factors. Increasing the capacity to produce goods and services (or increasing aggregate supply) normally involves a combination of (a) more resources (a quantitative source of supply), (b) better resources (a qualitative source of supply) and a smarter use of resources from increased economic efficiency. The table below provides examples of quantitative and qualitative factors that affect the capacity of an economy to produce goods and services.

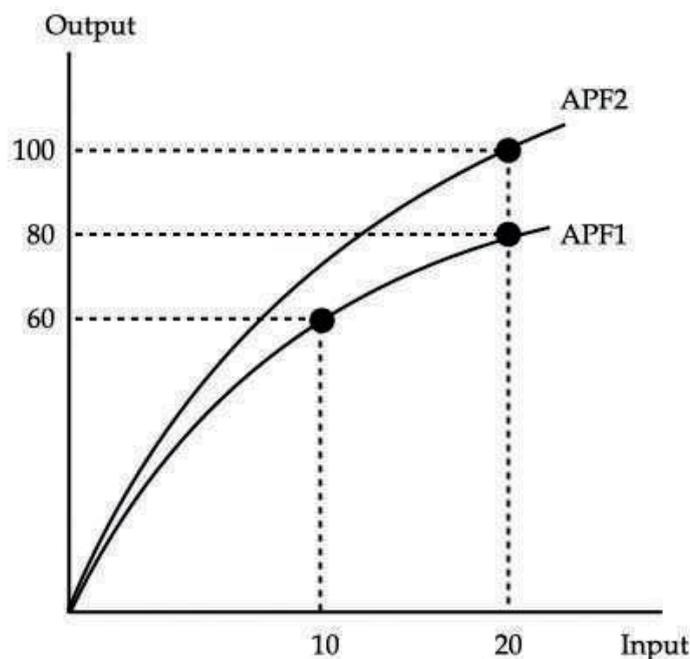
Resource type	Quantitative (more)	Qualitative (better)
Land Natural resources	<ul style="list-style-type: none"> <li>• Trade – import raw materials</li> <li>• Exploration – find more natural resources</li> <li>• Reclamation – increase useful land area</li> </ul>	<ul style="list-style-type: none"> <li>• Research e.g. better crops</li> <li>• Technology</li> </ul>
Labour Human resources	<ul style="list-style-type: none"> <li>• Natural population growth</li> <li>• Net inwards migration</li> </ul>	<ul style="list-style-type: none"> <li>• Education</li> <li>• Training</li> <li>• Health</li> </ul>
Capital Produced resources	<ul style="list-style-type: none"> <li>• Investment</li> <li>• Increase finance e.g. through foreign investment</li> </ul>	<ul style="list-style-type: none"> <li>• Embodied technology</li> <li>• Research &amp; Development</li> <li>• Foreign investment</li> </ul>
Enterprise	<ul style="list-style-type: none"> <li>• Reduce tax rates</li> <li>• Provide subsidies or grants</li> <li>• Provide risk or start-up finance</li> </ul>	<ul style="list-style-type: none"> <li>• Management training</li> <li>• Innovation</li> </ul>

How resources are combined is also important. Workers can be more productive if they have more or better capital to work with (a process known as capital deepening) and if the businesses they work in are managed effectively.

The term production refers to the quantity or level of output. The term productivity refers to the efficiency with which inputs of resources are turned into output. Production (or the level of output) can be increased if an economy has access to more resources and if there is a rise in productivity (or output per unit of input). A rise in productivity is the rise in output that can't be accounted for by the extra use of resources. Productivity will rise if the economy has access to better quality resources and better management and allocates its resources better. There are different indicators of productivity:

- **Labour productivity** – Output per hour worked
- **Capital productivity** – Output per unit of capital
- **Multi-factor productivity** – Output from a given combination of capital and hours worked

The importance of productivity for economic growth can be illustrated on an aggregate production function (APF) model.



*Fig 9.3: An aggregate production function*

An aggregate production function shows the output that can be achieved using different quantities of resources. APF1 shows that 10 workers can make 60 units of output, and 20 workers can make 80 units. Output rises at a decreasing rate as more resources are used. Doubling the number of workers, other things being equal, does not double the level of output because, for example, each worker will not have access to machinery or workers will start to get in the way of each other. However, if each worker is able to work more productively, e.g. because they have been trained better or have better machinery to work with, output can be increased. APF2 shows that 20 workers working more productively can make 100 units.

Sustained growth needs a combination of rising aggregate supply and rising aggregate demand. Aggregate demand is the sum of consumption spending, planned investment spending, government spending and net export purchases. Without sufficient aggregate demand the economy might experience:

- Low levels of investment in capital goods e.g. expansion plans may be cancelled.
- Depreciation of the capital stock e.g. it may not be possible to reopen mothballed factories.
- Lower levels of tax revenue and lower levels of government spending e.g. on transport infrastructure.
- A reduction in the labour force e.g. because of outwards migration, workers who can't find work and lose their skills, and people who can't find work who drop out of the labour market.
- A fall in international competitiveness and a loss of net exports e.g. because new technology is not built in to production processes.

### Student Activity 9.2

1. Why is the aggregate production function curved? What causes an upward movement in the position of the aggregate production function? List three factors that might contribute to this upward movement.

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2. What is the difference between production and productivity? How is productivity measured?

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3. Give two examples of ways the quantity of labour resources in an economy can be increased and two examples of ways the quality of the labour resources can be improved.

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4. Is the supply of land in Australia fixed? If not, how can it be (legally) increased?

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5. What is foreign direct investment? Why might this lead to a quantitative and qualitative rise in the productive capacity of the Australian economy?

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### Part 3 – Benefits and costs of economic growth

Economic growth generates important economic and social benefits. These include:

- **Higher material living standards:** An increased capacity to produce goods and services allows members of society to earn higher real incomes and raise their material standard of living.
- **Better quality goods and services and an increase in choice for consumers:** Products are likely to be better designed and more reliable. A wider choice of goods and services is available to consumers.
- **Greater employment opportunities:** Increasing output means increasing factor or resource inputs, including extra labour.
- **Growth creates further growth:** Growth is likely to raise the level of business confidence or expectations. This, in turn, is likely to lead to an injection of new investment spending. New capital goods are likely to incorporate improved technology.
- **Fiscal dividend:** A rise in output, income and spending will increase the level of tax payments. The government will be able to recycle this tax revenue to improve the quantity and quality of public and merit goods and services, such as transport infrastructure, education and health care.
- **Reduced environmental footprint:** Increasing output doesn't have to increase environmental damage. As material living standards rise, people may be prepared to act, or demand that others act, in a more environmentally friendly manner.

There are a number of economic and social costs caused by economic growth.

- **Environmental concerns:** Increasing aggregate supply can lead to environmental damage through resource depletion and from an increase in production and consumption negative

externalities. There is now greater awareness of, for example, damage to the ‘global commons’, climate change, rising sea levels, plastic in the oceans, poor air quality, poor soil quality, decline in fish stocks, loss of biodiversity, increased landfill and pollution (to name but a few).

- **Aspects of globalisation:** In order to achieve growth and higher productivity firms have, for example, exposed themselves to long and complex supply chains that can fail in periods of crisis (e.g. a pandemic or geopolitical development). Freedom of movement of goods, services, people and finance also allows problems in one economy to spread around the world.
- **Damage to social welfare:** Higher incomes can lead to increased consumption of de-merit goods which reduces social welfare, for example, excess consumption of drugs and gambling.
- **Inequality of income and wealth:** The benefits of growth are distributed unevenly, so growth often causes greater levels of income and wealth inequality. These inequalities can reduce social harmony and cohesion.
- **Structural change and structural unemployment:** Output growth is uneven. All industries do not expand at the same rate. Indeed growth in one area, e.g. mining, may cause the decline in another area, e.g. manufacturing, through the impact on the value of the exchange rate.
- **Inflation risk:** If aggregate demand exceeds the level of aggregate supply, the economy will experience capacity constraints, such as shortage of skilled labour or transport congestion and prices and wages will rise.

Sustainability requires changing the composition and processes used in production of some goods and services (e.g. switching from fossil fuels to renewables, using less plastic, reducing the use of palm oil), a change in the distribution of income (e.g. supporting growth in less developed economies) and a change in the pattern of expenditure (e.g. flying less often and buying electric cars). This will cause structural change but overall growth need not fall. There will be investment spending to increase the production capacity of alternative products, opportunities for export earnings from sales of ‘green’ products and consumption growth of some different products.

### Student Activity 9.3

1. Explain how growth contributes to an increase in the quantity and quality of the stock of public and merit goods and services in a country.

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2. Describe one way growth may damage the environment and one way it may help preserve the environment.

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3. List three ways economic growth can be maintained but be generated in a more sustainable way.

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## Part 4 – Measurement of Gross Domestic Product (GDP)

- GDP is the the highest profile measure of economic growth. GDP measures the value of traded goods and services produced in an economy over a given period of time. Economic growth is the percentage change in GDP over time. GDP, as a measure of economic activity, was invented in America where the 1930's depression had exposed an urgent need for better macroeconomic data to guide policy and investment.
- There is an internationally agreed approach to measuring GDP. It is defined in the United Nations System of National Accounts (SNA). SNA was last revised in 2008 and the next revision is due in 2025.
- When GDP data is 'real GDP per head data' it has been adjusted to take account of the effect of inflation and changes in population size. It can also be adjusted to take account of changes in the terms of trade and for exchange rate levels e.g. by using purchasing power parity (PPP) exchange rates.
- Around the world (save from a few countries such as Bhutan) the value of, and changes in, a country's GDP are used as a indicator of economic success. It is often assumed that a rise in GDP makes people wealthier and happier. However, incomes are seldom distributed evenly across economies, not all economic activity is included in the GDP measure and some activity that is included doesn't contribute to welfare or happiness.
- GDP has many critics and the pursuit of GDP growth has become associated with a number of harmful or counter-productive economic developments. To be fair, GDP was never intended as a report card for economic performance but critics claim it is no longer fit for purpose as a measure of economic activity or a metric that indicates living standards or guides governments' economic policies.
- Another set of problems crop up when GDP is used as a metric for economic policy decision making as it influences the decisions and policies adopted by politicians. Politicians may, for example, (i) manipulate the economy so GDP growth is strong in the run up to an election, they may allow inwards foreign direct investment that boosts GDP but harms the environment, (ii) delay taking action on decarbonising the economy by supporting fossil fuel industries to avoid the creation of stranded assets, (iii) set tax rates that favour certain members society more than others, and (iv) spend money in a way designed to produce a quick V-shaped recoveries from recessions rather than promote longer-term economic strength. GDP critics claim that if policy is driven by the flawed GDP indicator, materialism is fostered and problems such as environmental damage, climate change and poverty mount up.
- Many alternative indicators have been produced to create a better economic report card. First there is the Human Development Index (HDI), produced by the United Nations Development Program (UNDP). HDI is a composite indicator that combines incomes (as a proxy for living standards), literacy (as a proxy for education) and life expectancy (as a proxy for health standards). Second there is the Genuine Progress Indicator (GPI) which incorporates environmental factors (such as climate change and environmental damage) and social factors (such as incidence of poverty). And, thirdly, there is Gross Ecosystem Product (GEP), produced by the Stockholm Resilience Centre, which values the contribution of nature to economic activity and human wellbeing and indicates the extent to which

the natural environment is being run down as countries strive to increase GDP. The Stockholm Resilience Centre has developed the concept of ‘planetary boundaries’ which are the boundaries that must be respected when countries promote economic growth.

### Measurement issues

Gross Domestic Product is a reasonably accurate measure of what is produced in an economy over a given period of time. However, as the table below shows, it is not a perfect measure.

Problem	Cause of the problem
Some economic activity is missed out of the measure altogether	<p><b>Informal markets</b> – where activity is not recorded and payments are made in cash</p> <p><b>Non-marketed output</b> – output that people do for themselves that could have been done by someone else e.g. childcare, painting and decorating, and car servicing.</p> <p><b>Charity work and volunteering</b> – e.g. working in an Op Shop</p>
The value of some economic activity is over-stated	<p><b>Negative externalities</b> – the cost of the harm done to bystanders when products are produced or consumed, e.g. pollution costs</p> <p><b>Defensive expenditure</b> – output needed to fix up problems caused by the production process, e.g. work-related health care</p> <p><b>‘Uneconomic’ goods or ‘Bads’</b> – goods that directly or indirectly cause harm e.g. wet wipes, plastic toys with fast food</p>
The value of some economic activity is under-stated	<p><b>Positive externalities</b> – the benefits received by third-parties when products are produced or consumed, e.g. training, vaccinations</p> <p><b>Service sector activity</b> – where there is no obvious output or monetary value associated with a service are just valued at cost e.g. palliative care</p>

### Growth and living standards

Even if measurement problems are set aside, care has to be taken in using GDP as an indicator of living standards. The table below shows why this is so.

Problem	Solution to the problem	New indicator
The price level changes over time	Measure output using constant prices to account for the impact of inflation. This converts nominal or current prices to real prices.	Real GDP
The population in the economy rises over time	Divide real GDP by size of population to find level of real GDP per head (or per capita).	Real GDP per head
Income is not evenly distributed amongst the population	Changes in income distribution can be monitored, e.g. using indicators such as the Gini-coefficient (see Chapter 7) but GDP data is not adjusted for this.	No change
Over time there are changes in working conditions	Hours and conditions at work may change for the better, e.g. health and safety standards, or worsen e.g. introduction of fixed contracts or casual hours. No attempt is made to account for this.	No change

The quality of products produced changes over time	Changes in quality are not always matched by changes in price, e.g. cars and electrical goods. No adjustment is made for this.	No change
The terms of trade change over time	The terms of trade is a comparison of average export prices and average import prices. A rise in the terms of trade means more imports can be purchased for a given level of exports, while a fall means fewer imports can be purchased. So when the terms of trade change, consumption levels can change without a change in the level of GDP or production.	Real net national disposable income

### Student Activity 9.4

1. Complete the following table.

Year	Nominal GDP (\$b)	Price Level (index)	Real GDP (\$b)	Population (million)	Real GDP per head (\$)
1	160	100	160	50	
2	168	103		52	
3	179	107		55	

2. Describe one example of economic activity that is:

(a)	Not included in calculations of GDP but should be	
(b)	Included in GDP calculations but at too low a value	
(c)	Included in GDP calculations but at too high a value	

3. Research two alternative ways of measuring the standard of living or quality of life of people in an economy. Look at, for example, the Genuine Progress Indicator, Happiness indicators and Quality of Life indicators. What is added to and left out of these indicators compared to calculations of Gross Domestic Product?

## Part 5 – Growth performance

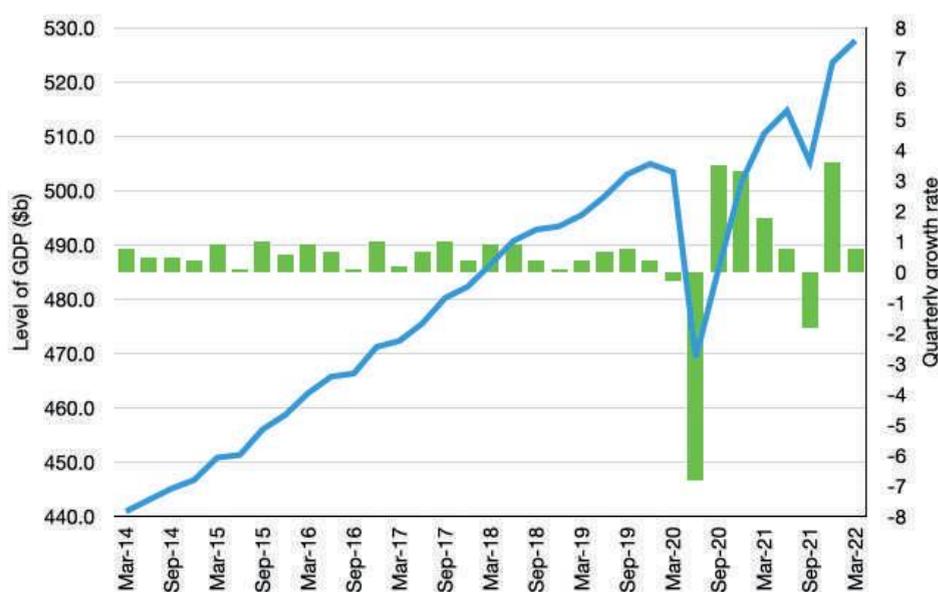


Fig 9.4: Data source ABS

- Australia experienced sustained economic growth between 1991 and 2007, although some periods of growth were faster than others.
- After the Global Financial Crisis in 2008, growth rates were below the trend rate of the previous decades. Many developed economies, including Australia, appeared to be in a low-growth trap (see section 4 below).
- The measures introduced to control the pandemic in 2020 led to a sharp fall in growth. This was Australia's first recession since 1990.
- New Covid variants delayed economic recovery in late 2021. Government income and spending support measures during the pandemic supported growth by protecting incomes and employment and promoting construction industries.
- Recently rising commodity prices e.g. for food, fuel and energy, and consumption spending have contributed positively to growth.

### Positive contributions to growth

- **Growth in China, India and South East Asia:** Demand for mineral and energy exports led to the 'mining boom' and an increased production capacity
- **Population growth** – Australia has relatively high population growth due to both natural population growth and migration.
- **A rise in the participation rate:** More people of working age are participating in the workforce.
- **Infrastructure investment:** The public and private sectors have invested in, for example, transport and communications infrastructure
- **Strong financial sector:** Australia has a stable banking and financial sector, capable of providing finance to business
- **Foreign investment:** Australia has a AAA credit-rating and is able to attract foreign investment to finance an increase in capacity.

### Negative factors for growth

- **Labour productivity:** Productivity growth has been relatively slow.
- **Private sector investment:** Investment in the private sector has been held back by low confidence, excessive government regulation and an over-valued dollar.
- **Consumer confidence:** Consumption is the biggest component off aggregate expenditure but consumer confidence or expectations has been adversely affected by the pandemic and a fall in real wages.
- **Education and training:** Australia's performance in international comparisons of educational standards has been relatively poor

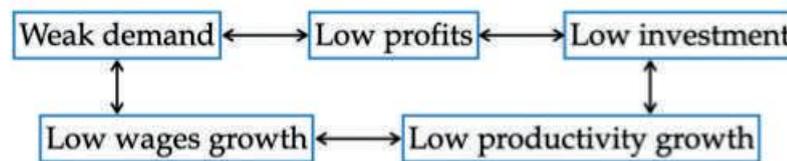
- **Tax structure:** Australia collects a relatively high proportion of its tax revenue from direct tax. This may act as a disincentive.

### The low-growth trap

Since the Global Financial Crisis several developed economies, including Australia, have been facing a number of deep seated structural problems. For example:

- There has been a slowdown in economic growth with links to low productivity growth and wage stagnation.
- The world is heading for a climate catastrophe, evidenced by bushfires, floods and drought.
- Disputes between the US and China over trade, investment, technology and security issues put several countries, including Australia, in a delicate geopolitical position.
- The greater recognition of social justice issues including racism, equity, education, healthcare, immigration, and LGBTQ+ rights threaten existing structures and ways of working.
- Many countries are facing the consequences of an ageing population and a resultant increased demand for social care.

The low-growth trap is a model that shows how these structural economic factors have formed a self-reinforcing chain or sequence that causes slower or below trend rates of economic growth. The diagram shows some of the possible connections between five main structural factors. In the real world the interaction is complex and might operate in either direction or jump between factors.



*Fig 9.5: The low growth trap*

### Student Activity 9.5

1. Why has China been able to achieve faster economic growth than developed economies such as Australia?

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2. List four policy measures Australian Federal Government have used to stimulate the rate of economic growth.

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3. The government talks about people, participation and productivity as the key factors that contribute to growth. Describe how these 3Ps could improve growth. What other factors are important sources of Australian growth?

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SO YOU THINK YOU NOW UNDERSTAND ECONOMIC GROWTH	
<b>Key words or phrases in a definition of economic growth</b> 1 2 3	<b>Five benefits from economic growth</b> 1 2 3 4 5
<b>Showing growth using PPF model</b>  <b>Showing growth using aggregate demand / aggregate supply model</b>	<b>Five costs of economic growth</b> 1 2 3 4 5
<b>Five measurement issues</b> 1 2 3 4 5	<b>Examples of quantitative sources of growth</b> 1 2 3 4 5
<b>Three forms of activity that are missed</b> 1 2 3 <b>Three examples of overstated activity</b> 1 2 3 <b>Two examples of under-stated activity</b> 1 2	<b>Examples of qualitative sources of growth</b> 1 2 3 4 5
<b>Five problems in using GDP figures for changes in the standard of living</b> 1 2 3 4 5	<b>Definition of productivity</b>  <b>Two measurements of productivity</b> 1 2
<b>Five factors affecting Australia's growth performance</b> 1 2 3 4 5	<b>Three features of aggregate production function model</b> 1  2  3

*See answer section for completed summary*

## REALITY CHECK

Questions 1 to 3 refer to the following diagram

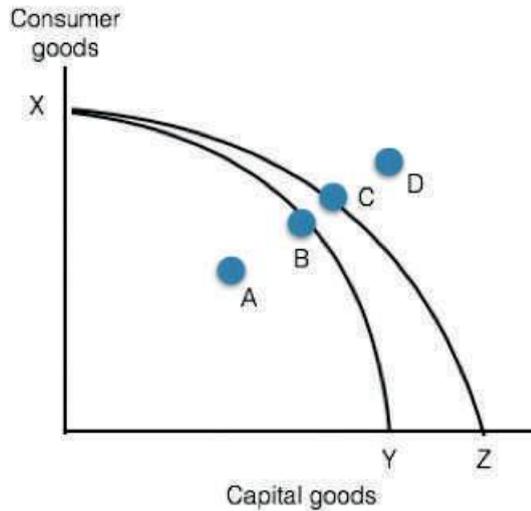


Fig 9.6:

1. Which one of the following could be the cause of the shift in the production possibility curve from XY to XZ?
  - (a) An increase in the demand for consumer goods
  - (b) An increase in wage rates and a fall in consumer prices
  - (c) A rise in productivity in the capital goods industry
  - (d) A reduction in workers employed in making consumption goods
  
2. Which of the following is an incorrect statement for the production possibility curve XZ?
  - (a) Unemployment is lower at point B than point A
  - (b) There are no unemployed resources at point C
  - (c) Point C indicates living standards are higher than at points A and B
  - (d) Point D is unattainable without a rise in productivity or an increase in resources
  
3. It is still possible for living standards in a country to fall even if GDP has risen when:
  - (a) There is an improvement in the quality of goods produced.
  - (b) There is a rise in country's population
  - (c) The government makes the distribution of income more equal
  - (d) There has been a fall in the price level
  
4. Which one of the following is the most likely cost to the Australian economy of a 5% growth rate?
  - (a) Cost of living pressure
  - (b) Rising levels of unemployment
  - (c) A rise in real incomes
  - (d) A reduced choice of products to buy

5. In an economy nominal GDP increased by 3% in 2014 but in the same year real GDP increased by only 1%. This means that during 2014:
- (a) There was a 2% fall in the value of the capital stock
  - (b) The value of imports was 2% higher than the value of exports
  - (c) There was a 2% fall in expenditure
  - (d) There was an inflation rate of 2%
6. Economic growth is regarded as an important objective because:
- (a) It ensures the world's resources are used efficiently
  - (b) Without growth unemployment tends to increase
  - (c) It means inflation can be kept within the 2% to 3% target range
  - (d) It leads to higher living standards for everybody in society
7. Which of the following is an accurate definition of economic growth?
- (a) An increase in the capacity of the economy to produce goods and services
  - (b) An increase in the volume of production in an economy
  - (c) An increase in the value of trade completed with other economies
  - (d) A rise in welfare of most of the people in an economy
8. The curve shaped of the Aggregate Production Function shows that the growth in output is less than the growth in resources needed to produce it. This is due to:
- (a) The Law of Diminishing Marginal Utility
  - (b) The Law of Diminishing Marginal Returns
  - (c) The Law of Supply
  - (d) The Law of Diminishing Marginal Growth
9. In the aggregate production function model a rise in productivity is shown by:
- (a) A movement along the APF to the right
  - (b) A movement along the APF towards the origin
  - (c) An upwards shift in the APF direction
  - (d) A downwards shift in the APF
10. Which one of the following would lead to a rise in gross national product?
- (a) Non-marketed output, such as painting your house yourself
  - (b) Positive externalities created by having your house painted
  - (c) Having your house painted by a firm of decorators
  - (d) An informal agreement to pay cash to a firm of decorators



### SYLLABUS POINTS

- The concept, and measurement, of inflation
- The distinction between headline and underlying inflation
- The causes and types of inflation, including demand pull and cost push
- The effects of inflation
- The impact of events on the trends in inflation in Australia over the last five years

## OVERVIEW – INFLATION

1	Inflation is a sustained, appreciable rise in the price level over time. It causes a fall in the purchasing power of money.
2	Headline inflation is measured as the rate of change in the Consumer Price Index. Underlying inflation rates exclude outlier and volatile price movements.
3	Deflation is a sustained, appreciable fall in the price level in an economy. The term 'disinflation' is used to describe a fall in the rate of inflation.
4	<p>Price changes can be caused by:</p> <ul style="list-style-type: none"> <li>• Changes in aggregate demand (i.e.. C+I+G+X-M)</li> <li>• Changes in aggregate supply (e.g. costs of production)</li> <li>• Changes to inflationary expectations</li> <li>• Changes to the money supply and level of credit</li> </ul> <p>In practice, it is not easy to isolate one factor from another as inflationary and deflationary spirals occur.</p>
5	The Reserve Bank of Australia and the Government aim to achieve an underlying inflation rate of between 2% to 3% over the life of the economic or business cycle.
6	<p>Above target Inflation causes four main problems:</p> <ul style="list-style-type: none"> <li>• An arbitrary redistribution of incomes, with winners and losers</li> <li>• Loss of international competitiveness</li> <li>• Lower consumer and business confidence</li> <li>• Loss of efficiency (misallocation of resources, wasted time and effort)</li> </ul>
7	<p>Inflation has an adverse impact on all of the macroeconomic objectives:</p> <ul style="list-style-type: none"> <li>• Growth is reduced (e.g. loss of net exports, lower planned investment)</li> <li>• Employment is reduced (e.g. due to lower growth)</li> <li>• Inflation spirals develop (e.g. wage-price spirals)</li> <li>• Equity in income distribution is reduced</li> <li>• External trade balance worsens</li> </ul>
8	<p>Deflation leads to:</p> <ul style="list-style-type: none"> <li>• Falling profits due to low demand and 'sticky' production costs</li> <li>• Postponed consumption as consumers wait for prices to fall</li> <li>• Rising real debt levels as it becomes harder to repay debts</li> </ul>
9	The Reserve Bank has largely been successful in achieving its inflation target. In the period before the coronavirus pandemic the RBA was worried that inflation was too low and it reduced its cash rate to try to stimulate demand.
10	Inflation is affected by many factors beyond the control of the Reserve Bank and Government, including overseas growth rates, the value of the exchange rate, impact of natural disasters and geopolitical events.

## Part 1 – The concept, and measurement, of inflation

### Inflation

Inflation is a persistent and appreciable rise in the general level of prices. Therefore, inflation is an increase in prices over time and over a wide range of goods and services. Inflation causes a fall in the purchasing power of money.

### Measurement

There are two steps to calculating the rate of inflation; first calculating the Consumer Price Index (CPI) and second, calculating the percentage change in the CPI over a period of time.

### The Consumer Price Index

The CPI is based on the cost of a basket of goods and services representing a typical metropolitan household's consumption. Statisticians use index numbers to reduce complex data to a simple, single figure and in situations when knowing the rate of change is more important than the actual level.

The calculation of the Consumer Price Index involves:

- Selecting a typical 'basket of goods and services' consumed by a typical metropolitan household, about two thirds of the Australia's population.
- Surveying how much is typically spent on each item. The pattern of spending of the average household is revealed in the Household Expenditure Survey undertaken every five years by the Australian Bureau of Statistics (ABS).
- A 'weight' is attached to each product so that price changes of commonly bought products have more impact on the index than those which are purchased less often.
- Selecting a base year, a year to which data from other years will be compared.
- Collecting price data. The ABS checks the prices of about 100,000 products each month.

$$\text{CPI} = \frac{\text{Current value of selected basket of goods and services}}{\text{Base year value of same basket of goods and services}} \times 100$$

### Calculating percentages

Once the CPI is known the rate of inflation is calculated using the following formula.

$$\text{Rate of inflation} = \frac{(\text{CPI in Year 2} - \text{CPI in Year 1})}{\text{CPI in Year 1}} \times 100$$

### Other measures of inflation

The percentage change in the CPI is known as the 'headline rate' of inflation and it is a reasonable proxy measure of changes in the cost of living. The Reserve Bank of Australia also calculates an 'underlying rate' of inflation that is basically the headline rate with price changes of 'volatile' items and 'outliers' left out of the calculation (see issues section below). Other inflation rates are also calculated. For example the GDP deflator index measures the change in the price level of items produced in the economy (as opposed to consumed by metropolitan households in the CPI).

### Measurement issues

Issues that arise in measuring and interpreting the rate of inflation include:

- It is an average measure. The pattern of spending of individual people or specific households will not be the same as the average or typical pattern.
- Collecting price data is a complicated process and data collection errors can occur.
- It is a lagging indicator as it provides information about how the economy has been performing rather than is currently performing.
- Special factors may lead to exaggerated changes in the prices of some products. These products are known as outliers. Outliers are removed when calculating underlying inflation.
- The prices of some products are volatile or unstable, such as the price of fruit and vegetables. The prices of volatile items are also excluded in calculations of underlying inflation.

- Over time the composition of household expenditure changes. The basket of goods and services has to be adjusted over time.
- It is difficult to account for quality improvements. The quality of some products, such as electrical goods, computers, phones and cars, has risen over time without a corresponding rise in their price. Some producers reduce the size and/or quality of their products to avoid changing the price of their products. This practice is known as ‘shrinkflation’.
- People can avoid some price changes by shopping around e.g. by buying ‘specials’ or changing the brands they buy.
- It only measures inflation in metropolitan areas. The level of prices in regional and remote areas is likely to be higher.
- Inflation measures the change in the cost of living but not the standard of living as it doesn’t include changes in incomes, taxation or transfers.

### Importance of inflation data

Inflation data:

- Provides information about an aspect of the macroeconomic performance of the economy.
- Allows wages, government benefits and other money values to be adjusted to maintain their real value (or purchasing power).
- Prevents inflation distorting decision making by producers, consumers and the government. Comparisons over time can be misleading if nominal or money values are not adjusted for the impact of inflation. A value is described as real if it is adjusted to take inflation into account and nominal if there is no adjustment.

### Terminology

<b>Inflation</b>	Rise in the average price level
<b>Disinflation</b>	Slow down in the rate of inflation. The price level is still increasing but at a slower rate
<b>Deflation</b>	Fall in the average price level.
<b>Hyper-inflation</b>	Inflation is out of control (over 100% per year)

### Student Activity 10.1

1. Describe the difference between inflation, disinflation and deflation.

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2. What index is used to calculate headline inflation in Australia?

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3. Over three years, a government increases spending on schools from \$100m to \$110m. Inflation during this period was 12%. The government claims it is spending more on schools but the opposition claims expenditure on schools has been cut. Explain who is right.

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4. The price index for an economy at the end of each year is shown in the table.

Year	Price Index	Calculate the rate of inflation	Is this inflation, deflation or disinflation?
1	108.0	–	–
2	113.4		
3	119.1		
4	122.6		
5	120.2		

5. The data shows the price of burgers in a city in different years.

Year	Price	Burger inflation rate	Cost of 100 burgers	How many for \$100
1	\$1.90	–		
2	\$1.99			
3	\$2.09			
4	\$2.29			
5	\$2.45			

- (a) Complete the table by calculating the percentage increase in the price of burgers each year, the cost of 100 burgers each year and the number of burgers that can be bought with \$100 in each year.
- (b) What does this table illustrate about inflation?

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6. State whether the following are true or false in an economy where the rate of inflation is 5% per year.

(a)	The cost of living for a typical household has risen by 5% during the year	
(b)	The standard of living of a typical household has fallen by 5% during the year	
(c)	The level of wages has risen by 5% during the year	
(d)	The price of a Cherry Ripe has risen by 5% during the past year	
(e)	The value of the Australian dollar in terms of US dollars will have fallen by 5% during the year	
(f)	The basket of goods bought by a typical metropolitan household will become 5% smaller during the year	

7. A relative gives you \$100 on the day you were born. You bury the \$100 note in a time capsule. Search the internet for an inflation calculator and calculate, if you retrieved the \$100 note today:

- (a) The real value of the \$100 note compared to its value when you were born.
- (b) The equivalent amount of money today that would give you the same purchasing power that this gift provided when you were born.

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8. Does the CPI ever fall? If so what is happening to the average level of prices?

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9. Do the following events in an economy constitute inflation? In each case state a reason for your answer.

- (a) The price of food rises due to a bad harvest.

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- (b) The price of all goods and services rises because of a rise in the rate of the Goods and Services Tax (GST).

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- (c) There is a significant depreciation in the exchange rate.

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## Part 2 – The causes and types of inflation

### Demand pull inflation

Inflation can occur when there is a rise in aggregate demand (given no change in the level of aggregate supply). This is called demand-pull inflation. Fig 10.1 shows a standard aggregate demand/aggregate supply model, modified to show inflation rather than the price level on the Y-axis. The rise in aggregate demand reflects an overall rise in consumption, planned investment, government spending and net exports. In the intermediate or elbow stage of the Keynesian 3-stage aggregate supply curve, a rise in aggregate demand leads to a rise in inflation.

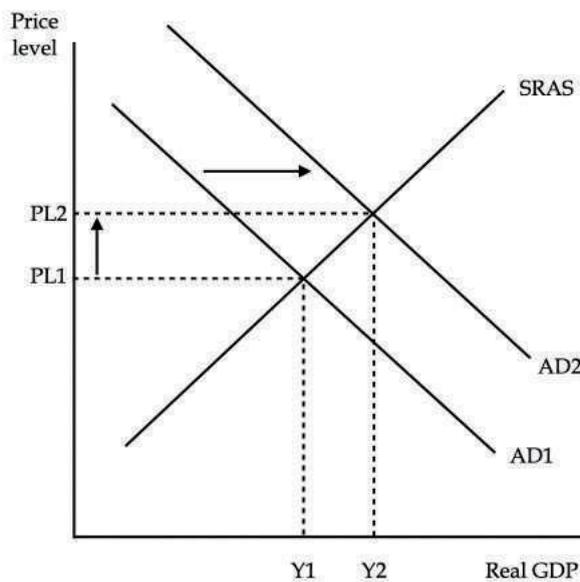


Fig 10.1: Demand pull inflation

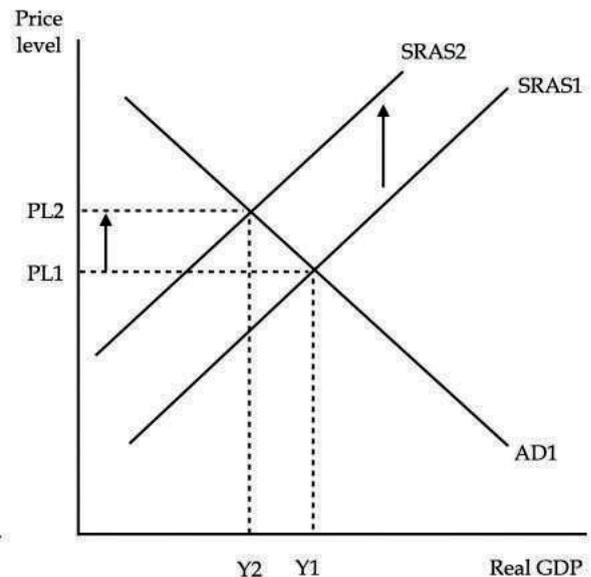
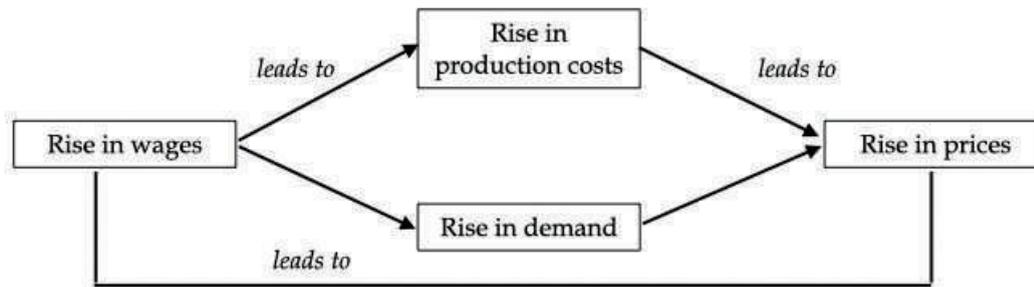


Fig 10.2: Cost push inflation

### Cost-push inflation

When costs of production increase the willingness of producers to supply changes. This is called cost-push inflation. Fig 10.2 shows a shift in aggregate supply upwards or to the left. Inflation increases as producers pass on higher production costs (such as wages and raw materials) to their customers.

## Wage-price spirals



**Fig 10.3:** A wage-price spiral

Wage rates may rise because of a shortage of skilled labour (demand-pull) or because the workers received a pay rise above any increase in productivity (cost-push). Inflation can be caused by expectations of inflation or experience of past inflation. Excess money or credit in an economy can lead to inflation as well.

### Student Activity 10.2

- In each of the following situations state whether the primary cause of inflation is caused by demand-pull or cost-push factors.

	Reasons for price rise	Cost-push or demand-pull?
(a)	Rise in the price of electricity	
(b)	Increase in petrol prices	
(c)	Rise in import prices as a result of a fall in the exchange rate	
(d)	Rise in wage rates leads to more consumption spending	
(e)	High demand for consumer durables as economy grows	
(f)	The money supply grows faster than growth in output	
(g)	Rising incomes overseas boosts demand for Australian exports	
(h)	Interest rates are reduced to stimulate investment spending	
(i)	School fees rise due to the use of new technology	
(j)	Price of components expected to rise in future months	

2. Is there good inflation and bad inflation? Does it matter what causes inflation?

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3. Draw AD/AS diagrams to show the difference between demand-pull and cost-push inflation.

Demand-pull inflation	Cost-push inflation

## Part 3 – The effects of inflation

### Above target inflation

The Reserve Bank of Australia has a target inflation rate of 2% to 3% per year on average over the life of an economic cycle. There are four broad problems caused by ‘above target’ inflation, namely:

- an arbitrary redistribution of incomes within the economy.
- a potential fall in international competitiveness.
- a reduction in business and household confidence.
- a loss of efficiency efficiency.

It should also be noted that the consequences of inflation are worse if the inflation is:

- unexpected or not fully anticipated
- significantly above the target range rather than only just above it

### Inflation and income redistribution

The burden of unanticipated inflation does not fall equally across in the economy. Some groups gain, some are not really affected and others lose out.

Probable winners	Probable losers
Debtors (the real value of their debt falls)	Creditors (the real value of repayments falls)
People with assets that appreciate (e.g. houses)	People with assets that depreciate (e.g. money)
People with flexible incomes (e.g. workers with index-linked pay)	People on relatively fixed incomes (e.g. self funded retirees)
People with 'labour market power' (e.g. workers in strong unions)	People without 'labour market power' (e.g. agricultural workers in weak unions)
Businesses with 'market power' (e.g. supermarkets)	Businesses without market power (e.g. wine exporters)
Importers (e.g. firms who out-source production)	Exporters (e.g. manufacturing industry)
The Government (they collect more income tax from bracket creep)	Tax payers (they pay more income tax due to bracket creep)

### Inflation and international competitiveness

Assuming exchange rates do not adjust to changes in relative inflation rates, international competitiveness is influenced by relative inflation rates between countries. A loss of price competitiveness makes it harder to export and more attractive for households to buy imports.

### Inflation and confidence

Inflation introduces uncertainty into economic decision-making. For example a business will find it difficult to calculate future profit levels if it is unsure about future costs and prices. Risk-averse businesses might reduce investment. Households may find it difficult to plan how much to spend and how much to save. Households may suffer from 'price-illusion' if they focus on nominal prices rather than on real prices.

### Inflation and inefficiency

Inflation can encourage an inefficient allocation of resources. Asset price inflation (e.g. rising house prices) may distort the allocation of resources by encouraging people to invest in the property market or commodities rather than in productive businesses. It can also lead to an unproductive use of time. The terms 'shoe leather costs' and 'menu costs' are used to illustrate the administrative costs people incur in making adjustments to keep up with inflation. Without inflation people would not have to waste their time or money continually making adjustments to, for example, their wages, savings portfolio, price catalogues, and advertising and marketing.

### Problems of deflation

The term deflation is used to describe a fall in the price level. The term disinflation is used to describe a fall in the rate of inflation. If deflation is caused by a fall in costs, economic performance might improve. The AD/AS model shows that falling prices leads to a rise in aggregate demand. This may result from increased international competitiveness.

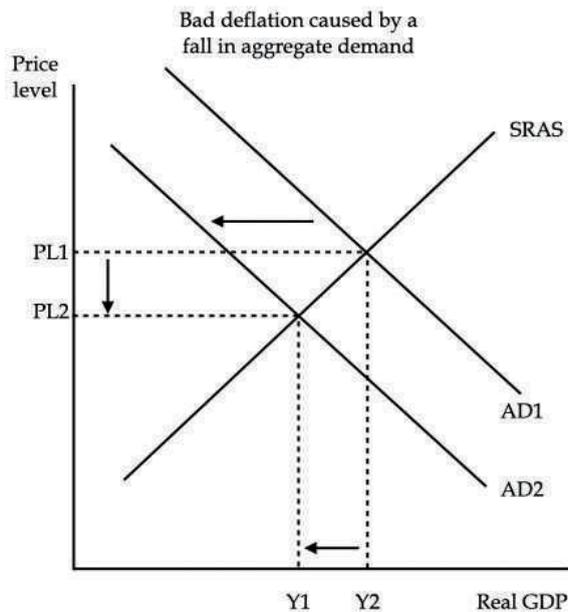


Fig 10.4: Bad deflation

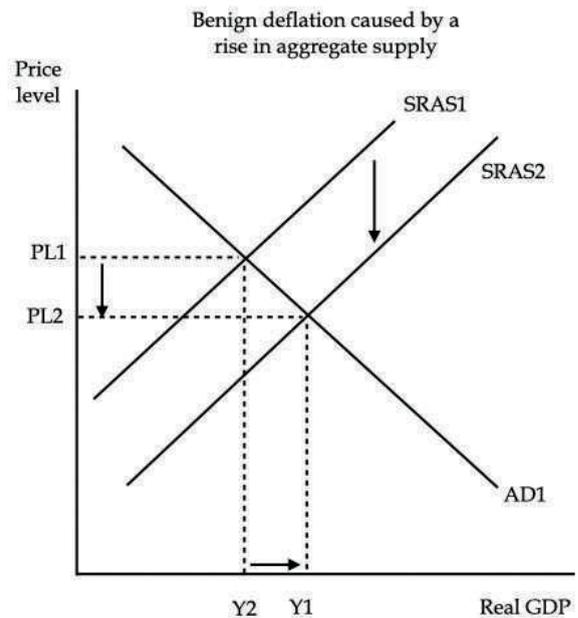


Fig 10.5: Good or benign inflation

However, economic managers fear deflation (falling prices) as much, if not more than inflation (rising prices). When deflation occurs:

- Profits fall as some costs, such as wages, are ‘sticky’ downwards. These costs can’t fall in line with prices so profits fall. From a demand perspective deflation is linked with low levels of aggregate demand and hence low profits. Consumers, anticipating falling prices may delay or postpone consumption until later.
- Income redistribution takes place, but, compared to inflation, different people are winners and losers. Debtors are, arguably the biggest losers as deflation causes the real value of business, households and government debts to rise.
- Loss of confidence remains a problem.
- Efficiency – people still have shoe-leather and menu costs (i.e. spend time dealing with price changes)

### Inflation and overall macroeconomic performance

- **Inflation can lead to more inflation:** Anticipated inflation or peoples’ experience of inflation encourages people to adjust wages and prices so they don’t lose out as a result of the inflation. For example, wage-price spirals can occur. One group of workers may try to leapfrog other groups in the scramble over wage levels and differentials.
- **Inflation slows down growth:** Inflation reduces aggregate expenditure by impacting on consumption, investment and net exports. This is because inflation can lead to a loss of confidence or certainty for households and businesses, can lead to inefficiency through imposing ‘menu and shoe leather costs’, and can lead to a loss of international competitiveness.
- **Inflation reduces employment:** Job levels will be reduced if growth is reduced. Also, if wages rise faster than productivity, businesses may look to substitute capital for labour.
- **Inflation alters the distribution of income:** Inflation creates winners (people who can adjust to the new price level or exploit it) and losers (people who find it difficult to adjust to the new price level). The new distribution of incomes caused by inflation is arbitrary and unlikely to be equitable.
- **Inflation affects external balance:** By reducing international competitiveness, inflation worsens the balance of trade. It may reduce the level of the exchange rate if the inflation is seen as a symptom of poor fundamental economic performance or management.

### Student Activity 10.3

1. What is the ‘Goldilocks’ rate of inflation (i.e. not too hot (high) and not too cold (low)? Why have you chosen this rate?

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2. In a period of inflation is it a good thing to have the following?

		Yes or No? State why?
(a)	A fixed income in money (nominal) terms	
(b)	An income that is ‘index linked’	
(c)	Union membership with power to increase wages	
(d)	Savings that earn 1% interest when inflation is 2%	
(e)	Debts	
(f)	A taxpayer (if tax rates are left unchanged)	
(g)	The government	
(h)	An exporter	
(i)	Earning your income selling imports	
(j)	Financial literacy	

3. Draw two AD/AS diagrams to show the difference between ‘good or benign deflation and ‘bad or toxic deflation’.

Good deflation	Bad deflation

4. Explain why the Reserve Bank normally adopts a ‘fight-inflation-first’ approach when adjusting cash rates?
- 
- 

## Part 4 – Recent inflation performance

The Reserve Bank of Australia aims to keep underlying inflation between 2% and 3% per year on average over the economic cycle. A target range is appropriate because the neither the Reserve Bank nor the Government can fine tune the economy. Aiming for a target lower than 2% might require higher than acceptable levels of unemployment and opens the economy to deflation or falling prices. During the last five years inflation hasn't often been within the target range. Between 2017 and mid-2022 it was generally below 2% and since mid-2022 it has been above 3%.

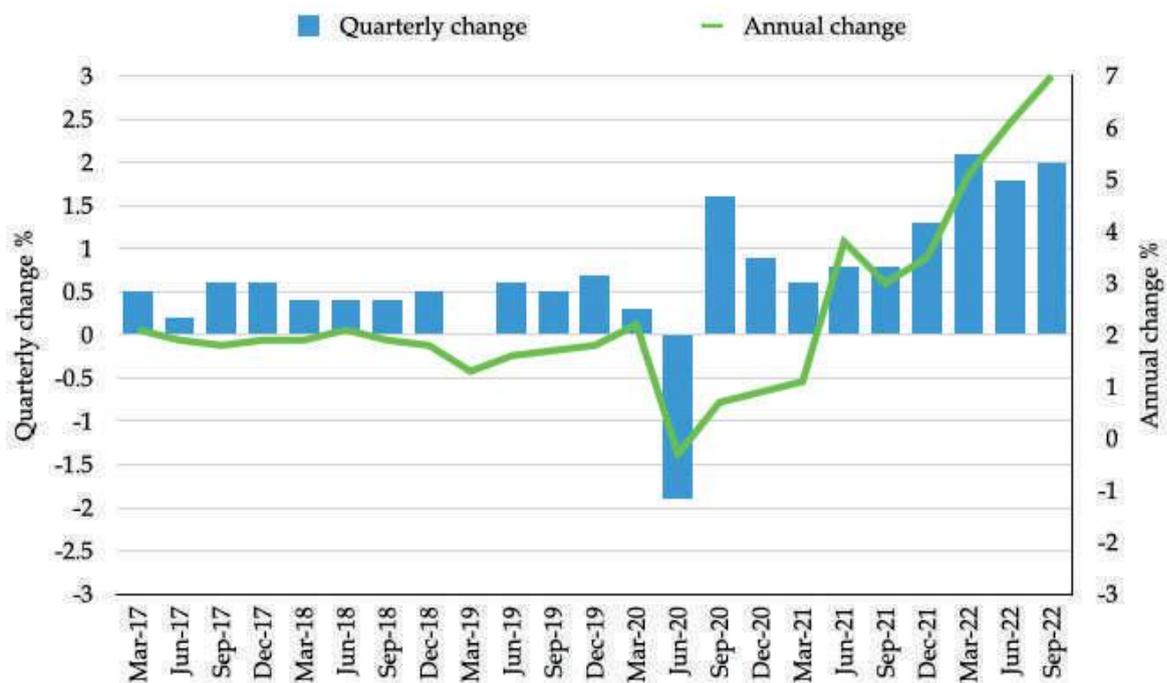


Fig 10.6: Australia's Consumer Price Inflation. Source: RBA Chart Pack

In common with many developed and emerging economies inflation in Australia was relatively low between the global financial crisis (2008-09) and the pandemic (2020-21) compared to previous years. This suggested that there were some global factors affecting inflation rates. These included:

- More independence from governments for central banks and the introduction of inflation targeting. Independence improved the execution of monetary policy and targeting provided a way of managing inflationary expectations. Inflation targeting was first introduced by New Zealand in 1989 and is practiced in over 30 countries including 9 developed economies.
- Several governments adopted deflationary fiscal policies (or austerity programmes) to reduce debts and deficits built up during and after the global financial crisis.
- The industrialisation of East Asian economies, including China, increased the supply of many mass produced consumer goods.
- Globalisation and the freer movement of goods, services, people and finance, allowed, for example, the development new supply-chain based business models and a more efficient use of global resources.

- A number of new technologies became embodied into business operations allowing a boost to labour productivity, such as innovative communications and networking technologies (e.g. use of mobile phones and e-commerce)
- Developments in the ‘crowd-based markets’ and the ‘sharing economy’ (e.g. Uber and Airbnb) allowed the use of previously idle resources and increased competition in some markets.
- An ageing of the population (caused by people living longer rather than reduced birth rates) led to an increase in participation rates of older workers in entry level type employment (e.g. at supermarket checkouts) which has put downward pressure on wage rates.
- New sources of oil (e.g. from shale deposits) and a lack of cooperation between major oil suppliers (e.g. Saudi Arabia and Russia) kept oil prices relatively weak.

However, since the pandemic, increased tension between China and the west and the Russian invasion of Ukraine inflation has increased.

- Households, who had been forced to save during the pandemic, contributed to a rise in aggregate demand when restrictions were lifted.
- The supply of goods was restricted due to production issues (e.g. factory closures) and transport issues (e.g. closed ports and container shortages).
- Geopolitical disputes between China and the west led to trade restrictions (e.g. tariff and quotas)
- The process of globalisation was to some extent reversed as countries looked to shorten supply chains and develop their own production of strategic products.
- As a result of Russia’s invasion of Ukraine food and fuel supplies to world markets fell, raising the price of these commodities
- The legacy of measures taken by central banks to protect economies during the pandemic (e.g. through a record low cash rate and quantitative easing) increased liquidity and lifting the prices of some assets (e.g. housing).

### Student Activity 10.4

1. What is the Reserve Bank of Australia’s target inflation rate? Do other countries target inflation in the same way as the Reserve Bank?

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2. Use the data provided in fig 10.6 to describe Australia’s inflation performance for the period shown in the chart.

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3. Describe four global or international factors that affected Australia’s inflation rate during 2021–23. Attempt to assess the impact of each factor you select on Australian inflation.

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- 4 Find a new story that refers to 'cost of living pressure'. Briefly describe the main theme of the article. What is 'cost-of-living pressure? Is it more in peoples' imagination than a reality?

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## EXAM TECHNIQUE

### Multiple-choice questions

Work out your answer to the following questions before checking the explanations provided.

1. In an economy, unemployment is rising, labour productivity is increasing and income per head is falling. Other things being equal, what is the likely impact of these changes on inflation and the balance on goods and services?

Option	The rate of inflation	Level of net exports
A	Increases	Decreases
B	Decreases	Increases
C	Increases	Increases
D	Decreases	Decreases

2. A country has seen the following changes to macroeconomic indicators over the period 2014 to 2017.

	CPI inflation (%)	Average earnings growth (%) at current prices
2014	2.5	3.0
2015	2.4	2.7
2016	0.6	0.2
2017	0.5	0.8

Which one of the following can be concluded from this data?

- (a) The nominal value of earnings was lower in 2017 than in 2014
- (b) Prices and average earnings were higher in 2017 than in 2014
- (c) The real value of average earnings declined in each year
- (d) Prices fell between 2014 and 2017

**Question 1 – Answer B.** The stem of the question suggests the level of economy activity is falling (rising unemployment and falling income per head) and this, in turn, suggests an absence of demand-pull pressure on prices. The rise in productivity suggests that costs of production may also be falling. Both of these suggest a decrease in inflation (Answer B or D). Slower growth and increased competitiveness should also improve the level of net exports (i.e. more exports and/or fewer imports). Therefore, the correct answer is option B.

<b>Question 2 – Answer.</b>		
A	INCORRECT	Nominal earnings rose by 0.5% in 2014, rose a further 0.3% in 2015, fell by 0.4% in 2016 and rose again by 0.3% in 2017. Overall this equates to a rise by about 0.7%.
B	CORRECT	There was inflation in each year. Wages rose in nominal terms in each year and in real terms each year apart from 2016.
C	INCORRECT	Real wages rose in 2014 by 0.5%, in 2015 by 0.3% and in 2017 by 0.3%.
D	INCORRECT	There was inflation (rise in general price level) in every year.

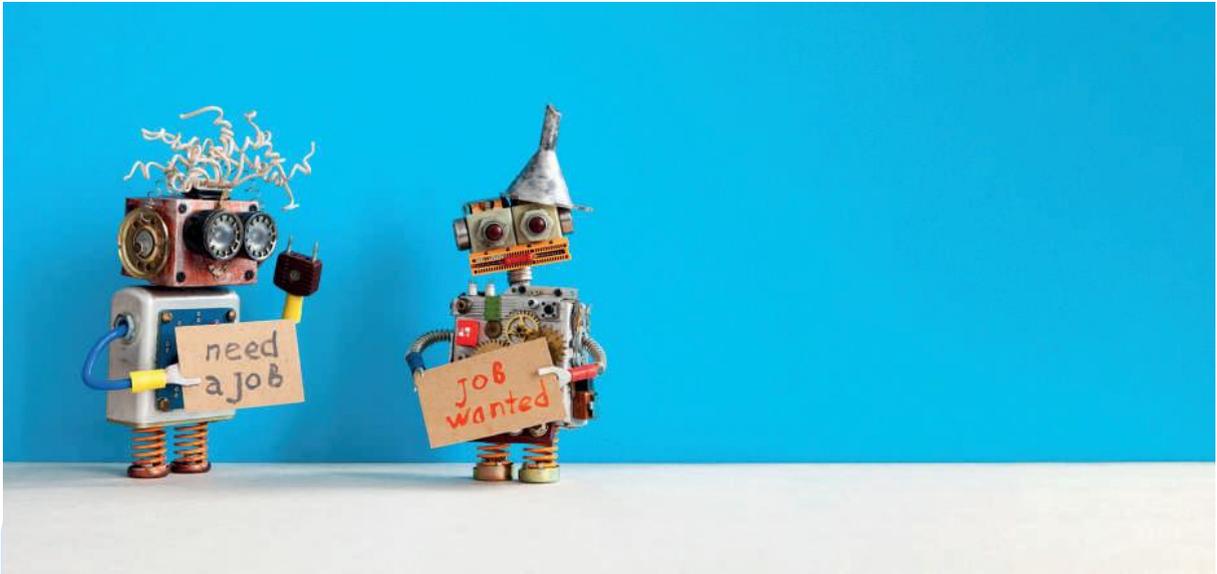
SO YOU NOW THINK YOU UNDERSTAND INFLATION	
<b>Definition of inflation</b>	<b>Four causes of inflation</b> 1 2 3 4
<b>Meaning of disinflation and deflation</b> Disinflation =  Deflation =	<b>Showing inflation on AD/AS diagram</b> Demand pull  Cost-push
<b>Measures of inflation</b> Headline =  Underlying =	<b>Four main problems with inflation</b> 1 2 3 4
<b>Five steps to measuring Consumer Price Index</b> 1 2 3 4 5	<b>Inflation's impact on macro objectives</b> 1 Growth: 2 Employment: 3 Inflation: 4 Income distribution:
<b>Formulae</b> CPI  Rate of inflation	<b>Three problems with deflation</b> 1 2 3
<b>Three reasons why CPI might exaggerate impact of rising price level</b> 1 2 3	<b>Recent inflation performance</b>
<b>Three issues in using CPI to indicate changes in living standards</b> 1 2 3	<b>Factors affecting Australia's inflation</b> 1 2 3 4 5 6

*See answer section for completed summary*

## REALITY CHECK

1. The consumer price index in an economy rose from 200 to 210 during 2014. The rate of inflation in the economy was, therefore:  
(a) 10% per year; (b) 5% per year; (c) -5% per year; (d) 210% per year
2. Inflation rates do not accurately reflect changes in households' standard of living because:  
(a) Members of the household can shop around for specials and adjust the products they buy  
(b) The household's disposable income may have changed  
(c) They may live in a rural or regional area  
(d) All of the above are correct
3. Inflation rate in an economy over a three-year period was as follows: 2.5% in year 1, 1.8% in year 2 and -0.6% in year 3. Therefore, the economy experienced:  
(a) Disinflation in Year 2 and deflation in Year 3  
(b) Deflation in Year 2 and disinflation in Year 3  
(c) Reflation in Year 1 and deflation in Year 3  
(d) Deflation and Disinflation in both Year 2 and Year 3
4. What type of inflation occurs when economic output is close to the potential level of output?  
(a) Demand-pull inflation  
(b) Cost-push inflation  
(c) Expectations-push inflation  
(d) Both demand-pull and cost-push inflation
5. A rise in wages without a corresponding rise in labour productivity would most probably contribute to:  
(a) Demand-pull inflation  
(b) Cost-push inflation  
(c) Monetary inflation  
(d) Unanticipated inflation
6. Which of the following groups both tend to do relatively well during a period of unanticipated inflation?  
(a) People with debts and people who can negotiate higher wages  
(b) People who have lent money and people who can negotiate higher wages  
(c) Taxpayers and exporters  
(d) Self-funded retirees and importers
7. Deflation reduces the level of economic activity because:  
(a) The real value of debt falls  
(b) Profits fall when firms find it difficult to cut the costs of production  
(c) Consumers bring forward spending on durable goods  
(d) Lower wages lead to a fall in the level of unemployment
8. The Reserve Bank's inflation target over the business cycle is:  
(a) 4% to 5%; (b) 3% to 4%; (c) 2% to 3%; 1% to 2%.

9. Which one of the following is most likely to cause a rise in inflation in Australia?
- (a) A rise in unemployment
  - (b) A slow down in the rate of growth
  - (c) A fall in the exchange rate value of the Australian Dollar
  - (d) A fall in the price of petrol
10. If inflation is 2.5% every year, the price level will double and the purchasing power of money will halve over a period closest to:
- (a) 49 years; (b) 39 years; (c) 29 years; (d) 19 years.



### SYLLABUS POINTS

- The concepts of unemployment, full employment, the non-accelerating inflation rate of unemployment (NAIRU), the participation rate, underemployment
- The measurement of unemployment
- The causes and types of unemployment, including cyclical, structural and frictional
- The effects of unemployment, including the GDP Gap
- The relationship between unemployment and inflation, i.e. the Phillips Curve
- The impact of events on the trends in unemployment in Australia over the last five years

## OVERVIEW – UNEMPLOYMENT

1	People who want to work but cannot find work are unemployed.
2	To be officially unemployed people have to be in the labour force and to be in the labour force they must be actively looking for work and ready to start work straight away. They are only considered to be unemployed if they work for less than 1 hour a week.
3	The unemployment rate is just one indicator of the state of the labour market. Other indicators include the participation rate, the employment to working age population rate, the level of underemployment and the number of hours worked per month.
4	<p>There are a number of types of unemployment, each type is associated with a specific cause of unemployment.</p> <ul style="list-style-type: none"> <li>• Cyclical or demand deficient unemployment is linked to low levels of aggregate demand</li> <li>• Structural unemployment is linked to changes in the pattern of employment and changes to the skills required in work</li> <li>• Frictional unemployment is linked to short-term movement between jobs</li> <li>• Real-wage or classical unemployment is linked to a lack of flexibility in labour markets that prevents them clearing</li> <li>• Residual unemployment is linked to a lack of motivation to work and a preference to survive on welfare</li> </ul> <p>In practice it is difficult to isolate each type. A person may move from one type to another (e.g. cyclical unemployment may become structural)</p>
5	The term 'natural rate' of unemployment is used to describe the total of all types of unemployment other than cyclical unemployment.
6	Unemployment causes economic and social costs. Economic costs include the loss of production as a result of having potential workers idle, and the impact on the government's budget position.
7	Social costs impact on society as a whole and on the individual people who are unemployed.
8	To be effective, policy measures need to target the various factors that cause each type of unemployment.
9	Reducing cyclical unemployment may lead to a rise in inflation – a trade-off illustrated using a simple Phillips Curve model.
10	In the period 2010–20 the national unemployment rate was between 5% and 6% depending in the level of the trade cycle. The level of underemployment is about 50% higher than the unemployment rate. Since 2015 the participation rate and employment to working age population rate have been rising. The level of unemployment varies between States, industries and age groups.

## Part 1 – Concepts and measurement of unemployment

### Unemployment

To be officially unemployed people have to be in the labour force and done less than 1 hour paid work during the survey week. To be in the labour force people have to be over 15 years old, actively looking for work and capable of starting work in the immediate future. The labour force, therefore, includes people over 15 who are employed or officially unemployed.

### The rate of unemployment

The unemployment rate is the percentage of the labour force that is unemployed. The formula for calculating the unemployment rate is as follows:

$$\text{The unemployment rate} = \frac{\text{Number of people unemployed}}{\text{Number of people in labour force}} \times 100$$

For example, if the labour force in Australia was 14 million and 500,000 of these were unemployed, the unemployment rate would be 3.57% (0.5m divided by 14m).

### The participation rate

The participation rate is the percentage of people of working age (over 15) who are in the labour force. The participation rate is calculated using the following formula:

$$\text{The participation rate} = \frac{\text{Number of people in labour force}}{\text{Working age population}} \times 100$$

For example if there were 20m people of working age and 14m of these were in the labour force, the participation rate is 70% (14m divided by 20m).

### The employment to population ratio

The employment to population ratio is calculated using the following formula:

$$\text{Employment to population ratio} = \frac{\text{Number of people in employment}}{\text{Working-age population}} \times 100$$

For example if there were 20m people of working age and 13.5m of these were employed, the employment to working age ratio was 67.5 (13.5m divided by 20m).

### Segments of the Australian population

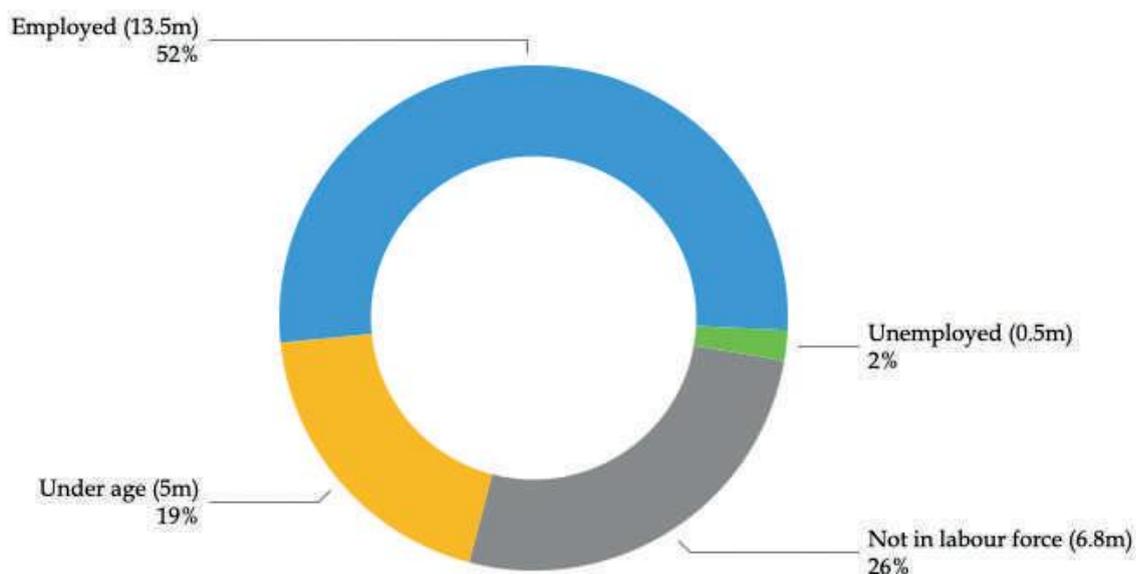


Fig 11.1: Segments of the total population (28.5m)

Term	Explanation	Number (end of 2022)
Population	Everybody!	25.8m
Employed	People working more than 1 hour / week	13.5m
Unemployed	People in labour force working less than 1 hour a week	0.5m
Labour force	Employed + Unemployed	14m
Under age	15 and under	5m
Working age population	Population over 15	20.8m
Unemployment rate	Unemployed / Labour force	3.8%
Participation rate	Labour force / Working age population	67.3%
Employment to population rate	Employed / Working-age population	64.9%

### Measuring spare capacity

In addition to the unemployment rate itself, an underemployment rate is also recorded. The underemployment rate includes people who have part-time work but want to work more. These people are said to experience disguised unemployment. The underemployment rate is, typically, is about 50% higher than the rate of unemployment.

### Other aspects of the labour market

- The outlook for conditions in the labour market is indicated by the level and trends in job advertisements, job vacancies and survey of employers' intentions.
- Some people drop out of the labour market because they cannot find employment. They are said to be discouraged workers and they are referred to as the hidden unemployed.
- Labour conditions vary from State to State and between regions within each State.
- Labour conditions vary between males and females and with age.
- Some jobs are well paid and others poorly paid.
- Unemployment can be short-term frictional unemployment or longer-term structural unemployment.
- The level of job security and the length of time spent in any one job varies from worker to worker. Work in the gig economy, the use of fixed-term contracts and the casualisation of the labour market has increased the rate at which people move in and out of jobs, known as 'churning'.
- During the pandemic a number of people experienced different working conditions (e.g. working from home and avoidance of a daily commute) and reassessed their work-life balance. This led to the so-called 'great work shuffle' which raised the level of frictional unemployment.
- Finally it is worth considering the type of work people do. The term 'bullshit jobs' has been coined to refer to jobs that contribute little or nothing to prosperity beyond enriching the individuals concerned. These are often well paid but produce little output. Examples suggested include corporate lawyers, strategists and political staff. Meaningful jobs are those that contribute to welfare and prosperity. During the pandemic it became clear that several workers were 'key workers' providing the community with important services and whose pay didn't fully reflect their important role.

## Combining indicators

Clearly, combining the unemployment rate, participation rate and the employment-to-working age rate is better than using just one indicator. Also, as with other economic data, ‘trend is your friend’ meaning that comparing data over a period of time is better than using data from just one time period.

## Levels and rates

The term ‘level of unemployment’ is used to refer to the number of people officially unemployed. The rate of unemployment that refers to the proportion of the labour force that is unemployed.

### Student Activity 11.1

- In a hypothetical economy the number of employed is 14m and the number of unemployed is 1m. The total population is 25m and the working age population is 20m. Use the data to calculate the following indicators.

(a)	The size of the labour force	
(b)	The rate of unemployment	
(c)	The employment to population rate	
(d)	The participation rate	

- Use the chart below to answer the following.
  - Describe the changes in unemployment and underemployment during this period.
  - State the relationship between unemployment and underemployment.
  - Describe the changes in the participation rate and the employment to population rate during this period.
  - Identify three factors that have led to the changes shown in the chart.

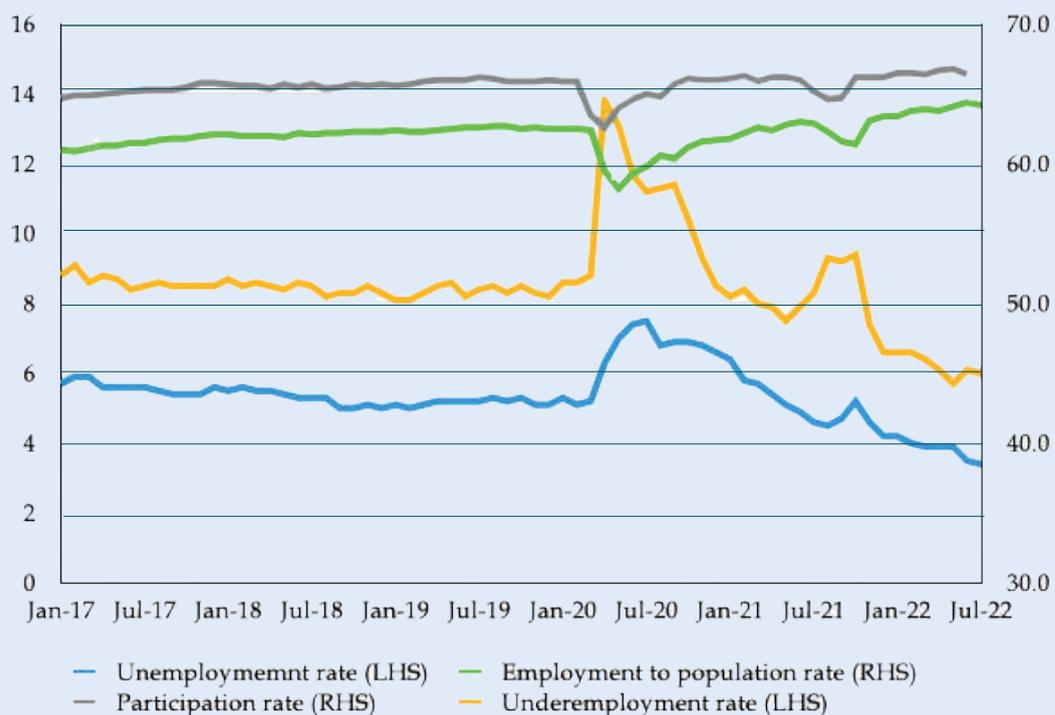


Fig 11.2:

## Part 2 – Types and causes of unemployment

### Demand deficient, general or cyclical unemployment

This is unemployment that occurs when the equilibrium level of economic activity is below the level of potential GDP or below the full-employment income level. The diagram shows a rise in cyclical unemployment caused by a fall in aggregate demand from AD1 to AD2.

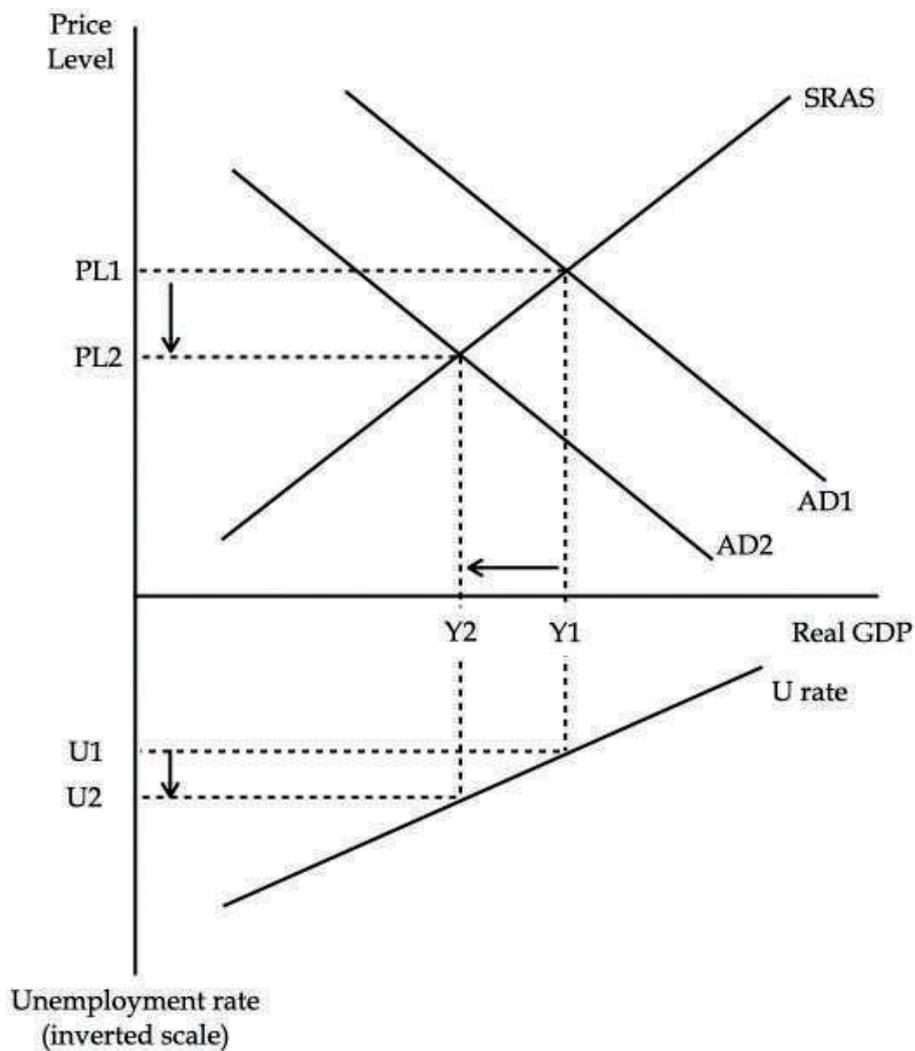


Fig 11.3: Cyclical unemployment

### Frictional unemployment

This includes people who are temporarily unemployed because they are in transition from one job to another. It happens as a result of time lags in the functioning of labour markets.

### Real wage (or classical) unemployment

This occurs when wage levels (or labour costs) are higher than the market-clearance rate. Minimum wage rates may be set above market equilibrium by the Government (Fair Pay Australia) or as a result of union monopoly power in the labour market.

### Structural unemployment

This occurs when skill, age, location and other personal characteristics of the jobless don't match the characteristics demanded by employers. Structural unemployment reflects a mismatch between job vacancies and job seekers leading to an over-supply of workers with particular skills and personal characteristics with, at the same time, shortages of other types of workers. It is basically caused by imperfect geographical and occupational mobility in an economy with on-going changes in the pattern of demand and technology. Structural unemployment will continue to be an important cause of unemployment.

### Residual or hard-core unemployment

This is unemployment caused by peoples' inability or unwillingness to work. Note, to be officially unemployed these people would need to prove they were in the labour force.

Cause	Type
Too low aggregate demand	General, demand deficient, cyclical unemployment
Too high unit wage rates	Real wage unemployment
Structural change / immobility of labour	Structural unemployment
Technological change	Structural unemployment in the short term
Productivity growth	Structural unemployment in the short term
People changing jobs	Frictional unemployment
A rise in the labour force	General unemployment
Lack of skills / unable to 'add value'	Residual unemployment
Unfair dismissal laws (hard to sack workers)	Real wage unemployment
Payroll tax (State taxes)	Real wage unemployment
Cruising (high welfare pay relative to pay at work)	Residual unemployment

The table shows the links between the cause and the type of unemployment.

### The natural rate of unemployment

The natural rate of unemployment is unemployment that can't be reduced by expanding aggregate demand. It is the level of unemployment that remains when there is no demand deficiency unemployment.

## The non-accelerating inflation rate of unemployment (NAIRU)

NAIRU, as the name suggests is the lowest level of unemployment before inflation starts to accelerate. NAIRU is linked to the simple Phillips Curve relationship that suggests there is an inverse relationship or trade-off between lower unemployment and higher inflation (or higher unemployment and lower inflation). In theory, if the economy has a level of unemployment below the natural or NAIRU rate inflation will accelerate. The actual level of NAIRU is a matter of debate, with the current consensus rate being close to 4%.

## Full employment

Full employment doesn't mean zero unemployment. Full employment is considered to exist when there is zero cyclical unemployment. Unemployment is at the natural rate if there is no cyclical unemployment. However, there will still be some structural, frictional, real wage and residual unemployment. The level of GDP or income associated with full employment is said to be potential GDP or full employment income.

### Student Activity 11.2

1. State how each of the following examples of unemployment should be classified.

(a)	Unemployment resulting from the decline of the textile industry and expansion of the computer industry	
(b)	Individuals moving between jobs	
(c)	People whose physical or mental handicaps make them unemployable	
(d)	Unemployment linked to a wage level that generates an excess of labour	
(e)	General unemployment following a reduction in aggregate demand	
(f)	People losing their jobs as a result of the introduction of new technology	
(g)	A rise in unemployment in an economic downswing	
(h)	People who become discouraged as a result of failing to find work, and leave the workforce	

2. A skilled worker has worked for 25 years in the steel industry but loses their job at the age of 50 when the plant closes having failed to compete effectively with more efficient firms in South Korea. In order to get a job the worker will have to retrain in a new skill that is in demand. But firms are reluctant to take on and train older workers. List three reasons why the worker has become unemployed? How might this worker's unemployment best be classified?

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3. Economic growth has averaged 2.5% per year between 2012–14, but unemployment rose. Explain why unemployment rose in spite of the economic growth.

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4. Assume (however unlikely it may be) that every worker is capable of making an equal contribution to total production (GDP). Assume there are 100 workers in an economy and each (by combining their labour with other resources) could produce \$7000 per year.

Consumption	\$390,000	Exports	\$143,000
Investment	\$97,500	Imports	\$143,000
Government	\$162,500	Aggregate demand	

- (a) The capacity of the economy in this situation is \$\_\_\_\_\_
- (b) The level of demand in the economy is the sum of consumer spending (C), firms spending on producer goods or capital equipment (I), the government's spending (G) and the level of exports (X) less anything that has been imported (M). Calculate the level of aggregate demand using the data in the table provided.
- (c) At this level of aggregate demand the level of the level of employment would be \_\_\_\_\_ and the unemployment rate would be \_\_\_\_\_. This unemployment is called \_\_\_\_\_ unemployment.
5. State three key causes of structural unemployment.

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6. What causes frictional unemployment? Is frictional unemployment a problem or a sign of a healthy labour market? Explain your answer.

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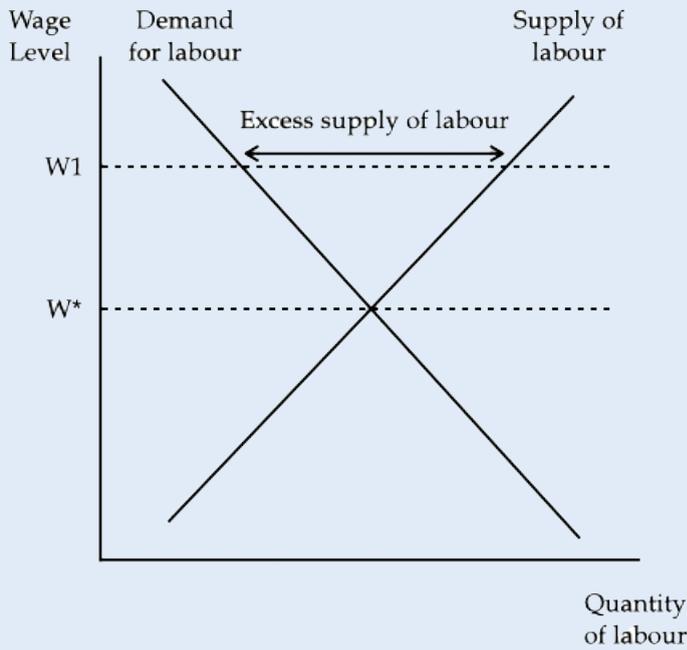


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7. Use fig 11.7 to explain why a labour market might not clear or move to an equilibrium position and hence cause real-wage unemployment.



**Fig 11.4:** Real wage unemployment

8. List the types of unemployment that make up the natural rate.

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9. Which of the following may contribute to a fall in the natural rate of unemployment?

(a)	A fall in unemployment benefits	
(b)	A rise in international competitiveness	
(c)	A increase in world trade	
(d)	A decline in trade union power and influence over wages	
(e)	A fall in manufacturing employment following tariff cuts	
(f)	Technical progress	
(g)	An increase in female participation in the workforce	
(h)	Abolition of Payroll Tax (a tax on employers who employ people)	

## Part 3 – Consequences of unemployment

### Economic costs of unemployment

- Unemployment represents a waste of some of the economy's scarce resources. The loss of the extra output that could have been produced if all the labour force was employed involves a significant opportunity cost.
- Unemployed workers may experience skills atrophy. Workers may lose their work skills if they don't use them on a regular basis.
- People who are unemployed some time become 'scarred' and are likely to find it hard to get back into employment.
- The government experiences a loss of tax revenue and increased spending on welfare and social security. There may also be a rise in demand on government services such as health care, law and order and vocational training.

### Social costs of unemployment

- Society may become less harmonious as the distribution of income and wealth in the economy becomes more uneven. Society as a whole may experience a rise in crime and vandalism.
- Members of society will feel that it is morally or ethically unacceptable to deny people the opportunity to participate in society on an equitable basis.
- Unemployment directly affects members of society on an individual basis. Although the consequences of unemployment will depend on individual circumstances e.g. age, reason for unemployment, length of time unemployed, whether or not other family members are unemployed, chance of re-employment and level of savings, people who are unemployed may experience:
  - Loss of income: Government transfers are less than most wages
  - Loss of self-esteem: Self-confidence and self-worth
  - Poorer health or depression: Greater stress and reduced nutrition levels
  - Boredom and loss of purpose: Involuntary leisure
  - Family breakdown and loss of friends
  - Higher risk of suicide

The unemployed have higher rates of poverty than any other group in the labour force. They suffer from 'involuntary leisure' and that makes them unhappy, more so than can be explained just through the loss of income. Indeed the unemployed are the least happy people in the community.

### Student Activity 11.3

1. Assume Australia's GDP is \$2 trillion, and the official unemployment rate is 5%. Suggest three reasons why \$100b may not be an accurate reflection of the actual opportunity cost of lost production from Australia's unemployed.

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2. Describe how a rise in unemployment can reduce government tax revenue and increase its level of expenditure.

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3. Describe why unemployment imposes costs on society as a whole.

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4. Explain why it might be difficult to re-enter the workforce after a period of unemployment.

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5. In your opinion, is it appropriate to use derogatory terms such as ‘dole bludger’ to describe someone who is unemployed?

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6. What is the difference between economic and social costs of unemployment? Which of the two, in your opinion, is the most significant?

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## Part 4 – Policy measures that reduce unemployment

The choice of policy measures will depend on:

- The type or cause of unemployment.
- An understanding of the relationship between unemployment, inflation and growth.

### Type or cause of unemployment

Type	Cause	Solution
Demand deficiency	Equilibrium GDP is below potential level of GDP. Recessionary gap.	Raise aggregate demand (fiscal stimulus, lower cash rates).
Structural	Mismatch between pattern of work and labour supply. Labour immobility.	Skills development and training. Increase labour mobility. Support sunset industries.
Frictional	People changing jobs.	None needed. Provide information to job seekers.
Real wage	Labour market stuck above the equilibrium point.	Flexibility in labour markets. Control power of trade unions.
Residual	Differential between rewards from welfare and work too small. Lifestyle choice.	Reduce welfare. Reduce tax. Increase pay rates.

### Student Activity 11.4

1. Describe the policy measures the government might use to reduce cyclical unemployment. Use a diagram to support your answer.

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2. Describe some of the problems the government might face in reducing cyclical unemployment.

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3. Describe the policy measures the government might use to reduce structural unemployment.

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4. Describe the policy measures the government might use to reduce real-wage or classical unemployment.

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5. Describe the policy measures the government might use to reduce residual unemployment.

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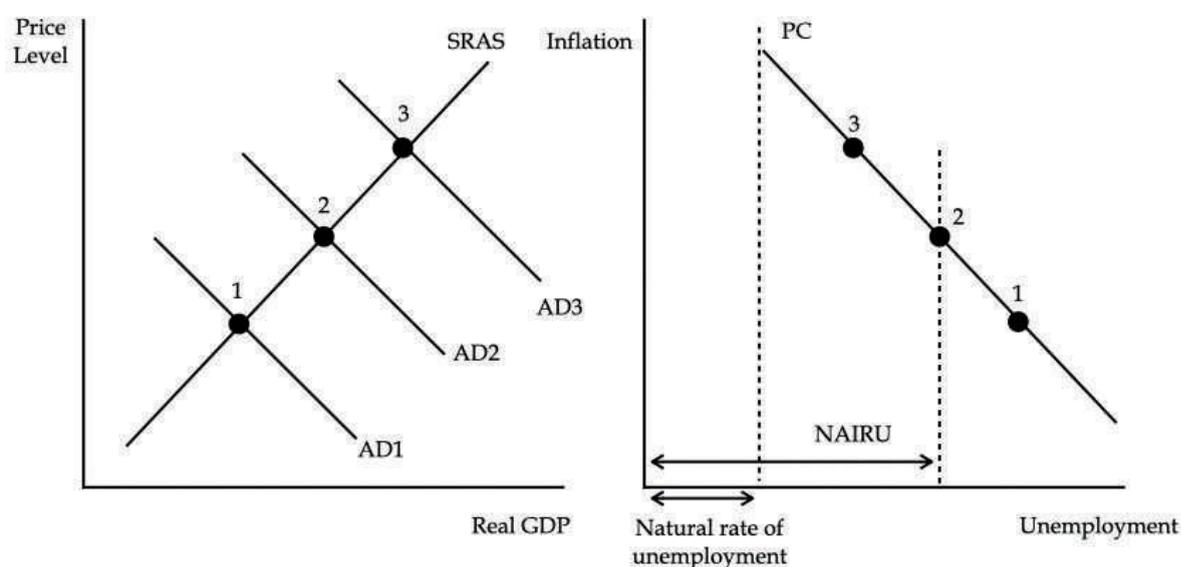
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## Part 5 – The short-term relationship between inflation and unemployment

The short-term relationship between unemployment, inflation and growth is based on the Phillips Curve model. Assuming there is no change in aggregate supply, as aggregate demand rises cyclical or demand deficiency unemployment will fall and the level of demand-pull inflation will rise.

The simple Phillips Curve (PC) is shown on the right hand side. It appears to show there is a trade-off between inflation and unemployment, lower unemployment means higher inflation and lower inflation means higher unemployment. The cause of this inverse relationship is shown on the aggregate demand / aggregate supply diagram on the left. Given no change to aggregate supply, as aggregate demand rises towards full employment or maximum potential output the price level rises. The shape of the Phillips Curve mirrors the shape of the aggregate supply curve.

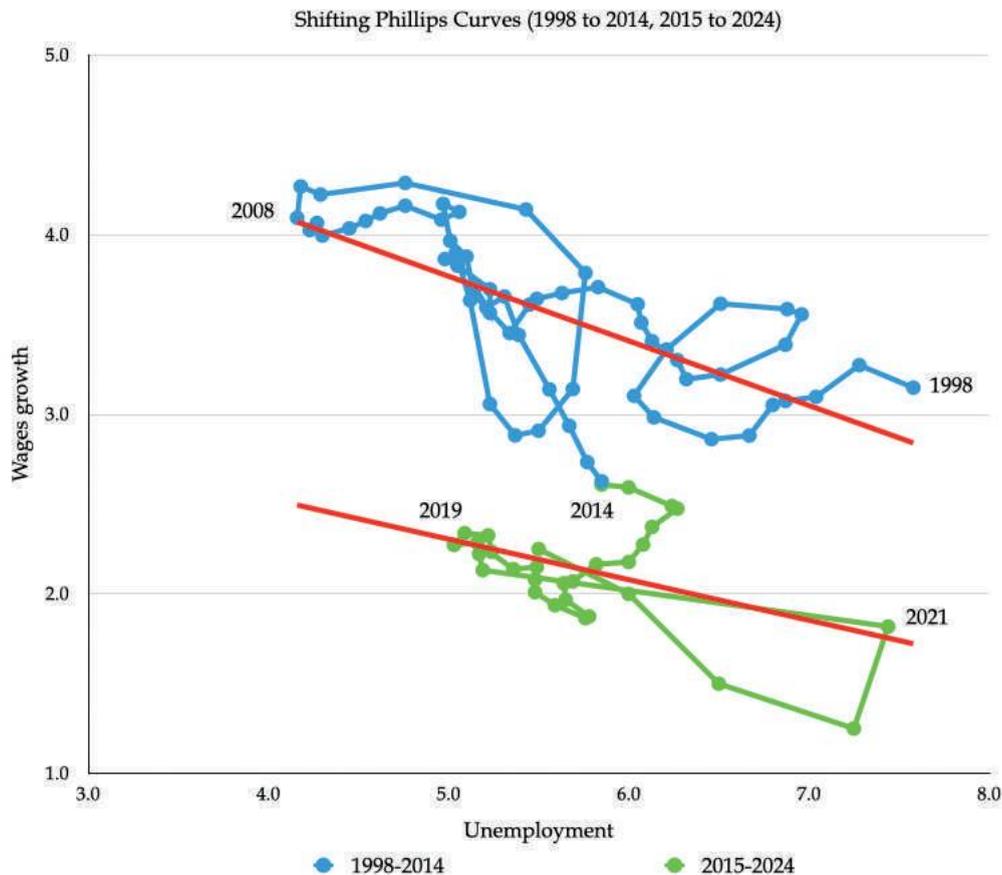


**Fig 11.5:** Aggregate demand and supply and the simple Phillips Curve

For example, as cyclical or demand deficient unemployment falls there will be a tendency for wages to rise which, when linked to an increase in prices of other resources, contributes to wage inflation. Additionally as aggregate demand rises, producers may take the opportunity to raise their prices causing demand-pull inflation. A downward-sloping trend line would give some support to the so-called Phillips Curve relationship.

This is fine in theory but in the real world:

- The aggregate supply curve might be unstable.
- Unemployment may be caused by structural, frictional, real wage or residual factors.
- Inflation may be caused by cost-push factors, expectations of inflation and excess growth of the money supply.
- A rise in aggregate demand may not lead to a reduction in unemployment if productivity and the labour force increase.



**Fig 11.6:** Australian Phillips Curves

Over the years there has been some short-term instability and significant longer-term shifts in the Phillips Curve relationship. The late 1980's to 2000 trend line shows combinations of relatively high inflation and unemployment but during 2000-10 period the Phillips Curve shifted towards the origin. The period between 2010-20 has been one of low inflation, and inflation apparently little affected by changes in aggregate demand and unemployment. Australian data is consistent with broader OECD data suggests that the Phillips Curve relationship is being influenced by global as well as local factors.

The reasons behind these changes in the relationship can be traced to non-demand factors affecting inflation and unemployment such as globalisation, commodity prices and the impact of new technologies.

### Student Activity 11.5

1. (a) Briefly describe the simple Phillips Curve relationship between the rate of inflation and the rate of unemployment, (b) Describe the reasons behind the long-term shift in the position of the Phillips Curve in between 2000–10 and 2010–20.

### Student Activity 11.6

1. State the Reserve Bank and Government macroeconomic objectives relating to employment and unemployment.

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2. Using the charts in Section 11.1, or other data available to you, assess whether the Reserve Bank and Government have been successful in achieving their employment and unemployment objectives.

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SO YOU NOW THINK YOU UNDERSTAND UNEMPLOYMENT	
<p><b>Two key points about definition of unemployment</b></p> <p>1</p> <p>2</p> <p><b>Three conditions for being in labour force</b></p> <p>1</p> <p>2</p> <p>3</p>	<p><b>Five social costs of unemployment</b></p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p>
<p><b>Definitions</b></p> <p>1 Labour force</p> <p>2 Working age population</p> <p><b>Indicators of labour market conditions</b></p> <p>1</p> <p>2</p> <p>3</p>	<p><b>Policies to reduce unemployment</b></p> <p><b>Cyclical or demand deficiency:</b></p> <p><b>Structural</b></p> <p><b>Frictional</b></p> <p><b>Real wage</b></p> <p><b>Residual</b></p>
<p><b>Macroeconomic objective</b></p> <p><b>What is level of NAIRU?</b></p>	<p><b>Simple Phillips Curve relationship</b></p> <p><b>Axes:</b></p> <p><b>Phillips Curve</b></p> <p><b>Movements along:</b></p> <p><b>Shifts:</b></p>
<p><b>Two reasons why official unemployment rate understates true level</b></p> <p>1</p> <p>2</p>	<p><b>Five types of unemployment</b></p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p>
<p><b>Four economic costs of unemployment</b></p> <p>1</p> <p>2</p> <p>3</p> <p>4</p>	<p><b>Four comments about pre-virus performance</b></p> <p>1</p> <p>2</p> <p>3</p> <p>4</p>

*See answer section for completed summary*

## REALITY CHECK

Questions 1 and 2 refer to data in table that shows labour force data for a hypothetical economy.

Population	52m
Population over 15	40m
Labour force	32m
Employed	30m

- The unemployment rate in this economy is:  
(a) 20%; (b) 12.5%; (c) 6.25%; (d) 2%
- The participation rate in this economy is:  
(a) 93.75%; (b) 80%; (c) 77%; (d) 75%
- Which of the following is a description of cyclical unemployment?
  - Unemployment caused by wage levels too high to 'clear' the labour market
  - Unemployment caused by a change in the pattern of demand in the economy and immobile labour resources.
  - Unemployed people who are temporarily out of work, moving from one job to another.
  - Unemployment because aggregate demand is lower than the level needed for the economy to operate a full capacity
- What term is used to describe people who drop out from the labour market because they see no chance of finding a job?
  - Long-term unemployed
  - Disguised unemployed
  - Voluntary unemployed
  - Hidden unemployed
- The natural rate of unemployment is the rate of unemployment remaining when \_\_\_\_\_ unemployment is zero. The missing word is:
  - cyclical
  - structural
  - frictional
  - real-wage
- Which of the following describes an impact of rising unemployment on the government's budget balance?
  - An increase in income tax revenue
  - An increase in spending on income support
  - A decrease in spending on public and merit goods
  - A rise imports and a fall in exports

7. Measures of under-employment which include discouraged workers who have left the labour force, people who reluctantly can only work part-time and the officially unemployed, suggest the true level of under use of labour in Australia is:
- (a) About double the official rate of unemployment
  - (b) About half the official rate of unemployment
  - (c) About the same as the official rate of unemployment
  - (d) About five times the official rate of unemployment
8. Which one of the following describes the simple short-term Phillips Curve trade-off?
- (a) Lower unemployment causes a rise in inflation
  - (b) Lower unemployment causes a fall in economic growth
  - (c) Lower growth causes a fall in inflation
  - (d) Lower inflation causes a fall in employment
9. Which one of the following is a correct statement for an economy where economic growth is 4% per year, labour force productivity growth is 1.5% per year and the growth in the labour force is 2.5% per year?
- (a) Employment will rise by 5.5% and unemployment will fall by 1.5%
  - (b) Employment will rise by 2.5% and unemployment will not change
  - (c) Employment will rise by 4% and unemployment will fall by 2.5%
  - (d) Employment and unemployment will both rise by 1.5%
10. Which of the following is NOT true of an economy operating at full employment?
- (a) Actual output equals potential output
  - (b) The output gap is zero
  - (c) The level of real GDP at equilibrium and at full capacity are the same
  - (d) The level of injections into the circular flow equals the level of leakages



### SYLLABUS POINTS

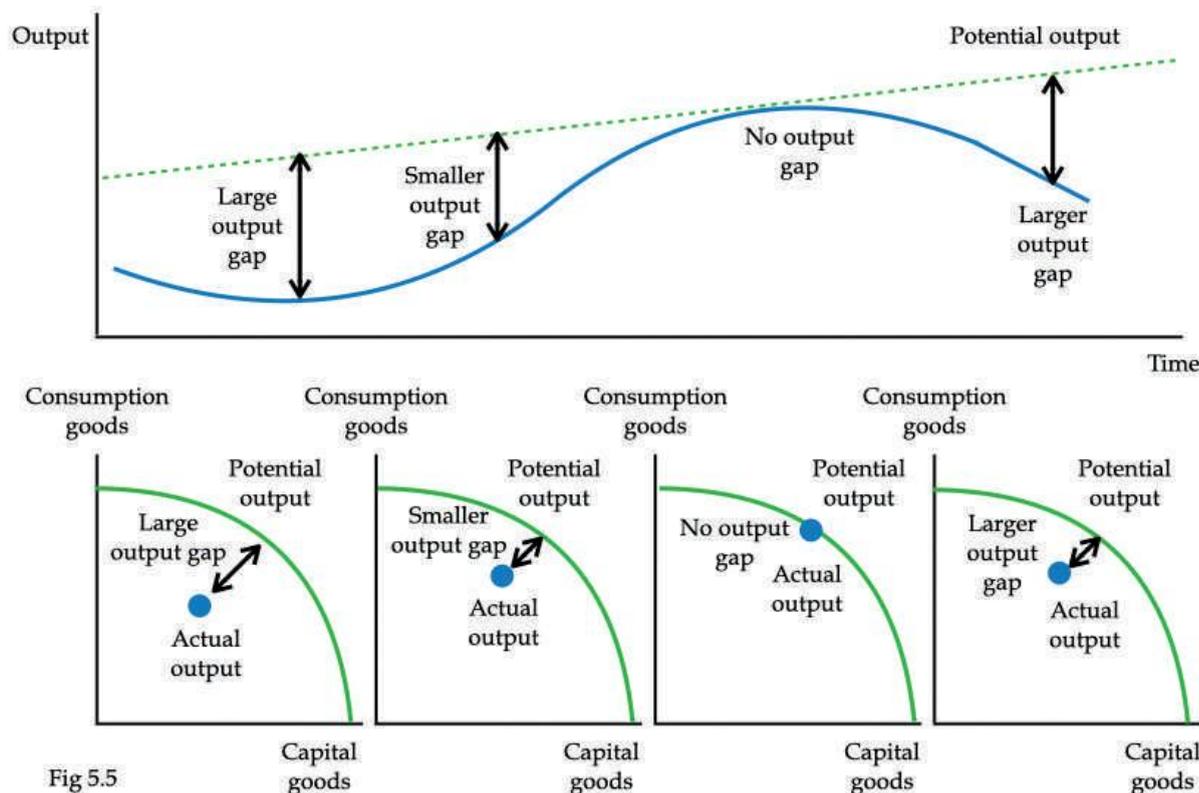
- The concept of the business cycle
- The characteristics of each phase of the business cycle
- Indicators of macroeconomic activity
- The impact of events on the business cycle in Australia over the last five years

## OVERVIEW – THE BUSINESS CYCLE

1	The business cycle model shows the typical growth path of an economy over time, where total output moves above and below the long-term average or trend path.
2	The business cycle model suggests that economies pass through a regular sequence of stages or phases; boom to downturn or recession, to slump or trough, to recovery or upswing and back again to a boom.
3	In practice economies do not follow clear business cycles. Economic data seldom show the economy is moving through a clear sequence of stages. For example, as a result of the pandemic there was a sharp downturn and then rapid recovery over a period of two years. However, this does not mean the model of the business cycle is unhelpful for understanding changes in the level of economic activity.
4	During the cycle, the economy's output gap changes. The output gap is the difference between actual output and the potential level of output when the economy is operating at full capacity. In a boom the output gap is small (possibly even negative) and in a slump it is large.
5	This cyclical path is the result of the combined affects of: <ul style="list-style-type: none"> <li>• Cumulative processes, such as changes in consumer and business confidence</li> <li>• Upper and lower turning points, caused, for example by supply shortages and consumption of necessities respectively</li> <li>• Automatic stabilisers e.g. through the tax system and welfare spending</li> <li>• Discretionary government policy changes e.g. changes to cash rates</li> <li>• Periodic demand and supply-side shocks e.g. floods and geo-political events</li> </ul>
6	There are lots of data indicating the state of the economy. These data can refer to: <ul style="list-style-type: none"> <li>• Macroeconomic objectives such as growth, inflation and unemployment rates</li> <li>• Components of aggregate demand, leakages and injections such as consumption and planned investment</li> <li>• Features of economic models, such as the size of the output gap</li> <li>• Policy settings such as interest rates and the government's budget balance</li> <li>• Other indicators such as cranes on the city skyline and levels of concrete production</li> </ul>
7	Indicators may provide data about what the economy has been doing (lagging indicators), what the economy is currently doing (coincident indicators) and what the economy will soon be doing (leading indicators).
8	Indicators may provide data about the aggregate macro-economy or about parts of the micro-economy.
9	Australia's macroeconomic performance has been good compared to most other developed economies.
10	The economy is being affected by further shocks such as trade disputes with China and food, fuel and energy inflation due to sanctions imposed on Russia by the west and by Russia on the west.

## Part 1 – The Business Cycle

The business cycle model or diagram shows the typical growth path followed by economies over time with total output moving above and below its long-term average or trend path. During the business cycle there is a rise and fall in the economy's output gap. The output gap is the difference between actual level of output and the maximum possible or potential level of output.



**Fig 12.1:** The output gap during phases of the business cycle

### A regular sequence of stages

The business cycle model suggests that economies typically pass through a regular sequence of phases or stages. These stages are:

- Boom – where actual output is close to the level of potential output
- Downturn – where the gap between actual output and potential output increases
- Slump – where actual output is well below potential output
- Recovery – where the gap between actual output and potential output decreases

In the model booms always lead to slumps (or busts). However, in the real world the path of an economy is not so regular or clear cut.

The model can refer to both changes in the level of output and changes in the growth rate of output. However, care needs to be taken to avoid confusing the level and rate of change in output. For example, between 2010 and 2020 Australia's level of output was increasing but the growth rate remained stubbornly below the trend or average growth rate achieved in recent years.

## Key concepts

Term	Explanation
<b>Output</b>	The level of output is linked with the level of income and expenditure in the economy. Aggregate expenditure is the sum of consumption, planned investment, government spending and net exports.
<b>Potential output</b>	The capacity of the economy is determined by its quantity and quality of resources and the efficiency with which they are used. Hence, economic capacity is closely linked to aggregate supply.
<b>Trend output</b>	The level of output that would be achieved if the economy expanded at the average growth rate achieved over previous years
<b>Actual output</b>	The level of output, income or expenditure achieved in an economy over a period of time. This is known as GDP or national income.
<b>Output gap</b>	The GDP or output gap is the difference between potential output and actual output (or economic capacity and aggregate demand). In a boom the gap is small and in a slump or trough the gap is relatively large.
<b>Recession</b>	Officially a recession occurs when there are two consecutive quarters (3 month periods) of falling output or negative economic growth. It is possible for an economy to be in a downturn or period of slower growth without slipping into a recession. Alternatively a significant rise in unemployment in an economy can be called a recession.

### Student Activity 12.1

1. What are the key words or phrases that should be included in a definition or explanation of the term 'business cycle'?

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2. What is the difference between 'trend growth' and the actual growth rate?

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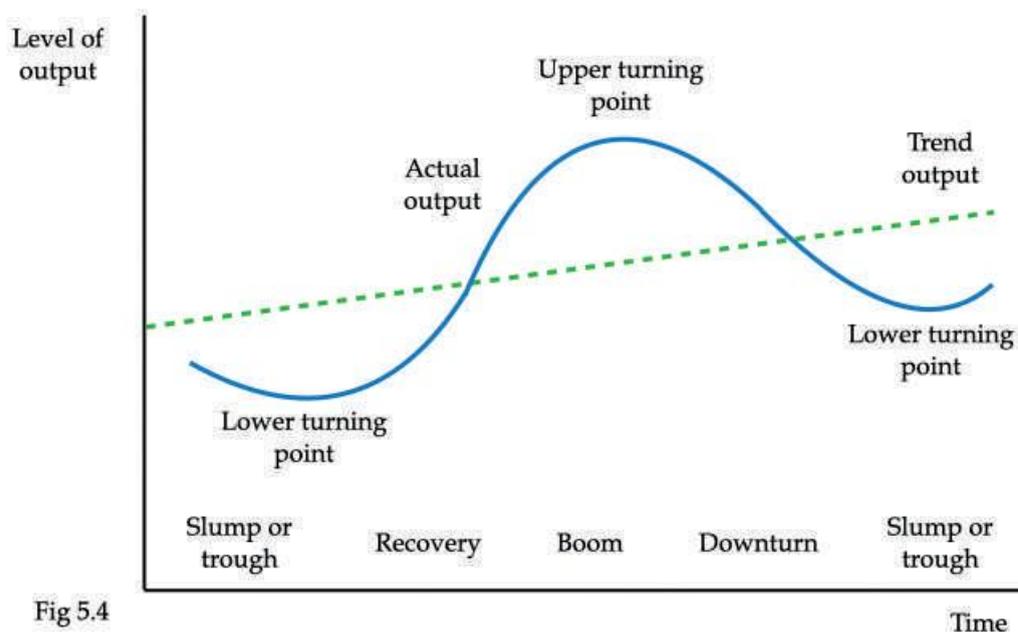
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3. Draw two production possibility curve diagrams to show the difference between an economy in a boom and in a slump. Identify on the diagram the points, lines or gaps that show the actual level of output, the potential level of output and the output gap.

Boom	Slump

## Part 2 – Characteristics of each phase

The business cycle model suggests economies pass through a regular sequence of phases or stages. Recovery or upswing phases lead to booms, which, after time, move into a downturns or recessions and then to slumps or troughs. After slumps or troughs the economies move into a recovery phase again.



**Fig 12.2:** The phases in a business cycle

### The recovery stage

The level of output increases and the rate of growth picks up. An increase in one or more of the components of aggregate demand (consumption, planned investment, government spending or net exports) will have started the recovery. The recovery gathers pace as this initial injection leads to a rise in consumer and business confidence and a domino effect known as the multiplier process. These processes spread new flows of income and spending around the economy's circular flow.

### The upper turning point

The upturn in the economy can continue as long as aggregate supply keeps up with the increased level of aggregate demand. As the level of output gets closer to the economy's full capacity or potential level of output and the output gap is reduced, shortages of economic resources become evident. For example, a shortage of skilled workers or components may develop and congestion or bottlenecks may appear when businesses try to access the economy's transport infrastructure. During the expansion the government's budget strengthens as tax payments increase and spending on welfare falls.

### The downswing

The economy can only maintain a high level of aggregate demand if it matches this with a high level of aggregate supply. The longer the boom phase continues the harder it is to sustain. Wage inflation and high resource costs increase the cost of doing business. As the rate of growth begins to fall the domino or multiplier process works in reverse to reduce the level of economic activity and business and consumer confidence starts to erode.

### The lower turning point

Consumers try to maintain the standard of living they have grown used to for as long as possible even when their income is reduced. They run down their savings or borrow and go into debt. Economists have used the term 'survival consumption' to describe consumers' demand for essential products. Also businesses may need to do continue to spend some money on planned investment, e.g. replacing some machinery, even if demand is relatively low. The Government collects less tax and provides a social security safety net that leads to a rise in injections into the economy as the level of economic activity falls. They may boost the amount they inject into the economy with additional spending measures, such as increased spending on new infrastructure projects.

## Student Activity 12.2

1. Complete the table by entering in the previous and next stages of the business cycle.

Previous stage	Current stage	Following stage
	Boom	
	Slump	
	Downturn	
	Recovery	

2. Describe two factors that may create a ceiling or upper turning point in the business cycle.

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3. Describe two ways the government can smooth or reduce the amplitude of an economy's business cycle.

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4. Describe how the Reserve Bank of Australia attempts to control swings in the business cycle.

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5. Describe two reasons why an economy picks up speed following a positive demand shock, such as a rise in the value of commodity exports.

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6. What is 'survival consumption' and state how it affects the business cycle?

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7. Why is it difficult to decide what is, and what is not, part of survival consumption?

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## Part 3 – Economic indicators

There are lots of data published about the economy. Combined, these data indicate the current phase or stage of an economy. Indicators can focus on (a) Macroeconomic objectives; (b) Features of economic models; (c) Components of aggregate demand; (d) Policy settings and (e) Production and use of resources.

Macroeconomic objectives		Features of economic models	
Output	GDP data	PPC model	Output gaps
Labour market	Cyclical	Keynesian cross	Inflationary gaps
Price stability	unemployment rate,	AD/AS model	Recessionary gaps
	Participation rate		Potential output or
	Wages growth		full capacity
	Demand-pull Inflation		
Components of aggregate demand		Policy settings	
Consumption	Types of goods in	Monetary policy	Cash rate changes
Investment	stores	Fiscal policy	Structural budget
Government	Consumer	Supply-side policy	balance
spending	confidence		Spending on
Net exports	Empty shops		infrastructure
	Business confidence		
	Cyclical budget		
	balance		
	Tax revenue		
	Trade balance		
	Credit card defaults		
		Production and use of resources	
		Output	Concrete production
		Use of resources	Electricity output
			Cranes on the city
			skyline
			Productivity

### Leading, lagging and coincident indicators

Economists distinguish between leading or forward-looking indicators, coincident indicators and lagging or backward-looking indicators. Only coincident indicators show the current state of the economy.

Term	Definition	Example
Leading or forward-looking Indicators	They predict trends. They change before a trend in the economy becomes evident elsewhere	Building approvals Share prices Purchasing managers index (PMI)
Coincident Indicators	They move in line with the actual or current level of economic activity	GDP Retail sales Car sales
Lagging or backward-looking Indicators	They only change after the economy has changed course. They confirm what has happened to the economy.	Unemployment data Consumer debt Inflation

## Partial and general indicators

Data can be useful even when it refers to a relatively select or restricted aspect of economic activity. When data is combined it can help build up a reliable picture even if the scope of each piece of data is limited.

Term	Definition	Example
Partial Indicators	Data refers to a small (or microeconomic) area of economic activity	Car sales Housing approvals
General Indicators	Data refers to a macroeconomic areas of the economy	GDP Retail sales

### Student Activity 12.3

- You are tasked with taking five photographs that singly or together show the state of the economy where you live. Try to find illustrations of changes to economic activity rather than just the level of activity. For each photograph provide a caption that links the it to the economy and business cycle.

The table below provides some suggestions – there are many more possibilities.

General area	Photograph	Link with cycle
Macroeconomic objectives	Jobs section in a newspaper Sale signs in shops offering big discounts Green (rising) prices at stock exchange	Full employment Inflation Future growth
Features of models	For sale signs, empty shops	Spare capacity (output gap)
Components of AD	Footfall in shopping centres Type of goods in shops Construction activity Flight arrivals	Consumption spending Consumption spending Investment spending Exports
Policy settings	Interest rates offered by banks	Monetary policy stance
Use of resources	Cranes on the skyline	Increasing capacity

- What happens to the following indicators during an economy recovery?

Inflation (CPI growth rate)		Output gap	
Unemployment (Unemployment rate)		Injections and leakages	
Consumer confidence		Cash rates	
Planned investment		Budget outcome	

3. What happens to the following indicators during slump or trough?

Growth in GDP		Output gap	
Labour force participation rate		Injections and leakages	
Consumption expenditure		Cash rates	
Trade balance (Exports less imports)		Budget outcome	

4. State whether the following data indicate previous, current or future economic performance?

Unemployment rate		Stock exchange indices	
New car sales		Rate of change in GDP	
Inflation rate		Demand for electricity	
Purchasing managers' index		Approval for housing loans	

5. What is likely to happen to the following during a boom? Are these useful economic indicators?

Cranes on the city skyline	
Concrete production	
Hemlines and length of hair	
Type of cars in showrooms	
People defaulting on credit card payments	

6. The table below shows selected economic data for a hypothetical country (somewhat similar to Australia).

Year	Unemployment Rate (%)	Inflation (%)	Stock Market Index	New vehicle sales '000s	Cash rate (%)	Bankruptcies Total
1	5.7	1.6	5275	100	0.75	1000
2	5.6	1.8	5550	115	0.75	900
3	5.4	2.0	5900	120	1.00	750
4	5.1	2.4	6250	124	1.25	500

- Identify one leading, one coincident and one lagging indicator from the list in the table.
- Using the data in the table suggest the phase of the economic cycle the economy enters in Year 2
- State what is happening to the output gap in the economy during Years 3 and 4. What data helps determine the answer to this question?
- If trend growth in this economy is 2.5% per year estimate the growth rate of the economy in Year 4. State reasons for your answer.

## Part 4 – Impact of recent events on Australia’s business cycle

Changes in output rarely follow the regular path predicted by the business cycle model. This does not matter as long as the model provides a useful framework for describing and understanding what has happened and what might happen next.

### Student Activity 12.4

- Use the business cycle model and the chart below to describe the growth path of the Australian economy between Mar 2017 and Mar 2022.

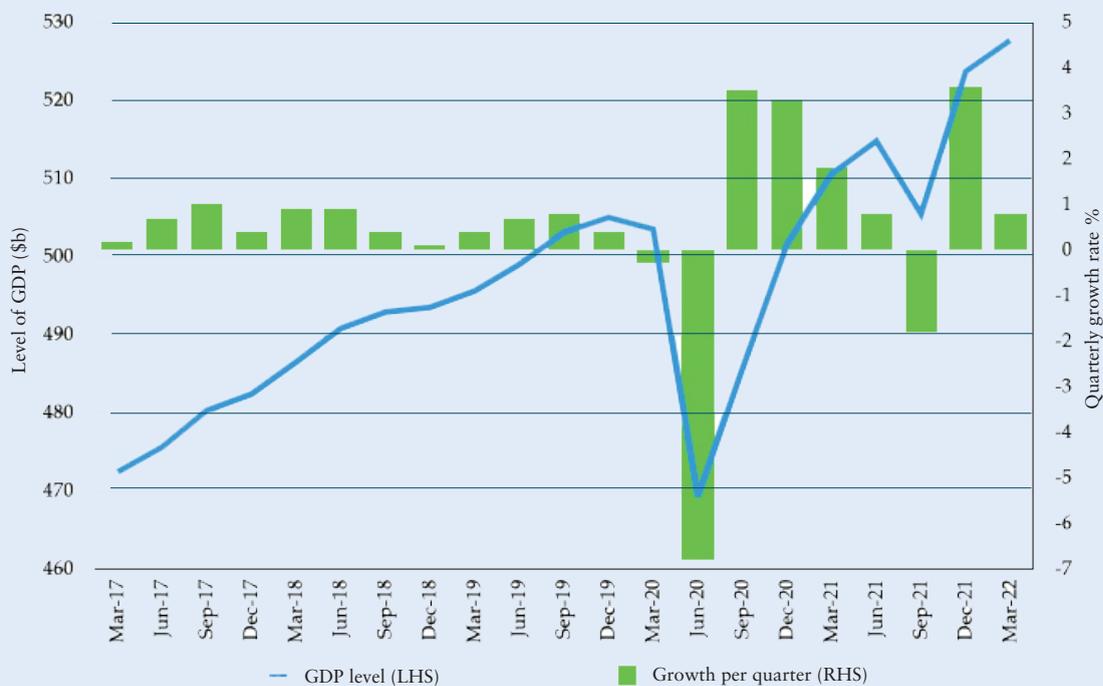


Fig 12.3: Data Source: ABS

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2. Using Fig 8.3 or other internet-based data sources test each of the following statements. Include a short sentence supporting your answer.

(a) The short-run fluctuations in output were smaller during 2015–20 than during 2020 and 2022.

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(b) The average length of time between peaks (or booms) is 7 years.

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(c) Downswings are shorter and steeper than upswings?

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(d) The economy has followed a growth pattern that is clear and regular.

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(e) Australia had three periods of recession in the period 1990 to 2020.

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3. What is happening to the economy after the pandemic? Attempt the following questions.

(a) What is the next stage in the economic cycle for the Australian economy? State four pieces of evidence that you think supports your view.

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(b) What components of aggregate demand are currently making a positive contribution to economic growth in Australia and which are making a negative contribution?

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(c) Suggest two realistic external shocks that have thrown the economy off course.

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(d) What counter-cyclical demand-side policies are the Government and Reserve Bank currently using? What degree of success are these policies having?

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## EXAM TECHNIQUE

### Data interpretation questions

Consider the following question: Using the GDP growth chart in Student Activity 8.4, describe Australia's growth performance between 2017 and 2022. How could you approach this?

- Refer to specific pieces of data with values and dates picking out high values and low values
- Estimate trends e.g. downward trend over the five year period
- Do simple calculations e.g. average growth rate
- Estimate extent of volatility e.g. a typical range between peaks and troughs
- Identify key events or shocks during this period
- Avoid generalisations e.g. stating that it has been unstable
- Avoid judgments e.g. stating that performance has been remarkably good

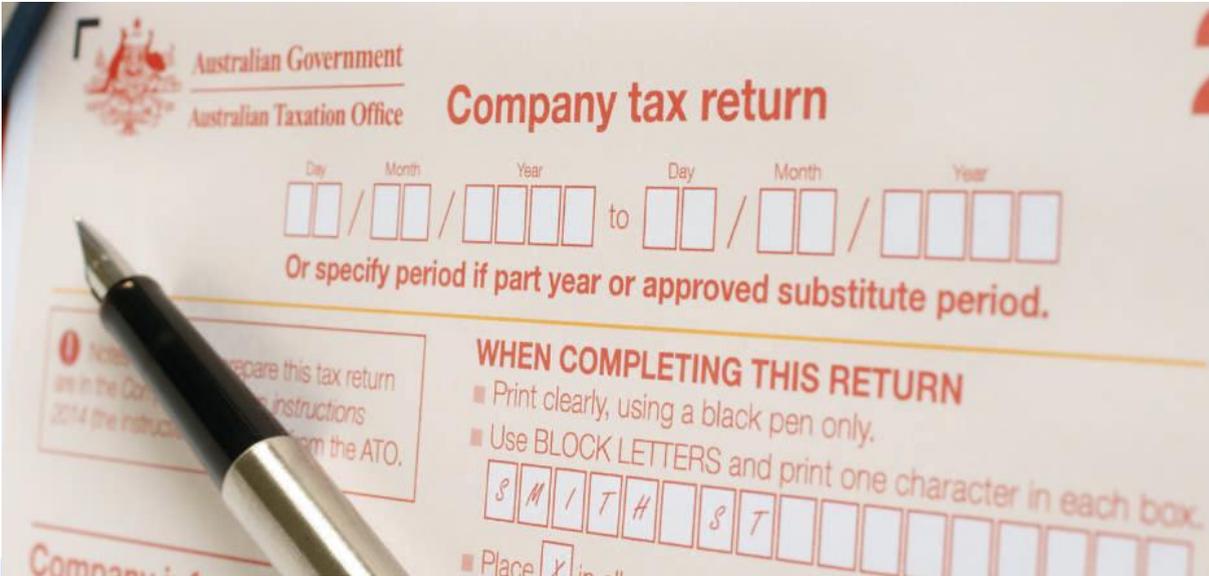
SO YOU NOW THINK YOU UNDERSTAND BUSINESS CYCLES	
<p><b>Key words or phrases in definition of business cycle</b></p> <p>1 2 3</p>	<p><b>Meaning and examples of:</b></p> <p>Lagging indicators</p> <p>Coincident indicators</p> <p>Leading indicators</p> <p><b>Meaning and example of:</b></p> <p>General indicators</p> <p>Partial indicators</p>
<p><b>Four stages in a typical business cycle</b></p> <p>1 2 3 4</p>	<p><b>Four causes of the business cycle</b></p> <p>1 2 3 4</p>
<p><b>What happens to macroeconomic objectives in a boom?</b></p> <p>1 2 3 4</p>	<p><b>Three causes of upper turning points</b></p> <p>1 2 3</p>
<p><b>What happens to the output gap in a boom?</b></p>	<p><b>Three causes of lower turning points</b></p> <p>1 2 3</p>
<p><b>What happens to components of aggregate demand in a boom?</b></p> <p>1 2 3 4</p>	<p><b>Two causes of cumulative or domino changes in the economy</b></p> <p>1 2</p>
<p><b>What happens to cash rates and the government's budget in a boom?</b></p> <p>1 2</p>	<p><b>Five indicators of current phase for the Australian economy</b></p> <p>1 2 3 4 5</p>
<p><b>Three other indicators of an economic boom</b></p> <p>1 2 3</p>	

*See the answer section for completed summary*

## REALITY CHECK

1. In which stage of the business cycle is the size of the output gap is biggest?  
(a) Boom; (b) Downturn; (c) Slump; (d) Recovery.
2. In the business cycle model what stage or phase comes after a recovery?  
(a) A boom; (b) A recession; (c) A slump or trough; (d) It depends on the economic situation.
3. In an economy potential output is estimated to be \$900b, actual output is \$850b and trend output has been \$875b. The output gap in the economy is, therefore:  
(a) \$25b; (b) \$50b; (c) \$75b; (d) \$900b.
4. Which one of the following is most likely to happen in a boom?  
(a) Cyclical unemployment will rise  
(b) Inflation will fall  
(c) Output will rise close to the level of potential output  
(d) Growth will accelerate
5. Which one of the following is LEAST likely to be a feature of a recession?  
(a) There will be more empty shops in shopping centres  
(b) More people will need to contact Centrelink  
(c) Firms will produce more up-market or luxury versions of their products  
(d) Consumer and business confidence will be low
6. Which one of the following contributes to a floor or lower turning point in the economy?  
(a) Survival investment spending by producers  
(b) Increased tax collection by the government  
(c) A shortage of skilled labour  
(d) Spending by the government on welfare and social security
7. The acceleration in the rate of growth during the early stages of a recovery is caused by:  
(a) A further fall in business confidence  
(b) A rise in consumer confidence and an increase in discretionary purchases  
(c) Better outcomes from the education system  
(d) Cuts in government spending to repair their budget
8. Which one of the following is a leading indicator of economic activity?  
Changes in:  
(a) Gross Domestic Product  
(b) The unemployment rate  
(c) The Purchasing Managers Index  
(d) Retail sales
9. Which of the following would provide a positive demand shock for the Australian economy?  
(a) A return of higher economic growth in China  
(b) The spread of disease caused by the ebola virus beyond western Africa  
(c) Lower prices for iron ore, gold and copper  
(d) A rise in tax to balance the Commonwealth Government budget

10. An economy in the recovery or boom phase of the economic cycle is most likely to experience a rise in:
- (a) Spare capacity
  - (b) The saving ratio
  - (c) The demand for imports
  - (d) Business pessimism.



## SYLLABUS POINTS

- The concepts of income and wealth
- The measurement of the income and wealth distribution, i.e. the Lorenz Curve and the Gini-coefficient

OVERVIEW – INCOME DISTRIBUTION	
1	Income is the the money that a person or business receives in exchange for their labour or products. Some income is 'unearned' and comes from interest and dividends. Wealth is the value of assets owned by a person, household, business or organisation.
2	Income redistribution is one of the Government's four broad roles. These roles are: <ul style="list-style-type: none"> <li>• Allocation of resources to the production of public and merit goods</li> <li>• Regulation of markets to prevent and fix up market failure</li> <li>• Redistribution of market incomes to achieve greater equity</li> <li>• Management of aggregate demand and aspects of aggregate supply to achieve the macroeconomic objectives.</li> </ul>
3	The Commonwealth Government currently spends about \$600b per year on welfare and social security. It is a major component of government spending.
4	The Commonwealth Government finances this spending by levying tax and by borrowing. A number of taxes are targeted at income redistribution.
5	Progressive taxes are taxes where the tax paid rises in proportion to the taxpayers' income. Regressive taxes involve a falling proportion of the taxpayers' income. Proportional taxes maintain the same share of taxpayers' income at all income levels.
6	Income distribution can be shown on a Lorenz Curve, and measured by calculating the Gini-coefficient.
7	Australia has a Gini-coefficient of about 0.33 indicating a more even income distribution than some countries (such as US and South Africa) but less even than others (such as Norway and Denmark).
8	The relationship between income distribution and economic performance is complex. Too much redistribution may reduce rewards and incentives but too little redistribution produces social disharmony and the waste of resources on defensive spending such as extra policing and health care.

## Part 1 – Income and wealth

Income is the flow of money a person receives in return for their labour over a period of time. Wealth is the value of a person's stock of assets at a given moment in time. There are links between a person's income and wealth. Income that isn't spent is saved and increases their stock of assets. Assets usually generate income, e.g. interest received on bank deposits or bonds or dividends for stocks and shares.

Distributive justice or equity in income distribution is a macroeconomic goal of the Government. The Government achieves what they consider to be a fair income distribution through their taxation and transfers. What is, and is not, fair is a matter for debate.

## Part 2 – The distribution of income in Australia

Figure 13.1 shows the distribution of gross income between Australian households in 2019. The data shows gross annual average household income by quintile. This shouldn't be taken as a clear indication of the standard of people in each household as the numbers of people within each household vary.

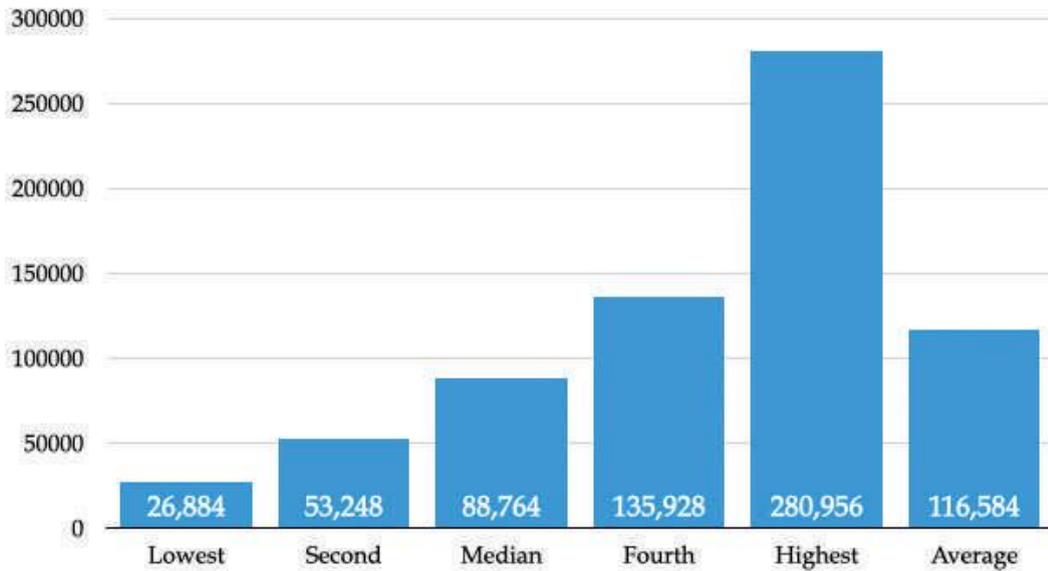


Fig 13.1: Data source: ABS

Figure 13.2 shows income and wealth distribution in Australia by age groups in 2021–22.

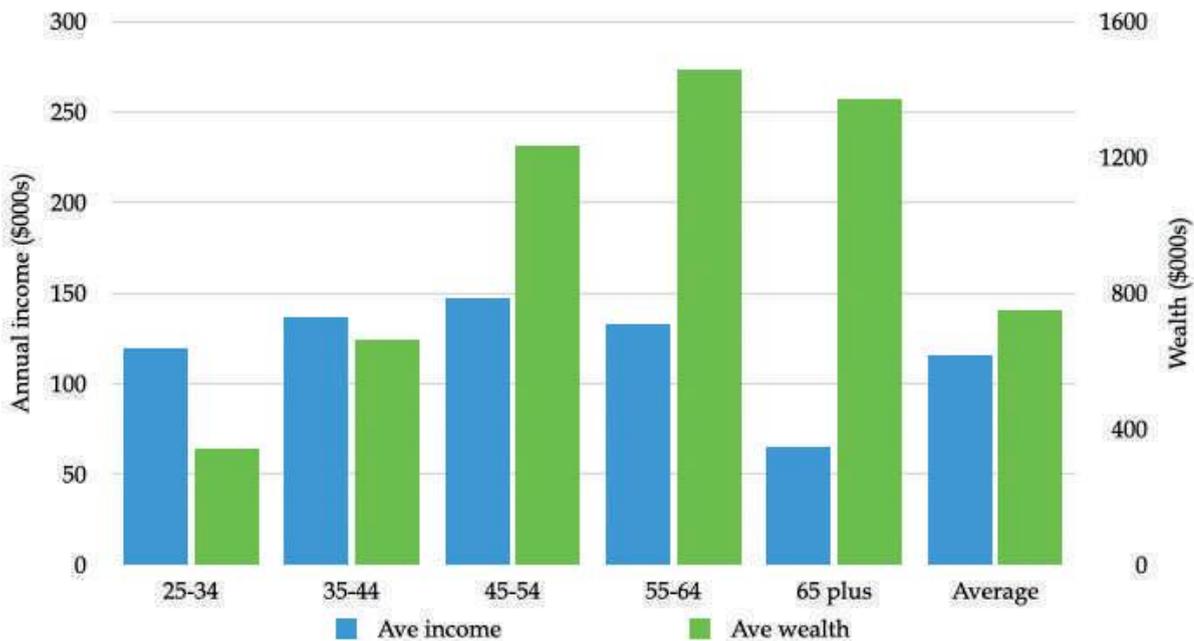


Fig 13.2: Data Source: ABS

## Student Activity 13.1

Use the data in charts, and other information available to you, to answer the following questions.

1. Which is more unevenly distributed, income or wealth?

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2. Which generation receives the highest income and which generation is the wealthiest?

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3. Why are Generation Y (24–34 year old) people the least wealthy group?

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4. Identify workers who you consider receive unfairly low pay. State your reasons.

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## Part 3 – Measurements of income distribution

### A Lorenz Curve

A Lorenz Curve shows the percentage of income received by different sections of the population. Lorenz curves have the following features:

- Both axes show cumulative data. For example, the level of income at 40% is the total share of income received by the lowest 40% of the population added together. A Lorenz curve, therefore, must start at the origin (no people = no income) and finish in the top right corner (all income must be received by someone).
- The population is ranked according to their income, from the lowest to the highest income.
- If everybody received the same income the Lorenz Curve would be a straight, diagonal line, running from the origin to the top right of the diagram. This line is called the line of equality.
- The more the curve dips away from the line of equality the more uneven is the distribution of income.

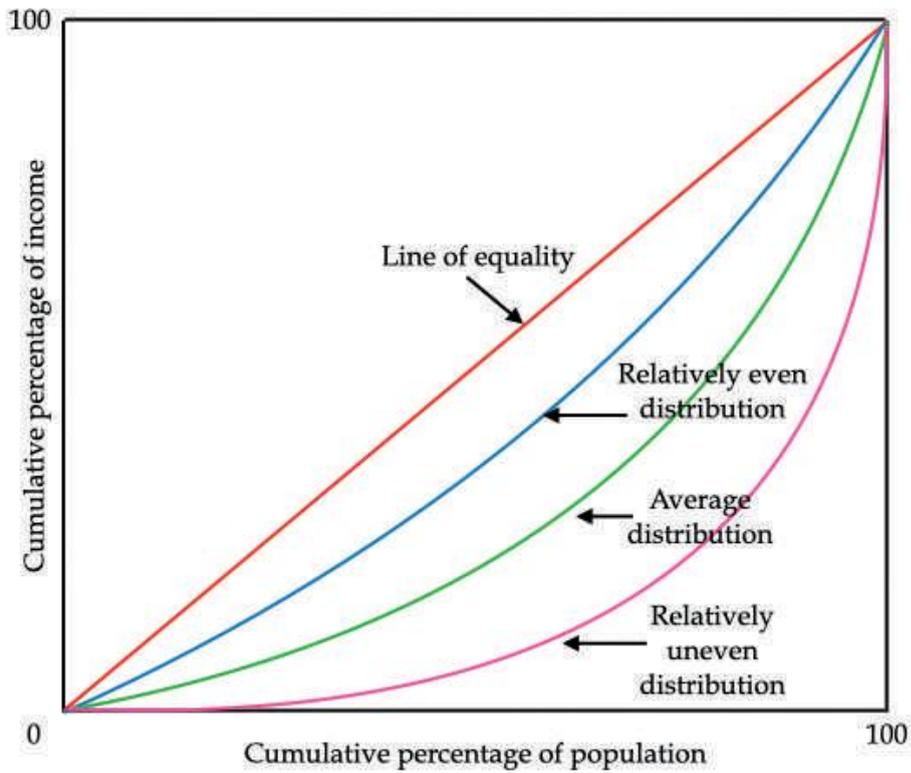


Fig 13.3: Lorenz curves

### The Gini-coefficient

The Gini-coefficient is a measure that indicates the degree of curvature or concavity of the line. It is the ratio of the area between the line of equality and the curve (Area A in fig 13.4) and the area of the triangle between the line of equality and the 100% population point on the x-axis (Areas A + B in fig 13.4).

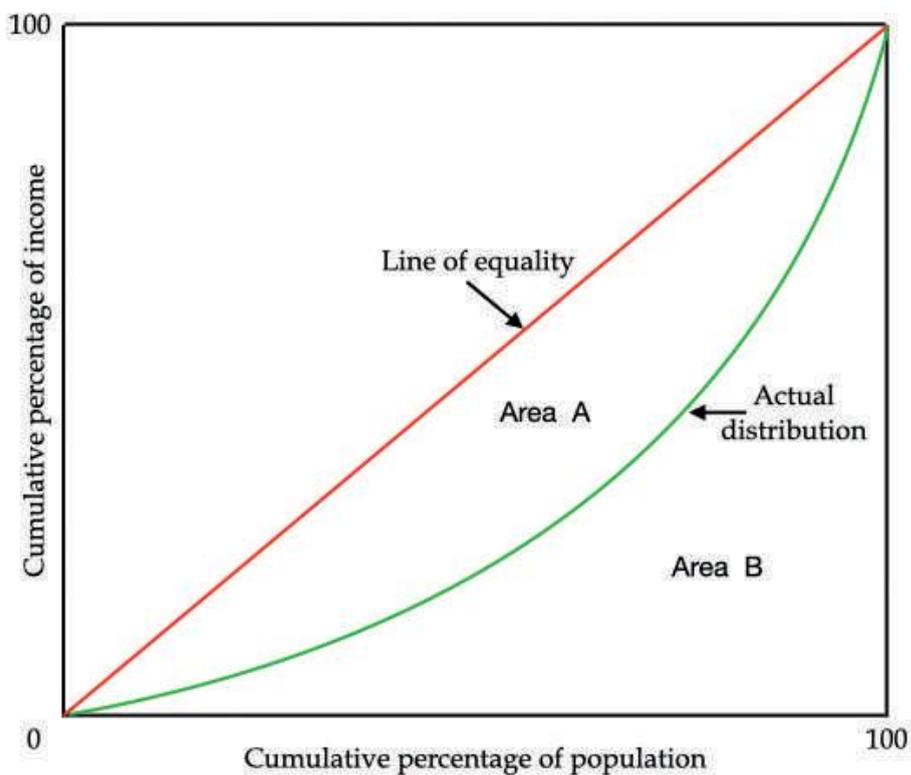


Fig 13.4: Calculation of the Gini-coefficient

### Australia's gini-coefficient

With no allowance for taxes and transfers, Australia's Gini-coefficient is about 0.47 but for disposable income it is about 0.32. Over the last 25 years or so the coefficient for disposable income has varied between 0.29 and 0.34 and is affected, for example, by growth rates in different sectors of the economy and by changes in direct taxes and transfers. This is in the middle range of coefficients for other OECD countries. The Gini-coefficient in the US is about 0.38, in the UK it is about 0.36 but in Germany it is about 0.28 and in Denmark it is about 0.25.



*Fig 13.5: Data source: ABS*

### Alternative measures of income distribution

One alternative measure of income distribution is the Palma ratio. This ratio is defined as the ratio of the richest 10% of the population's share of income divided by the share of the poorest 40%. It is based on the work of Chilean economist Gabriel Palma who found that middle class incomes tend to represent about half of national income while the other half is split between the richest 10% and poorest 40%, but the share of these two groups varies considerably across countries. Through concentrating on the top and the bottom ends of income distribution the Palma ratio provides a useful measure of income inequality in the society as a whole.

## Student Activity 13.2

1. Assume data has been collected for three countries and the distribution of income is as shown in the table 1 below.

Population group	Country 1		Country 2		Country 3		Equal distribution	
	Share of income	Running total	Share of income	Running total	Share of income	Running total	Share of income	Total share
0–10%	1	1	3	3	6	6	10	10
10–20%	1	2	4	7	6	12	10	20
20–30%	1	3	5	12	8	20	10	30
30–40%	2	5	6	18	8	28	10	40
40–50%	4	9	7	25	10	38	10	50
50–60%	5	14	9	34	10	48	10	60
60–70%	6	20	11	45	12	60	10	70
70–80%	10	30	12	57	12	72	10	80
80–90%	20	50	16	73	13	85	10	90
90–100%	50	100	27	100	15	100	10	100

- (a) Answer the following questions using the data above. Estimate rather than try to calculate the Gini index.

	Gini index	Palma ratio	Interpretation
Country 1			
Country 2			
Country 3			

	Country name	Description of income distribution (e.g. even, very uneven)
Curve with smallest curvature (or dip)		
Curve in the middle		
Curve with the biggest curvature (or dip)		

2. Since the World Happiness Report began in 2012, Nordic countries – which include Denmark, Norway, Sweden, Finland and Iceland, plus the Faroe Islands, Greenland and Aland – consistently turn up at the top of the list. Australia is about 10th and the United States typically lands somewhere around 20th place. In 2019, Finland was ranked No. 1 for the second year in a row. In 2017, it was Norway, and Denmark grabbed first place in 2013 and 2016. Switzerland nabbed the top rank in 2015. This is no coincidence. Nordic countries rank so high on the happiness report because they have things like free education and healthcare, low crime rates, cushy social security nets, a relatively even distribution of disposable income, a relatively homogeneous population and they're fairly prosperous.

(a) Identify two factors that probably contribute to Nordic happiness.

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(b) Identify two factors that in your opinion contribute to happiness in Australia.

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3. The chart shows income distribution and economic development data for five countries.

	Gini index	Palma ratio	Human Development Index
South Africa	63.0	7.0	0.699
Ethiopia	39.1	1.8	0.463
Sri Lanka	39.8	1.9	0.770
Australia	32.0	1.4	0.939
Denmark	28.2	1.0	0.929

(a) Outline how the three separate indicators are calculated.

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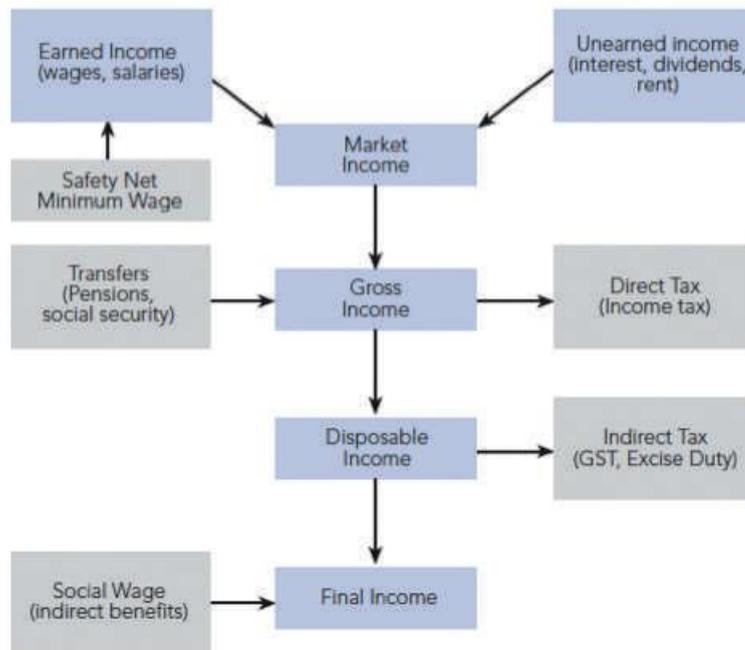
(b) What, if anything, can be concluded from these data about the relationship between income distribution and economic development?

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## Part 4 – Income redistribution in Australia



**Fig 13.6:** Income redistribution

- Market income (or private income) can be earned from work, known as earned income, or from ‘selling’ other household resources, known as unearned income. Unearned income can be, for example, in the form of rent, interest or dividends.
- Some peoples’ pay is influenced by minimum wages or awards rather than by free negotiations between employer and employee. In Australia, for example, the minimum wage is set by Fair Pay Australia and is altered from time to time.
- Eligible people may receive transfers from the government, for example as pensions or benefits if they are unemployed, over pension age or have young families.
- Income, after an allowance for transfers, is known as gross income. Households pay income tax on their gross income. The income that remains after payment of direct tax is known as disposable income. The Australian income tax system is progressive, meaning that people on higher incomes are taxed at a proportionately higher rate than people on low incomes.
- The final purchasing power or value of households’ income is subject to two further adjustments. Firstly, the government provides a number of things at no or low cost to households, for example, government schooling, healthcare through Medicare, use of most roads, libraries and so on. The value of these products can be considered to be a form of social wage and in effect raises the purchasing power of peoples’ disposable incomes.
- Finally, the government also collects revenue from indirect taxes like GST and excise duty. These taxes are levied when people spend money or undertake certain activities. These indirect taxes reduce the purchasing power of disposable incomes.

## Student Activity 13.3

1. Explain the following terms, giving examples where possible.

Earned income	
Unearned income	
Transfers	
Award wages	
Direct taxation	
Social wage	
Indirect taxation	

2. Describe will happen to the distribution of income in an economy in the following situations?

(a)	Unemployment rises to 8%	
(b)	Income tax rates are reduced	
(c)	GST is raised to 20%	
(d)	All social security payments are means and assets tested	
(e)	Excise duty on petrol, alcohol and tobacco doubled.	
(f)	Government spending cut by 30%	
(g)	Mining investment boom ends	

3. The table shows weekly data for income, tax and benefits received by three households.

	Market or private income	Social assistance (transfers)	Income tax	Social transfers in kind	Indirect tax	Final income
H1	1000	300	200	500	80	
H2	2000	200	400	500	100	
H3	4000	100	700	500	120	

- (a) Calculate the level of final income for each household. Enter totals in the table.
- (b) List two examples of social assistance that a household may receive.

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(c) What is income tax? Why does income tax increase as a proportion of income as income rises?

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(d) List two examples of indirect benefits that may contribute to a household's social wage.

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(e) List two indirect taxes paid by households when they spend money on goods and services.

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## Part 5 – Importance significance of income distribution

- Incomes can provide the rewards and incentives that drive market economies. They reflect a worker's value to their employer's business or the return they generate for their own business. This is linked to the revenue the worker generates for the business and is known in economics as their marginal revenue product. Income differentials or relativities also provide an incentive to seek promotion and/or change employer. Of course, other factors also contribute the satisfaction someone gets from their work.
- The level of incomes also determines the material standard of living of the people in a household. Income impacts on peoples' ability to satisfy basic physiological needs and wants as well as their need for some quality of life, dignity and respect. Their ability to influence the pattern of output through their spending is related to their income.
- The distribution of incomes generated by a market economy may, in society's view, be unfair or inequitable. For example, people may feel that nurses receive unfairly low incomes and TV personalities receive unnecessarily high incomes.
- About two-thirds of Commonwealth Government spending and much of the tax system is directly and indirectly linked to their redistributive role. The Government aims to balance economic growth (efficiency) with distributive justice (equity). Australia's has a reputation as a prosperous and egalitarian nation and for giving someone a fair go.

## EXAM TECHNIQUE

### Planning essays

It is important to plan longer, written answers before you start writing them. Read the question carefully to determine:

- The context and perspective of the question (e.g. the relevant syllabus topic, whether it is about causes or consequences)
- The command word used (e.g. describe, explain, discuss etc.)

Then do a mini-brainstorm to identify:

- Terminology used in the question (and whose meaning will have to be explained or defined)
- Models or diagrams that can be used to explain parts of your answer
- Main points that will become the focus of your body paragraphs
- What the conclusion or overall answer will be

When you write your answer you will need an introduction, key points or body paragraphs and a conclusion. In the Introduction signpost to the examiner you are answering the question. Define economic terms used in the question. Provide the real world context of the question. In the body paragraphs, typically, include short sentences that include:

- A statement of the point that is central to the paragraph
- An explanation of the point (including your chain of reasoning)
- One or more examples to back up your explanation and to link theory and reality
- A diagram and explanation of information shown in the diagram where relevant
- A evaluation of the point you have made (if the question requires it)

Use the mnemonic SEEDE to ensure you have stated the point (S), explained the point (E), given an example (E) and drawn and explained a diagram (D) and provided evaluation if required (E). The conclusion should be short and must be consistent with what you have written above.

So how would you tackle the following question?

- Describe two ways of measuring the distribution of income in Australia. (8 marks)
- Explain how globalisation (e.g. free trade and foreign investment) has affected income distribution in Australia. (12 marks)

**Context and perspective:** Income distribution, impact of globalisation

**Command word:** Explain (more than just an assertion or statement)

**Terms:** Distribution of income, globalisation

**Models/Diagram:** Lorenz Curve

**Introduction:** Definitions: Income distribution; globalisation. Context: There are winners and losers when trade expands. Income redistribution associated with globalisation has become an area of concern in several economies; Signpost: Evidence suggests income distribution within Australia has become more uneven as a result of globalisation.

**Main points:** Part A – Gini-coefficient, Parma Ratio; Part B – Impact of mining boom, impact of high exchange rate on service industry (e.g. tourism), pressure of competition on manufacturing from cheaper imports, impact of rise in share values.

**Conclusion:** It has made distribution less even within Australia (some better off but others worse off). Globally, however, globalisation has lifted millions of people out of poverty.

SO YOU THINK YOU NOW UNDERSTAND INCOME REDISTRIBUTION	
<b>Four roles of government</b> 1 2 3 4	<b>Lorenz curve and Gini-coefficient</b> Axes: Shape: Straight line = Bigger curvature =
<b>Four main areas of government spending</b> 1 2 3 4	<b>Palma Ratio</b> Ratio of ... Reasoning behind ratio
<b>Difference between income and wealth</b> Income = Wealth =	<b>Five ways income is redistributed</b> 1 2 3 4 5
<b>Three roles of income</b> 1 2 3	<b>Three issues with income redistribution</b> 1 2 3

*See answer section for completed summary*

## REALITY CHECK

1. Which role is the Commonwealth Government performing as it tries to achieve equity or fairness in income distribution?
  - (a) A demand management role
  - (b) An allocative role
  - (c) A regulatory role
  - (d) A redistributive role.
  
2. The difference between market income and final income is:
  - (a) All government transfers and tax
  - (b) Direct benefits and direct tax payments
  - (c) Income from saving and investment
  - (d) Indirect benefits and indirect tax payments.
  
3. Overall government spending on income distribution as a share of total government spending was closest to:  
(a) 70%; (b) 30%; (c) 10%; (d) 5%.
  
4. The largest area of Commonwealth Government expenditure is on:
  - (a) Direct and indirect income distribution
  - (b) Direct and indirect support of Australian industry
  - (c) Investment in transport and communications infrastructure
  - (d) Armed forces, border protection and the Commonwealth police.
  
5. A Lorenz curve that is relatively close to the diagonal line of equality suggests that:
  - (a) Tax payments by different members of society are relatively equal
  - (b) Income distribution is generally equitable
  - (c) The distribution of incomes in the economy is relatively equal
  - (d) The output of different sectors of the economy is relatively equal.



## SYLLABUS POINTS

- The size and composition of Commonwealth government revenue and spending in Australia
- The distinction between direct/indirect taxation, progressive/regressive/proportional taxation, and taxes on income/expenditure
- Types of Commonwealth taxes, including personal and income tax, goods and services tax, company tax and excise duty
- The macroeconomic objectives of the Australian Government, including sustainable economic growth, price stability, full employment and a more equitable distribution of income

<b>OVERVIEW – GOVERNMENT IN THE MACROECONOMY</b>	
1	In Australia, the size of the government spending and taxation is about 25% of GDP.
2	This is relatively small by international standards.
3	The impact of the public sector is better judged by looking at what is achieved rather than the cost of inputs. However, measuring productivity in the public sector is not easy.
4	The major areas of government spending are social security and welfare, payments to the States and Territories, healthcare, education and defence.
5	This expenditure is financed by taxation (both direct and indirect) and by borrowing.
6	In Australia there is a relatively high emphasis on direct taxation on incomes and company profits and a relatively low emphasis on indirect taxation such as the Goods and Services Tax (GST) and excise duty.
7	Tax should be judged according to a number of principles. In broad terms, taxes should be efficient, fair and simple. The tax system as a whole must raise sufficient revenue to finance government spending and be competitive with tax systems in other countries.
8	Progressive taxes are taxes where the tax paid rises in proportion to the taxpayers' income. Regressive taxes are taxes where the tax paid falls in proportion to the taxpayers' income. Proportional taxes maintain the same share off taxpayers' income at all income levels.
9	The government has four main roles; (i) Allocation of resources to the production of public and merit goods, (ii) regulation of markets to fix up and prevent market failure, (iii) redistribution of income to achieve a fair distribution and (iv) management of the macroeconomy to achieve it's economic objectives.
10	The governments economic objectives are sustainable economic growth, price stability, full employment and a more equitable distribution of income.

## Part 1 – The public sector

The public sector is the part of the economy that provides government services. Commonwealth, State and Local Governments provide these services themselves, by using state-owned enterprises or by outsourcing to private sector businesses. The services include defence and border protection, law and order, transport, education, health, environmental protection and those needed for the operation of the government itself. Businesses and organisations that are not part of the public sector are part of the private sector. The private sector is composed of the business sector, which aims to earn a profit for the owners of the enterprise, and the voluntary sector, which includes charitable organisations.

### The roles of the government in a modified market economy

<p><b>Allocative role</b> Allocate resources to goods and services under-provided by the private sector</p> <ul style="list-style-type: none"> <li>• Public goods (e.g. lighthouses)</li> <li>• Merit goods (e.g. education)</li> </ul>	<p><b>Redistributive role</b> Use tax and transfer system to achieve equity in income distribution</p> <ul style="list-style-type: none"> <li>• Social justice</li> <li>• Social harmony</li> </ul>
<p><b>Regulatory role</b> Fix up or prevent market failure</p> <ul style="list-style-type: none"> <li>• Monopoly power (e.g. supermarkets)</li> <li>• Negative externalities (e.g. smoking)</li> <li>• Information gaps (e.g. insurance)</li> <li>• Natural monopolies (e.g. water supply)</li> <li>• Common Property Resources (e.g. fish)</li> </ul>	<p><b>Management of aggregate demand</b> Use of fiscal policy and supply-side measures to control the business cycle and achieve macroeconomic objectives</p> <ul style="list-style-type: none"> <li>• Economic growth</li> <li>• Price stability</li> <li>• Full employment</li> </ul>

### The size of the Commonwealth Government

- There have been two periods since 1970 when the size of Commonwealth Government grew at a fast rate, first in the Whitlam years (1972–75) when the government introduced, for example, Medicare and free university education, and towards the end of the Howard Government (2005–2007).
- Until the jump in spending to support health services and incomes during the pandemic, Liberal Governments between 2014–2020 capped tax at 23.9% of GDP as well as reducing government debt and budget deficits.

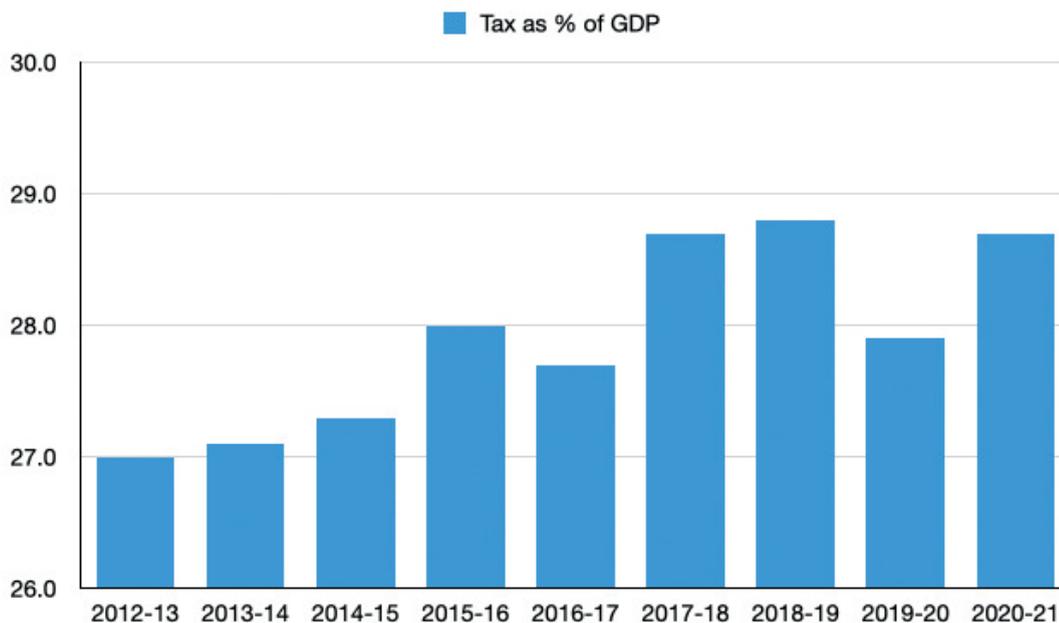


Fig 14.1: Data Source: ABS

## Part 2 – International tax comparisons

The tax-to-GDP ratios in OECD countries vary considerably. France has the highest tax-to-GDP ratio of about 46%. Denmark, at 45% comes a close second. Mexico has the lowest tax-to-GDP ratio at about 16%. These data have to be interpreted with care. Countries that run budget deficits and increase government debt can keep taxes lower than those that run budget surpluses and build up sovereign wealth. People in different countries may be happy to accept different levels of government intervention. The size of the government sector is typically measured by looking at inputs rather than the quality of the service provided. This is a reflection of the difficulty in measuring productivity in the public sector, for example in health care and education.

### Student Activity 14.1

1. Quote two pieces of evidence to support the view that Australia has a relatively low level of taxation.

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2. Describe two benefits and two drawbacks of paying the level of tax levied in France or Denmark (i.e. about 45% of GDP).

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3. Describe two problems of measuring productivity in the government sector.

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4. Why does the level of government spending and tax vary from year to year and from country to country?

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## Part 3 – The main areas of Commonwealth Government spending

The government planned to spend about \$625b in 2022–23, equivalent to about 24% of GDP. The chart shows the main areas of spending and the approximate percentage of the total for each area.

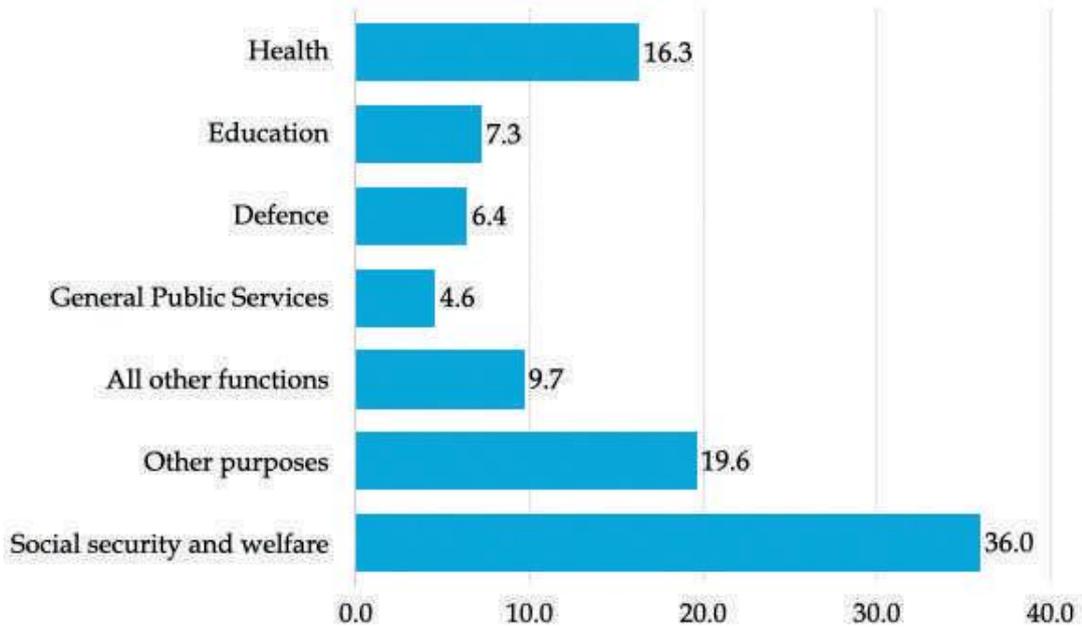


Fig 14.2: Data source: Australian Treasury

### Student Activity 14.2

- Complete the table below by stating examples of Commonwealth Government spending in the areas shown. Some help is provided where thought necessary.

Area	Examples	Percentage of total
Social security and welfare		
Health		
Education		
General public services	Foreign Aid	
Defence, public order and safety		
Other purposes	GST transfers to State and Territories	

2. Which of its roles is the government fulfilling when it spends money in the following areas?

	Area of government spending	At which role (allocative, regulatory or redistributive) is this spending targeted?
(a)	Defence and border protection	
(b)	Social security	
(c)	Health care	
(d)	Competition Policy	
(e)	Assistance to the unemployed	

## Part 4 – The main revenue sources for the Commonwealth Government

The Government currently will collect about \$560b in taxation and other forms of revenue during 2022–23, equivalent to about 27% of GDP. The chart shows the contribution made by each tax to total government revenue.

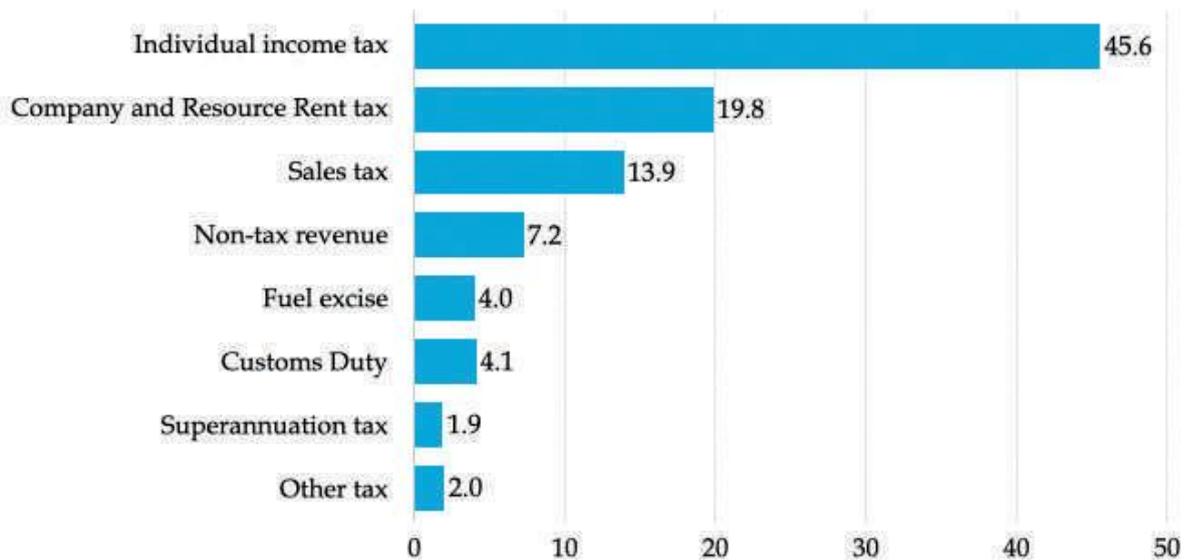


Fig 14.3: Source: Australian Treasury

- **Direct taxes:** Direct taxes are taxes levied on incomes and wealth where the incidence or burden of the tax cannot be passed on by the taxpayer to someone else. Examples of direct taxes include income tax and company tax.
- **Indirect taxes:** Indirect taxes are taxes levied on consumption, transactions, production and use of products where the impact of the tax can be passed on by the taxpayer to someone else. Examples of indirect taxes include Goods and Services Tax (GST) and excise duties on the production of alcohol, tobacco and petrol.
- **Profits:** The government owns some businesses (e.g. the Australian Submarine Corporation and the Reserve Bank of Australia). If these earn a profit they create revenue for the government.
- **Sale of assets and earnings of funds:** When government businesses or assets are sold to buyers in the private sector the government receives money (e.g. from land sales). A number of the government's special funds (e.g. the Future Fund) earn investment income.
- **Non-tax revenue:** Some money is collected from fees and fines (e.g. from the courts).

Taxes can be classified according to what happens to the proportion of a person's income paid in tax as their income rises. Note these terms do not refer to the dollar amount of tax paid but to tax paid as a percentage of income.

Type	Proportion of income paid in tax as income rises	Example
Progressive tax	Rises	Income tax – marginal tax rates increase as taxable income moves into higher tax brackets
Proportional tax	Constant	Flat income tax Company tax
Regressive tax	Falls	Excise duty on alcohol, petrol and tobacco Goods and Services Tax

Judgments about tax need to be based on the purpose of the tax, for example, to collect revenue, redistribute income or correct market failure. However, there are a number of principles (or canons) that can be used in the assessment of a tax or the tax system as a whole.

- Equity – is it fair? There are two aspects of fairness to consider:
  - Horizontal equity – do people with the same ability to pay, pay the same tax?
  - Vertical equity – do people with a higher ability to pay, pay proportionately more tax?
- Efficiency – will it harm the performance of the economy?
- Simplicity and certainty – can taxpayers understand their tax liability without too much effort and cost?
- Economy – is it relatively cheap for the government to collect the tax?
- Coherence – is there a smooth transition for people moving from receiving transfers to becoming taxpayers?
- Competitive – are tax rates in line with taxes in other countries?
- Sustainability – will the tax provide sufficient tax revenue into the future to meet government spending needs?

It is unlikely that the tax system as a whole, let alone an individual tax, can comply with all these principles at the same time. For example, simple taxes are unlikely to be equitable and efficient taxes may not be equitable.

### Student Activity 14.3

1. What are the main taxes paid by Australians?

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2. What is the difference between an indirect tax and a direct tax?

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3. The table shows the tax paid on three different taxes at different level of taxable income. Calculate the percentage of tax as a percentage of taxable income for each tax. Use the information to complete the final row in the table.

Taxable income (\$)	Tax paid on Tax A		Tax paid on Tax B		Tax paid on Tax C	
	\$ payment	% of income	\$ payment	% of income	\$ payment	% of income
25,000	2,500		5,000		5,000	
50,000	7,500		9,000		10,000	
75,000	15,000		12,000		15,000	
100,000	30,000		15,000		20,000	
Is the tax progressive, proportional or regressive?						

4. Match up the tax principle with the appropriate explanation.

Principle of taxation		Explanation	
A	Horizontal equity	1	Taxes should be cheap to collect
B	Vertical equity	2	People with a relatively high capacity to pay should pay relatively high levels of tax
C	Efficiency	3	The tax system should allow tax payers to pay money to the government in ways and at times convenient to the tax payer
D	Simplicity	4	Tax payers should know, or be able to calculate with relative ease, the extent of their tax liability in a given situation
E	Convenience	5	The economy should not be harmed or distorted in an undesirable way by the tax system
F	Economy	6	People with the same capacity to pay should pay the same amount of tax
G	Certainty	7	Taxes should be straightforward and easy for people to understand

5. Complete the tables below.

**(a) Tax and efficiency**

What is the definition of an efficient tax?	
Give an example of an inefficient tax.	
Why are complex taxes inefficient?	
Why might highly progressive direct taxes be inefficient?	
Why are indirect taxes on consumption inefficient?	

**(b) Tax and equity**

What is a fair or equitable tax?	
What tax or taxes in Australia are unfair or inequitable?	
What are transfers? Give an example.	
What is a means test? When are they best used?	
What makes up the 'social wage'? Give an example.	
Does everybody get the same social wage? Is this fair?	

**(c) Tax and competitiveness**

What is a competitive tax? What is it compared with?	
An example of an Australian tax that is uncompetitive.	
Why is a competitive tax system important?	

**(d) Tax and sustainability**

What is a sustainable tax?	
Give an example of an unsustainable tax in Australia.	
Why is a sustainable tax system essential?	

**(e) Tax and simplicity**

What is a simple tax?	
Give an example of a complicated tax in Australia	
Why do we have complicated taxes?	
What problems are caused by complicated taxes?	

6. Search the internet to find two past or present examples from around the world of taxes that are silly or stupid. Say what is silly or stupid about them.

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SO YOU THINK YOU UNDERSTAND THE GOVERNMENT IN THE MACROECONOMY	
<b>Four roles of government</b> 1 2 3 4	<b>Main areas of government spending</b> 1 2 3 4 5
<b>Size of government spending and taxation</b> 1 2	<b>Main sources of tax revenue</b> 1 2 3 4
<b>Issues when comparing international tax levels</b> 1 2	<b>Types of taxation</b> Progressive = Regressive = Proportional =
<b>Five revenue sources for the government</b> 1 2 3 4 5	<b>Principles of taxation</b> 1 2 3 4 5

## REALITY CHECK

- Which role is the Commonwealth Government performing as it tries to achieve the macroeconomic goals of sustainable growth, price stability and full employment?
  - A demand management role
  - An allocative role
  - A regulatory role
  - A redistributive role
- The largest area of Government expenditure in Australia is on:
  - Direct and indirect income distribution
  - Direct and indirect support of Australian industry
  - Investment in transport and communications infrastructure
  - Armed forces, border protection and the Commonwealth police
- Which one of the following describes closest the ratio of direct tax to indirect tax in Australia?

	Direct tax as % total tax	Indirect tax as % total tax
A	35	65
B	50	50
C	65	35
D	80	20

- The data in the table shows the level of tax as a percentage of taxable income at different levels of taxable income. Which tax is a progressive tax?

	Taxable income			
	\$25,000	\$50,000	\$75,000	\$100,000
A	25	17.5	15	12.5
B	35	25	15	5
C	25	25	25	25
D	10	25	40	55

- What is the definition of an efficient tax?
  - A tax that is cheap to collect
  - A simple flat rate tax
  - A tax that does harm the economy
  - A tax that raises enough money to sustain government spending

# TRIAL TEST 1

## MICROECONOMICS



<b>Time allowed:</b> 2 hours	<b>Section 1</b> – Multiple Choice	24 marks
30 minutes	<b>Section 2</b> – Data Interpretation/Short Answers	36 marks
<b>Total marks:</b> 100	<b>Section 3</b> – Long Written Answers	40 marks

### SECTION 1 – MULTIPLE CHOICE (24 MARKS)

Attempt all 24 questions from this section.

- The economic problem is one of relative scarcity because:
  - Households can't afford to buy all the products they want
  - Resources are limited in relation to consumers' needs and wants
  - Producers supply too many products to consumer goods markets
  - Consumers have a finite income but have infinite needs and wants for goods and services
- Which one of the following is classified as an economic resource?
  - Income
  - Productivity
  - Production
  - Enterprise
- The opportunity cost of reading your social media feed would include:
  - The loss of the benefits from spending your time in the best alternative way.
  - The loss of the consumer surplus received from your feed.
  - The cost of the smart phone data plan.
  - The deadweight loss caused by spending time reading the feed.
- A fall in the price of gold will cause, in the long run:
  - A contraction in supply and a movement down the supply curve towards the origin.
  - An increase in supply and a shift in the supply curve to the right.
  - An expansion in supply and a movement up the supply curve away from the origin.
  - A decrease in supply and a shift in the supply curve to the left.
- Which one of the following is most likely to lead to a rise in the sale of electric cars?
  - A lack of recharging stations in rural areas
  - A fall in the price of electric cars
  - A fall in the price of petrol driven cars
  - A fall in the price of petrol
- Which one of the following is reflected in how much someone is prepared to pay for a surfboard?
  - Producers' willingness to supply surfboards at various prices
  - How much it costs a producer to make a surfboard
  - The marginal benefit a consumer receives from a surfboard
  - The consumer surplus gained by the consumer buying the surfboard

7. Which of the following is true if there is a decrease in both the demand and the supply of a product?
- The equilibrium price and quantity in the market for the product will rise
  - The equilibrium price and quantity in the market for the product will fall
  - The equilibrium price in the market for the product will fall but the change in the equilibrium quantity cannot be determined without further information
  - The equilibrium quantity in the market for the product will fall but the change in the equilibrium price cannot be determined without further information
8. What will be the impact, other things being equal, of a discovery of an improved production technique for making sun cream?
- A shift of the supply curve for sun cream down and to the right
  - A shift of the demand curve for sun cream to the left
  - A shift of the demand curve for sun cream to the right
  - A shift of the supply curve for sun cream up and to the left
9. When supply is perfectly inelastic the supply curve is:
- A horizontal straight line
  - A vertical straight line
  - A forward sloping straight line
  - A backward sloping straight line
10. For which one of the following would income elasticity be lowest?
- Foreign holidays
  - Concert tickets
  - BBQ Sausages
  - Champagne
11. 'Farmers' and 'Riverside' are two brands of yoghurt. Therefore, they can be classified as \_\_\_\_\_ and the cross price elasticity of 'Farmers' yoghurt with respect to price changes in 'Riverside' yoghurt will be \_\_\_\_\_.
- The missing words are, in the correct order:
- Substitutes; zero
  - Complements; one
  - Substitutes; negative
  - Substitutes; positive
12. Market research suggests, when other things are equal, a 5% rise in the price of cola will lead to a 2% fall in cola sales. The price elasticity of demand for cola, therefore, is:
- Inelastic and has a value of 0.4
  - Elastic and has a value of 2.5
  - Inelastic and has a value of 3%
  - Elastic and has a value of 7%
13. Which one of the following explains why large firms dominate an industry?
- Small producers suffer from diseconomies of scale
  - Large firms can charge higher prices for their products
  - As firms increase their size, opportunities for specialisation result in a fall in the average costs of production
  - As firms increase their output, they employ more workers and labour productivity falls

14. Compared to markets where firms have a degree of monopoly power, in competitive markets firms will charge
- (a) Higher prices and they will reduce the quantity supplied
  - (b) Lower prices and they will reduce the quantity supplied
  - (c) Lower prices and they will increase the quantity supplied
  - (d) Higher prices and they will increase the quantity supplied
15. Which statement is correct about the roles of firms or producers in the economy?
- (a) They employ or purchase resources or factors of production and produce goods and services
  - (b) They supply resources or factors of production and provide tax revenue for the government
  - (c) They consume goods and services and supply resources or factors of production
  - (d) They receive factor incomes and pay out consumption expenditure
16. When people shop for everyday products such as milk and bread:
- (a) No welfare is created because the market price equals consumers' marginal benefit and producers' marginal cost
  - (b) Welfare is increased for both consumers and producers
  - (c) Welfare is only increased for producers
  - (d) Welfare is only increased for consumers
17. Which of the following is true about the allocation of resources in a market?
- (a) Community surplus is minimised when resources are allocated efficiently
  - (b) Deadweight loss is maximised when resources are allocated efficiently
  - (c) Deadweight loss is zero when resources are allocated efficiently
  - (d) Consumer surplus is greater than producer surplus when resources are allocated efficiently
18. In most markets, other things being equal, a fall in production costs:
- (a) Only increases consumer surplus
  - (b) Only increases producer surplus
  - (c) Reduces total welfare or community surplus
  - (d) Increases both consumer surplus and producer consumer surplus
19. In a market the government sets a maximum price that is below the current equilibrium price. This will result in:
- (a) A lower price for all consumers who want to buy the product
  - (b) A shortage in the market and a potential black market
  - (c) A surplus in the market and a stockpile of unsold products
  - (d) Subsidies for consumers who buy the product
20. The government may fail to correct market failure because:
- (a) They lack the information needed to make sound economic choices
  - (b) They cannot produce public goods since they are both rival and excludable
  - (c) Merit goods are always under-provided
  - (d) The price mechanism always leads to a better allocation of resources
21. In free markets, demerit goods with negative consumption externalities tend to be
- (a) Under-produced
  - (b) Over-produced
  - (c) Over-priced
  - (d) Not produced at all because of free-riders

22. The use of WA's ground water supplies, such as the Gnangara Mound, need to be controlled because they are
- (a) Public goods
  - (b) Natural or club resources
  - (c) Common access resources
  - (d) Merit goods
23. Which of the following would be an effective response to the overuse of common access resources?
- (a) The use of a sales tax on products made using the resource
  - (b) The introduction of additional government subsidies
  - (c) Raising profits tax on producers using the resource
  - (d) Assigning property rights over the common access resources
24. Natural monopolies tend to develop when
- (a) The range over which producers receive economies of scale is bigger than the overall size of the market
  - (b) The range over which producers receive economies of scale is smaller than the overall size of the market
  - (c) There are no barriers to entry for new firms wishing to enter the market
  - (d) Start-up capital costs are low and the size of the market is growing

## SECTION 2 – DATA INTERPRETATION/SHORT ANSWER (36 MARKS)

Attempt all three questions in this section. Each question is worth 12 marks.

25. This question refers to the demand and supply for flowers per week

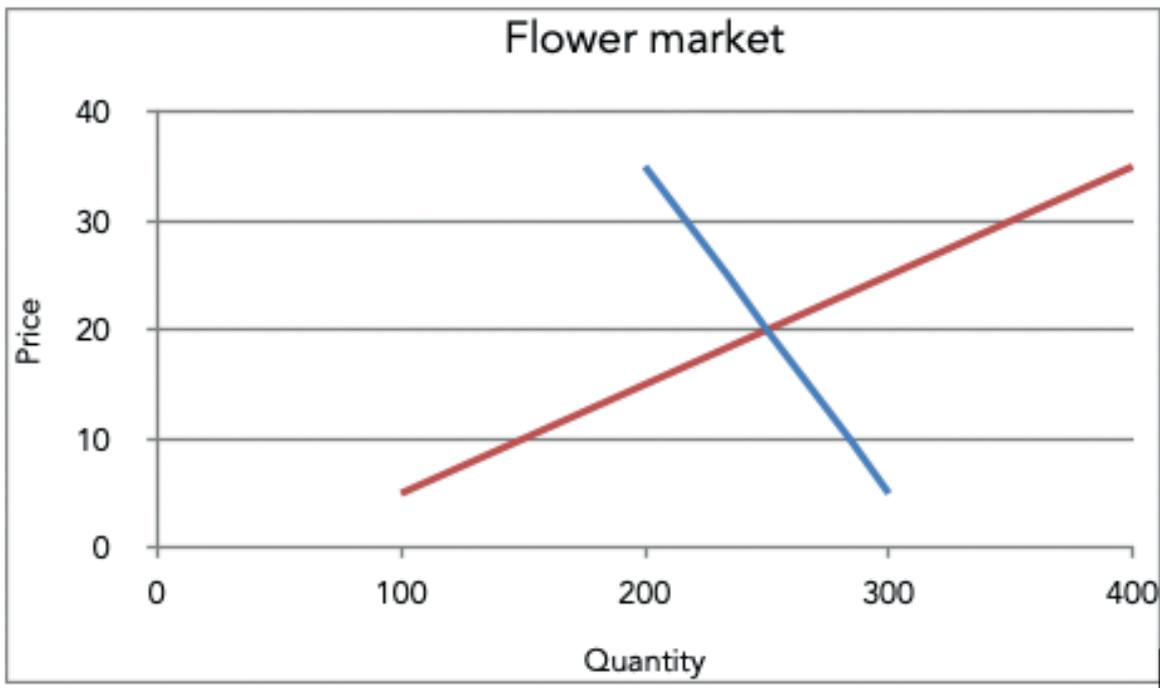


Fig 15.1

- Label the demand and supply curves [1 mark]
- When the price of flowers rises from \$20 to \$35 what is the percentage change in the price of flowers? Use either the point method, or mid-point method for your calculation. [1 mark]
- When the price of flowers rises from \$20 to \$35, demand falls from 250 to 200 per week. Calculate the percentage change in quantity of flowers demanded. Use either the point method, or mid-point method for your calculation. [1 mark]
- Calculate the price elasticity of demand for the flowers for the price rise from \$20 to \$35. [1 mark]
- Use the 'revenue test' to determine whether demand was relatively elastic or inelastic during this price range. Show your working. [1 mark]
- Outline three factors that would affect the price elasticity of demand for flowers. [3 marks]
- Better horticultural technology increases the supply of flowers in the market by 50 units at each price level. Show the effect of this on the graph. [2 marks]
- Describe the effect of the increase in supply on consumers and retailers. [2 marks]

26. Given the economic problem of relative scarcity, it is important that resources are used in the best way to satisfy the wants and needs of members of society. There are several meanings of the term 'efficiency' but they all link to how markets allocate scarce resources. Normally the price mechanism does this well, but there are occasions when markets can fail.

(a) Define the term 'efficiency' [2 marks]

(b) Define the term 'economic problem' [2 marks]

(c) On the diagram below identify (i) consumer surplus and (ii) producer surplus. [2 marks]

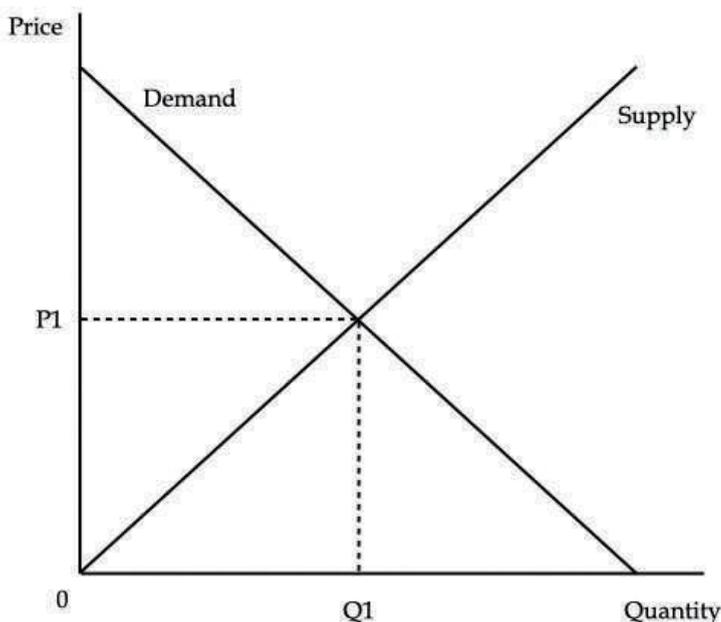


Fig 15.2

(d) Show on the diagram below what happens to community surplus (or total welfare) if the quantity traded in the market is about 50% below  $Q_1$ . [2 marks]

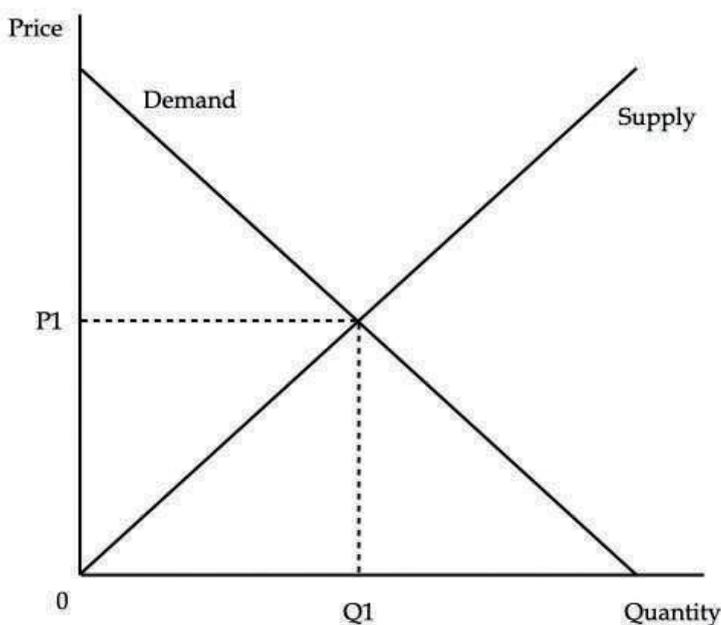


Fig 15.3

(e) Describe two situations that might cause too few resources to be allocated to a market. [4 marks]

27. The table shows estimates of annual costs and benefits of use of speed and red light cameras in a city.

	Number	Cost (installation and operation)	Fines collected by government	Value of reduced accidents
Speed cameras	400	\$10m	\$6m	\$30m
Red light cameras	200	\$3.5m	\$1.5m	\$6m

Supporters of speed and red light cameras claim they reduce accidents. Even though the revenue collected from motorists caught by these cameras is less than the cost of their installation and operation they are justified because they save lives and reduce injuries of drivers and other road users.

Opponents of the cameras argue that they are simply revenue-raising devices for the government. According to these arguments, the cameras add to the cost of motoring and are a source of government failure. They argue poor driving rather than speeding is the main cause of traffic accidents.

- (a) Based on data in the table, what term would be used by an economist to describe speed and red light cameras? Justify your choice. [2 marks]
- (b) With the help of an appropriate diagram, show that more speed and red light cameras will be installed when the benefits from a reduction in accidents is taken into account. [3 marks]
- (c) Explain the key points of the diagram you have drawn. [3 marks]
- (d) Discuss the view that speed and red light cameras are, in fact, an example of government failure. [4 marks]

## SECTION 3 – LONGER WRITTEN ANSWERS (40 MARKS)

Answer two questions. Each question is worth 20 marks.

28. (a) Describe the characteristics of a market. [4 marks]
- (b) Distinguish between a product market and a factor market. Give examples of both types of market. [4 marks]
- (c) Explain three (3) main factors that affect the demand for car workers. [12 marks]
29. (a) Explain the concept of ‘price elasticity of demand’ [2 marks]
- (b) Explain the key factors that determine the price elasticity of demand for a household product. [8 marks]
- (c) Explain what a producer can do to cause a favourable (or profitable) change in the price elasticity of demand for their product. [10 marks]
30. (a) Explain, with examples, the concepts of the economic problem, scarcity, opportunity cost and the production possibility frontier. [10 marks]
- (b) Explain why the Australian Government becomes involved in addressing the key questions of what, how, how much and for whom to produce [10 marks]
31. (a) Define the term ‘common property resources’ and give two different realistic examples of situations where they occur. [4 marks]
- (b) Explain why a ‘tragedy of the commons’ can develop where there is open access to common property resources. [6 marks]
- (c) Describe three (3) policy measures the government could use to prevent market failure where there are common property resources. [10 marks]

# TRIAL TEST 2

## MACROECONOMICS



<b>Time allowed:</b> 2 hours	<b>Section 1</b> – Multiple Choice	24 marks
30 minutes	<b>Section 2</b> – Data Interpretation/Short Answers	36 marks
<b>Total marks:</b> 100	<b>Section 3</b> – Long Written Answers	40 marks

### SECTION 1 – MULTIPLE CHOICE

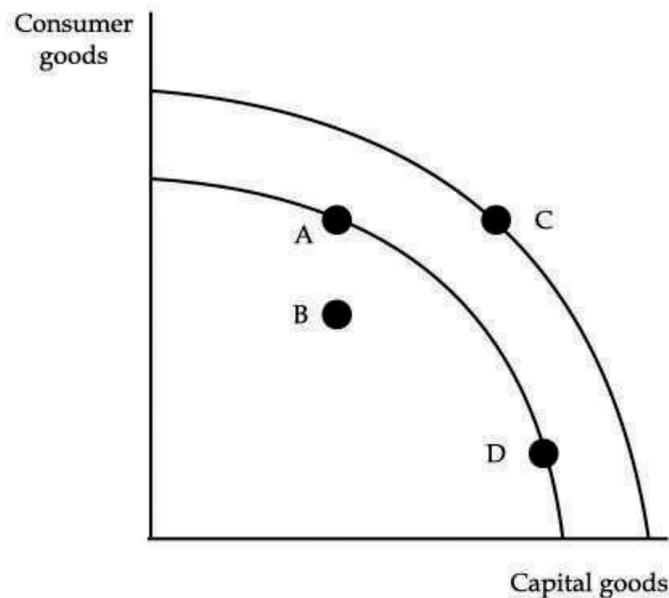
Attempt all 24 questions from this section.

- In the circular flow model, households receive a money flow directly from producers in the form of:
  - Incomes because they own economic resources
  - Consumption spending because they help produce goods and services
  - Investment because they provide the financial capital for the business sector
  - Transfers so that households can afford to buy goods and services from producers
- Which one of the following, other things being equal, will lead to a rise in the level of economic activity?
  - A rise in household saving
  - A rise in government spending on infrastructure projects
  - A rise in purchases of imported capital equipment used for LNG production
  - A rise in indirect taxation
- In an economy without a government and overseas sector, if saving exceeds planned investment over a given period of time:
  - Cyclical or demand-deficiency unemployment will fall
  - Planned investment will rise until it equals the level of saving
  - Production and expenditure will fall
  - Incomes will rise
- Using data in the table below identify the country that will experience a fall in income, output and expenditure in the future.

Country	Income (\$b)	Consumption (\$b)	Planned investment (\$b)	Government spending (\$b)	Net exports (\$b)
A	100	60	20	25	-5
B	100	75	10	15	5
C	100	60	15	15	0
D	100	55	20	25	0

- (a) A; (b) B; (c) C; (d) D.

5. Which is the largest component of aggregate expenditure in the Australian economy?
  - (a) Consumption spending
  - (b) Planned investment spending
  - (c) Government spending
  - (d) Spending on net exports
  
6. In a developed economy like Australia, the most important driver of economic growth is likely to be an increase in:
  - (a) Government spending on road infrastructure
  - (b) Productivity
  - (c) The labour force
  - (d) Aggregate demand
  
7. Based on the production possibility frontier diagram below, which of the following represents economic growth?



**Fig 15.3**

- (a) A movement from point C to point A
  - (b) A movement from point A to point D
  - (c) A movement from point B to point C
  - (d) A movement from point D to point B
  
8. Other things being equal, if the population in an economy grows at the same rate as real GDP then:
  - (a) GDP per head will rise
  - (b) Living standards per head will fall
  - (c) Income per head will fall
  - (d) GDP per head will stay constant
  
9. Which of the following pairs of indicators is most likely to occur in an economic recovery or upswing?
  - (a) A rise in electricity output and a rise in interest rates
  - (b) An increase in the number of cranes visible on city skylines and a fall in employment in service industries
  - (c) A fall in business stock levels and a fall in planned business investment
  - (d) An increase in government spending on welfare and social security and increased production of consumption of durable goods

10. Inflation will be mainly demand-pull inflation if:
- Wages rise faster than labour productivity
  - Unemployment is below the natural or non-accelerating inflation rate of unemployment
  - There is considerable under-utilisation of labour and capital resources in the economy
  - Price rises are caused by the introduction of a new indirect tax
11. The Consumer Price Index (CPI) in an economy is 200 on the 1st July. Over the next twelve months there is 5% inflation in the economy. On the 1st July the following year the level of the CPI will be:
- 195
  - 205
  - 210
  - 1000
12. If the general level of prices in an economy falls then:
- Business profits will rise because production costs fall faster than consumer prices
  - The cost of living continues to rise
  - Households will bring forward their spending on durable goods
  - Reducing the level of debts becomes more difficult
13. If inflation is 4% per year and is expected to continue at this rate, which of the following is most likely to occur?
- The Reserve Bank will reduce interest rates
  - Lenders will benefit but the value of household debt will rise in real terms
  - International competitiveness will rise as the price of exported goods increase
  - Workers will build inflationary expectations into their demand for pay rises
14. Which of the following is a correct statement based on the data in the table.
- |                           |       |
|---------------------------|-------|
| Total population          | 25m   |
| Population of working age | 20m   |
| People employed           | 13.5m |
| People unemployed         | 1.5m  |
- The participation rate is 75% and the unemployment rate is 11.1%
  - The participation rate is 80% and the unemployment rate is 11.1%
  - The participation rate is 75% and the unemployment rate is 10%
  - The participation rate is 80% and the unemployment rate is 10%
15. If youth unemployment (people between 15 and 19) in an economy is 30% this means that:
- 30% of the population between 15 and 19 are unemployed
  - 30% of the population between 15 and 19 who are in the labour force are officially unemployed
  - 70% of the population between 15 and 19 are in paid employment for more than 1 hour each week
  - The participation rate of the population between 15 and 19 is 70%

16. Which of the following statements about the participation rate is correct for the Australian economy?
- The participation rate increases when the level of hidden unemployment falls
  - The participation rate decreases when the level of disguised unemployment falls
  - The participation rate is unaffected by changes in the business cycle
  - The participation rate will decrease if the cost of attending university rises
17. Which of the following is least likely to cause an increase in structural unemployment?
- An increase in trade openness or intensity
  - A significant fall in the exchange rate value of the Australian Dollar
  - The introduction of new technology in some industries
  - A fall in the level of aggregate demand
18. In which section of the balance of payments accounts is foreign investment recorded?
- The primary incomes account
  - The current account
  - The financial account
  - The trade account
19. The table shows balance of payments current account data for an economy.

	<b>\$b</b>
Exports of goods	110
Imports of goods	100
Exports of services	20
Imports of services	25
Net primary income	-30
Net secondary income	-5

The current account balance was:

- A surplus of \$30b
  - A deficit of \$30b
  - A deficit of \$5b
  - A surplus of \$10b
20. A free trade deal between Australia and the European Union will:
- Increase producer surplus for Australian exporters and increase consumer surplus for Australian consumers
  - Decrease producer surplus for Australian exporters but increase consumer surplus for Australian consumers
  - Increase producer surplus for Australian exporters but decrease consumer surplus for Chinese consumers
  - Increase producer surplus for Australian exporters but decrease consumer surplus for Australian consumers

21. Which of the following correctly states the top two categories of Australia's exports?

**Biggest export categories (as a share of total exports)**

- |   |  |
|---|--|
| A | Resources and services                   |
| B | Manufactured goods and rural products    |
| C | Services and capital equipment           |
| D | Intermediate goods and capital equipment |

22. If, over a period of time, the Gini coefficient for an economy decreases:
- (a) There will have been a cut in tax rates and welfare payments
  - (b) There will have been a fall in the price level in the economy
  - (c) The distribution of income in that economy will have become more equal
  - (d) There will have been a fall in the level of percentage of the labour force working in the manufacturing sector
23. Which of the following best describes a progressive tax?
- (a) The amount of tax paid increases as incomes increase
  - (b) The marginal and average rate of tax rise as income rises
  - (c) A tax on consumption
  - (d) A tax which encourages innovation and enterprise
24. Which of the following policy measures is most likely to help an economy recover from a trough or slump?
- (a) Increased government spending and a fall in interest rates
  - (b) Increased taxation and a fall in interest rates
  - (c) Decreased government spending and a fall in interest rates
  - (d) Increased government spending and a rise in interest rates

## SECTION TWO: DATA INTERPRETATION/SHORT RESPONSE

Attempt all three questions. Total for each complete question is 12 marks.

25. (12 marks)

The diagram shows the level of aggregate demand and aggregate supply in an economy over a given period of time at different levels of income. Real GDP data is in billions of dollars. Full employment income is \$800b.

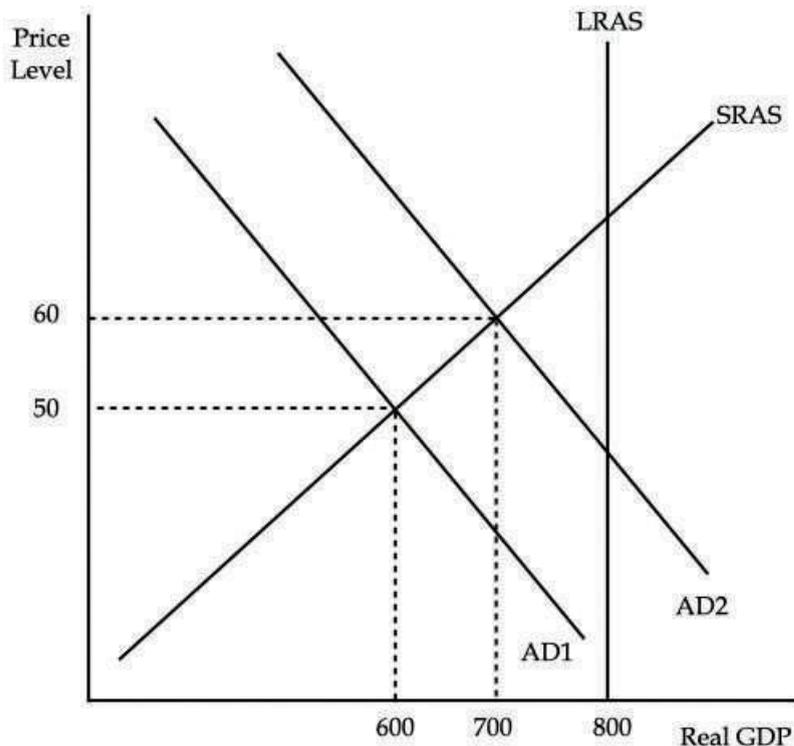


Fig 15.4

- List the components of aggregate demand and state an example for each component. [4 marks]
- Identify three types of unemployment that might exist when aggregate demand is at AD1. Briefly describe the cause of each type of unemployment you identify. [4 marks]
- At AD1 the size of the output or GDP gap in the economy is \$200b. Explain what will happen to growth, unemployment and inflation if there is a rise in aggregate demand to AD2. [4 marks]

26. (12 marks)

It's technically called a recession when gross domestic product decreases for two quarters in a row. People consume less and invest less and generally engage with all sorts of economic activity at a smaller scale. A recession is pretty bad news for everyone — for the Government, for businesses and for households because, essentially, we're all part of the economy. So if people stop spending on goods and services, businesses get less income and they might have to lay off staff or even close.

When the pandemic came to Australia, the Australian economy was already slowing because of soft consumer spending and weak construction activity. There was also the ongoing impact of drought and bushfires to contend with.

There are two big players that can have an impact on the economy. One of them is the Reserve Bank, who can cut the cash rate and increase financial liquidity and the other is the Government (both at the Federal and State level) who can increase their spending.

(Adapted from ABC news bulletin)

- (a) State the technical definition of a recession. [1 mark]
- (b) Explain why, in a period of low economic growth, unemployment is likely to increase. [3 marks]
- (c) Describe three significant social or personal costs created by an increase in unemployment. [4 marks]
- (d) Describe what the Government and the Reserve Bank do to 'smooth the business cycle'. [4 marks]

27. (12 marks)

The data in the table shows the share of income for each quintile (20%) of the population in a country.

Decile	Market income (Before government redistribution)	Final income (After government redistribution)
Lowest 20% (1% to 20%)	2	5
Next 20% (21% to 40%)	3	8
Next 20% (41% to 60%)	7	10
Next 20% (61% to 80%)	23	28
Highest 20% (81% to 100%)	65	55

- (a) Plot two Lorenz Curves to illustrate this data. You need to label the axes correctly and identify the two different curves. [3 marks]
- (b) With the help of a flow chart, describe three ways the government can make income distribution more even. [3 marks]
- (c) Explain two reasons why a government may wish to redistribute market income. [4 marks]
- (d) Explain one problem that may develop if a government makes final incomes too equal. [2 marks]

## SECTION THREE – EXTENDED WRITING

Answer two questions. Each question has a maximum of 20 marks.

28. (20 marks)
- (a) Outline the structure of the balance of payments accounts. [8 marks]
  - (b) Explain how strong economic growth in China affects Australia's current account outcome. (12 marks)
29. (20 marks)
- (a) Explain why growth in a country's GDP may not be an accurate indicator of growth in living standards in that country. [8 marks]
  - (b) Describe three ways slower economic growth in China will affect the performance of the Australian economy. [12 marks]
30. (20 marks)
- (a) Describe the difference between demand-pull inflation and cost-push inflation. [8 marks]
  - (b) Describe the benefits of low inflation. [12 marks]
31. (20 marks)
- (a) Describe the macroeconomic objectives of the Government and Reserve Bank. [8 marks]
  - (b) Explain why the government and Reserve Bank try to stabilise the business cycle. [12 marks]



## UNIT 1

### CHAPTER 1 – INTRODUCTION TO MICROECONOMICS

#### Activity 1.1

1. (a) Land, labour, capital and enterprise. (b) limited or finite resources and infinite needs and wants. (c) A comparison of benefits and costs. (d) Market forces of demand and supply. (e) Production = level of output, productivity = efficiency with which output is produced.
2. (a) Macro. (b) Micro. (c) Micro. (d) Macro. (e) Macro.
3. Changes in one market can affect other markets. There are externalities or side effects attached to some purchases. The supply of non-renewable resources may be unsustainable.

#### Activity 1.2

1. (a) What to produce, how to produce and for whom to produce. (b) Your choice. (c) Use of a beach, solar energy. Demand at zero cost is less than total supply. (d) An accountant can add up the direct costs. An economist has to consider the value of what is foregone.

#### Activity 1.3

1. (a) Identify benefits and costs. Look at alternatives. Consider externalities. (b) You may have used some mental short cuts to come to your decision to see time or simplify the choice. (c) It may have been rational within bounds or it could have been a spontaneous choice.
2. (a) A good enough choice, too complicated and time consuming to check all benefits and costs of all the alternatives. (b) Fail to understand relevant information, or favour certain sources (or influencers). (c) Reduce the choice to a manageable size e.g. have favourite brands. (d) Think of the consequences of your decision making on others. (e) Base your view about value for money based on information previously provided by the seller. (f) Make spontaneous purchases.
3. The majority of people might behave rationally within bounds, and those that don't may cancel each other out.

#### Activity 1.4

1. (a) Draw diagram – output of pizza on one axis, output of calzone on the other. (b) Constant opportunity cost – 1 pizza = 2 calzone. (c) Law of diminishing returns does not operate. Similar resources needed for both products.
2. (a) Loss of 1 pizza; (b) loss of 4 pizza; (c) law of diminishing returns operates, some pizza resources can't be used to make robots
3. (a) Draw diagram; (b) no diminishing returns – enough trees and shoreline for everybody; (c) PPF gradient changes, more coconuts can be harvested with any given level of turtle eggs.

#### Activity 1.5

1. Your choice of product.
2. (a) People can own resources and products. They can earn incomes and make profit. (b) Decisions are based on private benefits and costs. (c) People make poor decisions if there are no consequences. (d) Sales are lost if competitors can provide a better offer, deal or product for customers. (e) People are free economics agents. The government does not control what goes on in the economy.
3. No. Money is not an economic resource.
4. Look for something showing natural resources, workers, machinery and management.
5. Some religious groups, people choosing to live off-grid.

## Chapter 1 – Reality Check:

1. C; 2 B; 3. B; 4. C; 5. A; 6. A; 7. B; 8. D; 9. D; 10. A.

SO YOU THINK YOU UNDERSTAND THIS INTRODUCTION TO ECONOMICS	
<b>Two sides to the concept of relative scarcity</b> 1 Finite or limited resources 2 Infinite or unlimited wants	<b>Basis of opportunity cost</b> Benefit foregone What you go without as a result
<b>Focus of microeconomics</b> Individual markets Focus go macroeconomics The economy as a whole or aggregates	<b>Three features of economic models</b> Simplified versions of reality Based on assumption Assumption that other factors don't change
<b>Three key questions answered by an economic system</b> 1 What to produce 2 How to produce 3 For whom to produce	<b>Two uses of Production Possibility Frontier models</b> 1 Show capacity of an economy 2 Show output gap or unemployment gap 3 Production combinations that are possible
<b>Two values compared when deciding what to buy</b> 1 Extra benefits (marginal benefit) 2 Extra costs (marginal cost)	<b>Five features of Australia's economic system</b> 1 Self-interest 2 Property rights 3 Economic freedom 4 Competition 5 Limited role for government
<b>Two reasons why consumer choices may be subjective rather than rationally objective</b> 1 Limited information or knowledge 2 Bias 3 Shortage of time to make full analysis	

## CHAPTER 2 – DEMAND

### Activity 2.1

- Inverse relationship between price and quantity demanded. Higher price leads to lower demand.*
- Urgency of purchase, how necessary the purchase is and how many substitutes there are. Slope suggests level of price elasticity of demand.*
- (a) Draw the graph. Label axes correctly. Label the line. (b)  $\$1.25 \times 6 = \$7.50$ . (c) Revenue rises to  $\$8$  ( $\$1 \times 8$ )*
- Market demand = horizontal sum of individual's demand.  $P_4 = Q_d1$ ,  $P_3 = Q_d6$ ,  $P_2 = Q_d11$ ,  $P_1 = Q_d16$ ,  $P_0 = Q_d21$ .*

### Activity 2.2

- Your choice of product. See text for likely non-price factors.*
- (a) Normal good, (b) inferior good, (c) substitute goods, (d) complementary goods, (e) independent goods.*
- (a) When there is a change in a non-price factor, (b) when the price of the product changes.*
- (a) Contraction in quantity demanded, (b) Expansion in quantity demanded, (c) Increase in demand, (d) Decrease in demand.*
- (a) Shift left (complementary goods), (b) Shift left (substitute goods), (c) movement along (higher price), (d) shift right (increase in demand), (e) shift right (increase in demand), (f) shift left (decrease in demand), (g) shift left (substitute products), (h) shift right (increase in demand), (i) shift right (change in tastes), (j) shift left (substitute products)*

### Activity 2.3

- Price rise leads to fall in demand. Upward sloping to the right.*
- Other things being equal (ceteris paribus in Latin). In each case a non-price factor changes as well as the price.*
- 

	Description	Examples	Explanation
Veblen good	Ostentation, snob value, conspicuous consumption	Top brands	Boost to esteem and status
Giffen good	Staple, highly inferior products	Rice Maize	Large negative income effect when prices rise
Experience good	Difficult to judge quality without buying	Electrical goods Health foods	Information gap, price seen as mark of quality
Bandwagon good	Following the flow or momentum of market	Shares Houses	Prices expected to rise further

4. Many situations of associating quality with price and momentum trading. More conspicuous consumption takes place in some suburbs than in others. Giffen behaviour occurs in less economically developed countries. The Law of Demand remains intact.

5.

	Description	Examples	Significance
Joint demand	Complementary products	Salad and mayo Torches and batteries	Cross price elasticity of demand high
Derived demand	Demand for an input depends on demand for final product	Workers and product they produce	Affects workers ability to negotiate pay increases and keep job
Composite demand	Product that is used to make other products	Oil Wood	Difficult to identify causes of change in demand

6. (a) Definitions in text, (b) Demand for land derived from the demand for sugar. Sugar is jointly demanded with many products e.g. tea and coffee. Demand for sugar is composite – sugar used in manufacture of many products from cola drinks to ethanol.

## Chapter 2 – Reality Check:

1. D; 2. B; 3. A; 4. A; 5. D; 6.

SO YOU THINK YOU UNDERSTAND DEMAND	
<b>State the law of demand. Sketch diagram.</b> Inverse relationship between price and quantity demanded. Demand curves slope down to the right.	<b>Meaning of joint demand</b> Demand for two or more products is interdependent or complementary
<b>Two reasons for inverse relationship between price and quantity demanded</b> 1 Substitution effect 2 Income effect	<b>Meaning of derived demand</b> Demand for intermediate good depends on demand for final good
<b>Two factors affecting strength of law of demand</b> 1 Availability of substitutes, necessity 2 Proportion of income spent on good	<b>Meaning of composite demand</b> Total demand for multiple uses
<b>Terms for movement along demand curve</b> 1 When price increases = contraction 2 When price decreases = extension	<b>Terms for shifts in demand curve</b> 1 Shift to the right = increase 2 Shift to the left = decrease
<b>Five non-price factors that affect demand</b> 1 Change in incomes 2 Change in tastes and fashion 3 Change in prices of related goods 4 Expectations of future price changes 5 Population or demographic change	<b>Four apparent exceptions to the law of demand</b> 1 Veblen or high-status products 2 Giffen goods – inferior staple goods 3 Experience goods – judgement by price 4 Bandwagon effects – herd-like behaviour

## CHAPTER 3 – SUPPLY

### Activity 3.1

1. (a) Draw the supply curve. Label the axes correctly. Label the line.  
 (b) Higher prices mean more profits for producers if unit costs do not rise. If unit costs do rise as output is increased, higher prices will allow producers to maintain profit margins.

2.

When do supply curves SHIFT?	When a non-price factor affecting supply changes (e.g. technology, costs of production, availability of resources)
When is there a MOVEMENT ALONG a supply curve without a shift?	When the price of the product changes

3.

Description	Correct Term
Impact on supply of a rise in price of the product	Expansion in quantity supplied
Impact on supply of a fall in the price of the product	Contraction in quantity supplied
More supply due to a change in a non-price	Increase in supply
Lower supply due to a change in a non-price factor	Decrease in supply

4.

Product	Event	What happens to supply curve?	Description of supply change
Gold	Rise in gold price	Nothing. Movement along	Inelastic
Wheat	A good harvest	Shift to right	Increase in supply
Private schooling	Rise in teachers' pay	Shift up and left	Decrease in supply
Cars	Better robotics	Shift down and right	Increase in supply
Sugar	Fall in sugar price	Nothing. Movement along	Inelastic in short run
Houses	House price rises	Nothing. Movement along	Inelastic in short run
Plastic	Rise in the price of oil	Shift up and left	Decrease in supply
Workers	Rise in population	Shift down and right	Increase in supply

5. *Your choice. For example, fashionable clothes – simple production techniques, lots of suppliers, spare production capacity, raw materials readily available.*

### Chapter 3 – Reality Check:

1. D; 2. D; 3. C; 4. C; 5. A

SO YOU THINK YOU UNDERSTAND SUPPLY	
<b>State the law of supply. Sketch diagram.</b> Direct relationship between price and quantity supplied. Supply curves slope upwards to the right	<b>Four non-price factors that affect supply</b> 1 New technology 2 Change in input costs 3 Government regulations 4 Productivity and management practice
<b>Reason for positive relationship between price and quantity supplied</b> Producers can make higher profits	<b>Terms for shifts in supply curve</b> 1 Shift down and to the right = increase 2 Shift up and to the left = decrease
<b>Two factors affecting strength of law of supply</b> 1 Time 2 Complexity of production process	<b>Two exceptions to the law of supply</b> 1 Fixed supply 2 Infinite supply
<b>Terms for movement along supply curve</b> 1 When price increases = expansion 2 When price decreases = contraction	

## CHAPTER 4 – MARKET EQUILIBRIUM

### Activity 4.1

- Draw demand and supply curves. Label axes correctly. Label lines.
- Equilibrium is \$0.75, quantity is 10 litres per month.
- Excess at \$1.25 is 14 litres per month. Prices discounted.
- Shortage at \$0.50 is 7 litres per month. Prices increased.
- New demand and supply schedules.

Price of milk (\$)	Demand (litres per month)	Supply (litres per month)
1.50	11	25
1.25	13	20
1.00	15	15
0.75	17	10
0.50	21	5
0.25	24	0

(f)

Price of milk (\$)	Demand (litres per month)	Supply (litres per month)
1.50	11	18
1.25	13	13
1.00	15	8
0.75	17	3
0.50	21	0
0.25	24	0

2. (a) Where demand crosses supply; (b) Only 1; (c) Demand = supply; (d) No; (e) Surplus, excess supply; (f) Shortage, excess demand; (g) Demand does not equal supply. Price moves towards equilibrium.

### Activity 4.2

1. (a) Draw the demand and supply; (b) Price = \$75, quantity = 13 units per week; (c) Add the new level of demand and supply schedule to the table below.

Price (\$)	New demand per week	Quantity supplied per week	Quantity demanded rises by 6
40	26	6	32
50	24	8	30
60	22	10	28
70	20	12	26
80	18	14	24
90	16	16	22

(d) Draw a new demand and supply diagram; (e) New equilibrium price \$90, quantity = 16 units per week

(f)

Step 1: Market is in equilibrium at price \$75 and 13 units

Step 2: Demand shifts 6 units to the right at each price level

Step 3: At \$75 there is now a shortage of 6 units

Step 4: Producers take opportunity to raise the price

Step 5: This results in expansion in supply and contraction in demand

Step 6: Market settles at new equilibrium of \$90 and 16 units per week

### Activity 4.3

1. See text for example. Hint – when incomes of sellers change so does their demand for all sorts of products.
2. (a) See text; (b) Concern about health, rising income, fashion, celebrity endorsement, availability of new products, scientific research; (c) Big rise in demand, inelastic supply in short term led to high prices. Prices fall back when demand fell and supply increased.

## Chapter 4 – Reality Check:

1. A; 2. A; 3. C

SO YOU THINK YOU UNDERSTAND MARKET EQUILIBRIUM	
<b>Equilibrium condition</b> Demand = supply Intersection of demand and supply curve	<b>Six steps in moving from old equilibrium to new equilibrium</b> 1 Market in equilibrium 2 Demand or supply shock occurs 3 Surplus or deficit at old price 4 Producers change price 5 Movement along demand and supply 6 New equilibrium reached
<b>Condition for excess demand</b> Excess demand when $P < \text{Equilibrium } P$	<b>Condition for excess supply</b> Excess supply when $P > \text{Equilibrium } P$ Excess demand when $P < \text{Equilibrium } P$ Market clearance when $P = \text{Equilibrium } P$
<b>What is the market clearance price?</b> Price at which demand = supply	<b>Three ways markets are connected</b> Complementary products Substitute products Change in incomes Derived demand

## CHAPTER 5 – ELASTICITY

### Activity 5.1

- The response in quantity demanded to a change in price, income or prices of related goods*
- Price elasticity – reaction to a change in price; Income elasticity – reaction to a change in income; Cross price elasticity – reaction to a change in the price of a related product*
- Monopolies have few competitors, hence there are few substitutes for consumers. Demand for a monopolist's product is price inelastic.*
  - Different consumers have different levels of willingness to pay or price elasticity. Firms produce different versions of their product to encourage consumers to reveal their price elasticity.*
  - The impact of putting a tax on a demerit product will depend on consumers' reaction to the rise in price caused by the tax. If price elasticity is low the reaction will be low.*
  - The supply of the stadium can't be significantly increased for a Test Match despite what people are willing to pay.*
  - There are many car producers making close substitute models of car. Cross price elasticity between models is high.*
  - Demand is price inelastic for people wanting to travel overseas. The cost of a passport (and travel insurance for that matter) is unlikely to have much reaction on travellers already committed to paying several thousand dollars for their holiday.*

### Activity 5.2

- Reaction of demand to a change in the price of a product.*
- Necessity, number of substitutes, time to make choice.*
- (a) inelastic; (b) elastic; (c) elastic; (d) inelastic.*
- (a) 2 to 5 say; (b) 0; (c) 0.25 say; (d) Above 1; (e) Between 0 and 1.*
- Bread is a necessity. For every 10% rise in the price of bread, demand for bread will fall by 6%. Cakes are more of a luxury product. For every 10% rise in the price of cakes, demand for cakes will fall by 16%.*

### Activity 5.3

- Revenue is price  $\times$  quantity. At price \$5 revenue = \$20; \$4 = \$24; \$3 = \$18; \$2 = \$20; \$1 = \$10; (b) Shade in appropriate rectangles; (c) Consumer outlay falls when price is cut from \$4 to \$2. Demand, therefore, was relatively inelastic.*

### Activity 5.4

- Revenue at \$600 = \$6m; Revenue at \$400 = \$10.8m; (b)  $\% \Delta Q = 170\%$ ,  $\% \Delta P = 33\%$ ,  $PED = 170/33 = 5.15$  (Answer must be greater than 1 because revenue increased when price was reduced).*

- $\% \Delta Q = 10\%$ ,  $\% \Delta P = 20\%$ ,  $PED = 10/20 = 0.5$ . Demand is price inelastic.
- (a) \$75 or \$50 (better to have a fuller hall?); (b) Price elastic; (c) Price elasticity = 1; (d) It can raise the price and increase revenue if demand is elastic.
- Candle Firm: (a)  $\% \Delta Q = 5\%$ ,  $\% \Delta P = 10\%$ ; (b) 0.5; (c) Falls from \$2400 to \$2268; (d) Not sensible.  
Pizza firm: (a)  $\% \Delta Q = 20\%$ ,  $\% \Delta P = 10\%$ , (b) 2; (c) Rises from 9000 to 9720; (d) Sensible

### Activity 5.5

- See text
- Normal products have positive YED; inferior products have negative YED. Whether products are normal or inferior.
- 5 star, YED = 4; 3 star, YED = 0.8; Camping, YED = -2. Next year 5 star demand falls by 8%, 3 star demand falls by 1.6%, camping demand rises by 4%.
- Bread, -0.8, necessity but inferior; Vegetables, -0.5, necessity but inferior to meat; milk, 0.6, necessary, few substitutes; tobacco, 0.9, necessity if addicted; computer games, 2.5, luxury; wine, 3, luxury.
- 

Demand falls in recession	Demand falls a little in recession	Demand rises in recession
Mobile dog wash	Meat	Pasta
Restaurant meals	Smart phone use	Generic (no brand) products
Overseas travel	Petrol	Public transport

- Left hand diagram = shift D to right; right hand diagram shift D to left.
- (a) Incomes are rising; (b) Shift demand curve to the right – luxury good, high positive income elasticity; (c) YED = 4.44 (80%/18%)
- (a) See text; (b) The more urgent the flight the more price inelastic demand will be; (c) Put up prices where demand is inelastic.

### Activity 5.6

1.

Term	Value of cross price elasticity of demand	Real world example
Complementary products	Negative	Petrol and cars
Substitute products	Positive	Cherry Ripe and Kit Kat
Independent products	Zero	Carrots and reading glasses

- Travel insurance and air travel – complementary, demand shifts to right; Printer and cartridges – complementary, demand shifts to the left; Pay TV and internet – substitutes, demand shifts left; VW Golf and Toyota Corolla – substitutes, demand shifts to left.
- (a) PED for computers = 2 (20%/10%); (b) XED for games with respect to changes in computer prices = 2.5 (25%/10%); (c) 20% rise in incomes leads to 28% rise in demand for games ( $X\% / 20\% = 1.4$ )
- (a) XED = 0.33 (10%/30%); (b) substitutes
- (a) XED = -1.875 (37.5%/-20%); (b) complementary
- (a) Fall; (b) Rise; (c) Substitutes; (d) Positive, high
- 

Related products	Description of relationship	Strength of relationship	Value of XED
Apples / Oranges	Substitutes	Strong	Positive, high
Petrol / Cars	Complements	Strong	Negative, high
Food / Clothes	Independent	None	Zero
Coke / Pepsi	Substitutes	Moderate	Positive, moderate
Passports / Overseas travel	Complements	Strong	Negative, high
Vegetables / DVDs	Independent	None	Zero
Cars / Car insurance	Complements	Strong	Negative, high

- (a) 1.32 (33%/25%); (b) Falls by 1000 from 6000 to 5000; (c) Substitutes; (d) 0.5 (10%/20%); (e) Falls by 100 (Green apples down 1000, Red apples up 900); (f) 0.75 (7.5%/10%); (g) Poor – caused drop in revenue, but could have been a loss leader.

## Activity 5.7

1. Supply is price inelastic.
2. See text.
3. (a) 0.5 (5%/10%); (b) 0.67 (20%/30%).
4. Elastic supply – T-shirts, computer software, personal trainers; Inelastic supply – Iron ore, seats in theatre, apartments, antiques, gold.
5. Rise in demand coupled with inelasticity of supply means there is a large increase in price. This high price attracts new growers into the market, but it takes time before supply reaches the market. When it eventually does, the price will fall back. Growers might regret have committed so many resources to growing the crop.

## Chapter 5 – Reality Check:

1. C; 2. B; 3. A; 4. B; 5. A; 6. D; 7. C; 8. D; 9. D; 10. A

SO YOU NOW THINK YOU UNDERSTAND ELASTICITY	
<b>Define price elasticity of demand/Quote formula</b> Response of demand to a change in price % change in demand / % change in price	<b>Define cross price elasticity of demand/Quote formula</b> Response of demand of one product to a change in price of another % change in demand of product A/% change in price of product B
<b>Five determinants of PED</b> 1 Necessity or urgency of purchase 2 Number of substitutes 3 Definition or scope of market 4 Time to respond to change 5 Proportion of income spent on product	<b>Two determinants of XED</b> 1 Number of substitutes 2 Habit (e.g. preference for a brand)
<b>Values and terms</b> PED = infinity = perfectly elastic PED = >1 = relatively elastic PED = 1 = unitary elasticity PED = 0 to 1 = relatively inelastic PED = 0 = perfectly inelastic	<b>Values and terms</b> XED = positive = products are substitutes XED = 0 = products are independent YED = negative = products are complements
<b>PED and revenue</b> If revenue fall after price cut = INELASTIC If revenue rises after price cut = ELASTIC	<b>Significance</b> For determining marketing mix (e.g. pricing, product design, product placement)
<b>Define income elasticity of demand/Quote formula</b> Response of demand to a change in income % change in demand/% change in income	<b>Define price elasticity of supply/Quote formula</b> Response of supply to a change in price % change in supply/% change in price
<b>Determinant of YED</b> Quality of product	<b>Five determinants of PES</b> 1 Time (short, long and very long run) 2 Complexity of production process 3 Mobility of resources 4 Level of stocks inventories 5 Interruption to supply chain
<b>Values and terms</b> YED = positive = NORMAL PRODUCT YED = negative = INFERIOR PRODUCT	<b>Values and terms</b> PES = 0 = perfectly inelastic supply (fixed) PES = 0 to 1 = relatively inelastic supply PES > 1 = relatively elastic supply
<b>Significance of YED</b> Firms sales vary during economic cycles Structural change in pattern of output Household budgets change with income Government concern about tax and revenue.	<b>Significance</b> Supply inelasticity can cause significant changes in prices when output can't respond to a change in demand. Producers incomes are affected if supply can't respond to changes demand.

## CHAPTER 6 – MARKET EFFICIENCY

### Activity 6.1

1. Productive efficiency plus allocative efficiency equals economic efficiency.
2. Making things in a wasteful way – having surplus workers who are idle some of the time.
3. Making things people don't want – plastic toys given away with fast food perhaps.
4. Draw PPF model – think about suitable products for the axes. Show the actual point of production inside PPF (productive inefficiency) and with an allocation of resources to products society does not want.

## Activity 6.2

- Benefit greater than price they had to pay. Anything consumer thinks is a bargain.
- Price received greater than price they were willing to supply at. Monopoly profits of social media firms, perhaps.
- Community surplus or total welfare.
- See diagram in text.
- (a) 5 cows (they are assumed to buy the 'break-even' unit); (b) See table below; (c) \$100.

Number of cows	Willingness to pay (\$)	Consumer surplus
1st	100	40
2nd	90	30
3rd	80	20
4th	70	10
5th	60	0
6th	50	
7th	40	
8th	30	
9th	20	
10th	10	

- (a) 5 litres; (b) \$125  $((5 \times 50)/2)$ ; (c) See text for example.
- (a) Draw diagram – see Chapter 2; (b) Supply curve; (c) Demand curve; (d)  $P = 30, Q = 90$ ; (e)  $P = 45, \text{demand} = 30, P = 30 \text{ demand} = 90, P = 15 \text{ demand} = 150$ . The same number value the widget; (f) \$40; (g) \$10; (h) \$900  $((20/90)/2)$ ; (i) \$2,700  $(\$30 \times 90)$ ; (j) \$1,350  $((30 \times 90)/2)$ ; (k) \$2250  $(\$900 + \$1350)$ ; (l) Fall; (m) Fall.

## Activity 6.3

- It occurs when equilibrium is not at the point where community surplus or total welfare is maximised.
- (a) At the maximum price there is a shortage. Suppliers reduce supply because the reduced price doesn't cover their costs of some eggs. Draw a vertical line to show the quantity they supply at the fixed price. Deadweight loss is the area of the triangle that points to the free market equilibrium.  
(b) The government may not be interested in maximum welfare. It may allocate the eggs rather than let the market decide.

## Chapter 6 – Reality Check:

1. C; 2. D; 3. A; 4. C; 5. A; 6. C; 7. A; 8. B; 9. A; 10. D

SO YOU THINK YOU NOW UNDERSTAND MARKET EFFICIENCY	
<b>Importance of economic efficiency</b> Limited resource and unlimited wants There is an opportunity cost if resources are wasted	<b>How a market creates welfare</b> Consumers receive consumer surplus Producers receive producer surplus Both opt out when their surplus is maximised Consumer surplus + producer surplus = total welfare or community surplus
<b>Four different types of efficiency</b> Productive efficiency = lowest cost of production Allocative efficiency = produce goods people want Economic efficiency = productive + allocative efficiency Market efficiency = belief that markets generate economic efficiency	<b>What is consumer surplus?</b> Difference between value of the product to consumer and the price they have to pay.  <b>What is producer surplus?</b> Difference between the price at which they are willing to supply compared to price they actually receive.
<b>Five conditions for market efficiency</b> 1 Lack of market failure (see Chapter 5) 2 Limited government intervention 3 Competition 4 Information 5 Freedom of movement	<b>What is deadweight loss?</b> Difference between actual community surplus and maximum possible community surplus.  <b>When does it occur?</b> When markets are not operating at the most efficient point, i.e. situations of market failure (see Chapter 5)

## CHAPTER 7 – MARKET FAILURE

### Activity 7.1

1. Plastic bottles are a convenient and safe way of supplying water and other drinks. Single-use bottles generate negative externalities or side-effects (e.g. because they end up in land fill or oceans). Recycling is possible but consumers and producers need incentives for this to take place. Greater awareness and information is helping to correct the market.
2. You may have bought something in haste or without considering alternatives. You may have been forced to buy from a supplier with monopoly power. You may have, perish the thought, bought a demerit good.

### Activity 7.2

1. Rational behaviour is logical, calculating and thoughtful. People may not have the time, inclination or need to act rationally. They may not have the information available for rational decision making. Sellers may 'frame' the information provided to the consumer to encourage them to make a purchase. People use mental short-cuts such as sticking to known and trusted products, following other peoples' choices, or basing decisions on first impressions or recent information.
2. People who say 'keep the change', people who think the seller needs the money (e.g. person selling souvenirs in tourist spots, people who judge quality by price, people who want to compensate for negative externalities (e.g. by buying a carbon offset for a flight).

### Activity 7.3

1. Ability to control price or quantity of the product in a market. Monopoly power measured by e.g. market shares, concentration ratios and profit margins and total profits gained.
2. Barriers to entry stop new firms entering a market. See section 5.3.3.
3. See fig 5.1.
4. Your research. They are all able to control the market increase producer surplus.

### Activity 7.4

- 1 (a) Fee structure, extra lifetime earnings as a result of getting a degree; (b) Higher fees reflect the fact that a university degree provides both private and public benefit and, perhaps, students should pay something towards the private benefit they receive. This may be a case where efficiency and equity clash.
2. (a) Information gap, de-merit good, negative externalities; (b) Draw diagram to show shift in demand curve to the left (education campaigns, medical research) and shift of the supply curve in an upwards direction (higher costs e.g. tax imposed on consumers).
3. People can't make informed decisions about share ownership if relevant information about the company is not continuously disclosed.
4. Used car markets fail because information is asymmetric. Car yards know about the quality of their used cars but buyers don't. Buyers can get cars checked and have other forms of consumer protection.

### Activity 7.5

1. (a) Smoking = negative consumption externality; Passive smoking, health care costs; Advertising bans, regulated purchase, education; Some effect.  
(b) Electricity from fossil fuel = negative production externality; Climate change; Subsidise renewable energy, carbon tax or emissions trading scheme; Limited due to 'tragedy of commons' situation (see later in Chapter).  
(c) Outdoors music = negative production externality; Noise pollution, congestion; Regulate; Effective.  
(d) Flu vaccination = positive consumption externality; Disease does not spread; Government provides for free or at subsidised cost; Effective.  
(e) Tertiary education = positive consumption externality; Educated workforce; Government subsidies, student loan scheme; Efficient but is it fair?  
(f) Training staff = positive production externality; Educated workers potentially useful to other firms; Government subsidy, regulation; Effective.

- (g) *Scientific research; positive production externality; Medical advance, patient welfare improved; Subsidy or tax concessions for private firms, direct Government research (CSIRO); Effective.*
2. (a) *There are negative externalities. Burgers are a de-merit good.*  
 (b) *See diagram showing negative production externalities in text.*  
 (c) *It is difficult to put an accurate dollar value on most externalities.*  
 (d) *Educate people to eat less beef, grass feed cows at first, then fatten them up in feedlots later, fund research in universities, regulate against deforestation (and enforce).*

### Activity 7.6

1. *Bottom right corner. Public goods feature non-excludable and non-rival products. Examples include lighthouses, beaches.*
2. (a) *Property rights; (b) Free-riders; (c) Rival; (d) Non-rival; (e) Excludable; (f) Non-excludable.*
3. (a) *Whether one person's consumption of a product prevents another person benefitting from the product (or reduces the quality of consumption of the second person); (b) Rival = Cherry Ripe; Non-rival = concert (assuming arena is not full).*
4. (a) *Whether or not non-payers or free-riders can be prevented; (b) Excludable = Pay TV; Non-excludable = free to air TV.*
5. *Benefit without paying. Access can't be prevented.*
6. *Rival is about the ability to consume jointly, excludable is about control of access to consumption*
7. (a) *E, R, N; (b) E, XR, N; (c) XE, XR, Y; (d) XE, XR, Y.*
8. *Your choice – must be non-rival and non-excludable. There are many examples of semi- or quasi-public goods.*

### Activity 7.7

1. *In bottom left corner. Common access resources are non-excludable but become rival when there is over-exploitation. For examples see text.*
2. *Resource will be over-exploited. Individuals continue to use the resource because they do not trust others to share and use the resource sustainably.*
3. *Your choice – see text. This can be shown as a negative consumption externality or a negative production externality.*

### Activity 7.8

1. *Top right corner. Club good and natural monopoly. Non-rival but excludable. Pay TV, Smart phone apps.*
2. (a) *Conditions in market mean only one producer can operate profitably; (b) Economies of scale – usually caused by high start-up costs; (c) Pay TV, electricity supply; (d) Because they are naturally monopolies – they are non-rival; (e) Monopoly position can be exploited due to lack of substitutes; (f) Regulate, government provides directly.*
3. (a) *Electricity supply; (b) Achieve broader social and economic goals, make a profit.*
4. (a) *Poles and wires; (b) Control of strategic industry, wants to avoid excessive pricing but earning some profit adds to their revenue.*

## Chapter 7 – Reality Check:

1. B; 2. B; 3. B; 4. B; 5. C; 6. C; 7. A; 8. D; 9. D; 10

SO YOU THINK YOU UNDERSTAND MARKET FAILURE	
<b>Definition or meaning of market failure</b> Occurs when markets operate inefficiently and deadweight loss occurs	<b>Meaning of terms rival and non-rival</b> 1 Rival – consumed individually 2 Non-rival – consumed collectively
	<b>Meaning of term excludable and non-excludable</b> 1 People who don't own product can't consume or benefit from it 2 Non-excludable can be consumed by free-riders or non-payers
<b>What is monopoly market power?</b> Power of producer to control prices or quantity supplied. Two problems with monopoly power 1 Increases producer surplus 2 Reduces consumer surplus and overall community surplus.	<b>Four types of product based on rival and excludable features</b> 1 Private goods (Excludable / Rival) 2 Common resources (Non-E, Rival) 3 Public goods (Non-E, non-rival) 4 Club goods and natural monopolies (Excludable, non-rival)
<b>Two reasons why information gaps are a problem</b> 1 Distort position of demand curves 2 Distort position of supply curves <b>Four reasons why information gaps exist</b> 1 Asymmetric information 2 Lack of comprehension 3 Lack of time to consider information 4 Information distorted (or framed)	<b>Definition of public goods</b> Non-excludable and non-rival (e.g. lighthouses, nation defence) What is the problem? No demand or supply, no market to fix price.
<b>Two characteristics of merit goods</b> 1 Undervalued because of information or comprehension gaps 2 Under-consumed <b>Two characteristics of de-merit goods</b> 1 Overvalued because of information or comprehension gaps 2 Over-consumed	<b>Definition of common resources</b> Resource shared by people where ownership rights are not clear <b>What is the problem?</b> Being non-excludable they are over-used (e.g. depletion of fish stocks)
<b>Definition of an externality</b> Spin-off or side effect  <b>Four types of externality</b> 1 Positive consumption 2 Negative consumption 3 Positive production 4 Negative production  <b>Showing the deadweight loss</b> The deadweight loss is always the area of triangle pointing to the efficient or socially correct equilibrium.	<b>Definition of club goods and natural monopolies</b> Non-rival and excludable. People can join the club but have to pay. <b>What is the problem?</b> Markets develop into monopolies due to high fixed costs and economies of scale.
	<b>Six solutions for market failure</b> 1 Government provision of public goods 2 Subsidies for merit goods 3 Indirect taxes for demerit goods 4 Close information gaps 5 Competition policy to limit monopoly 6 Set up parallel markets (e.g. carbon)

## UNIT 2

### CHAPTER 8 – INTRODUCTION TO MACROECONOMICS

#### Activity 8.1

1.

	Macro or micro?		Macro or micro?
Overall price level in the economy	MACRO	Price of sunblock	MICRO
Wage of a shop worker	MICRO	Average wage in economy	MACRO
Economic growth rate	MACRO	Growth in milk output	MICRO
Closure of engineering firm	MICRO	Level of unemployment	MACRO
The rate of interest for a home loan	MICRO	The Reserve Bank's cash rate	MACRO
Level of concrete production	MACRO	A new hair style	MICRO

- C is growing strongly and B is in recession. Growth rate of A, D and E acceptable. Inflation is unusually high in B. Unemployment is high in B and E, OK in D and A and probably too low in C to maintain low inflation rate. B's government is providing a relatively big fiscal stimulus to their economy. Overall perhaps C is best placed but could be subject to overheating.*
- You could tell the Martian visitor about the macroeconomic objectives and the policies the Government and Reserve Bank were using to control the economy.*
- Macroeconomic understanding helps make you an informed citizen and allows you to understand contemporary political and economic events. It may help in your selection of a career.*

## Activity 8.2

- (a) Households; (b) Income; (c) Consumption goods and services.*
- (a) Firms or producers; (b) Use them to produce goods and services; (c) Income.*
- (a) Banks; (b) Government; (c) Overseas.*
- See diagram in text.5.*

Type of flow	Direction	Name
Real	From households to firms	Resources
Real	From firms to households	Goods and services
Money	From households to firms	Consumption spending
Money	From firms to households	Income

6.

Type of flow	Direction	Name
Leakage	From circular flow into banks	Saving
Leakage	From circular flow into government	Tax
Leakage	From circular flow overseas	Imports
Injection	From banks into circular flow	Investment
Injection	From government into circular flow	Government spending
Injection	From overseas into circular flow	Exports

## Activity 8.3

- Classify the following as leakages, injections or neither.*

	L or J or N		L or J or N
Exports of iron ore	J (export)	Imports of petrol	L (import)
Deposits in a bank account	L (saving)	Purchase of new machine	J (investment)
Purchase of a Cherry Ripe	N (consumption)	Payment of income tax	L (tax)
Construction of new rail line	J (Government)	Income of lawyers	N (income)

- What happens to the level of economic activity in the following situations?*

Planned leakages greater than planned injections	Fall in economic activity
Planned leakages less than planned injections	Rise in economic activity
Savings = \$50b; Investment = \$80b; Taxes = \$30b; Government spending = \$35b; Imports = \$25b; Exports = \$30b.	Rise in economic activity J = \$145b, L = \$105b
Savings = \$70b; Investment = \$50b; Taxes = \$40b; Government spending = \$30b; Imports = \$50b; Exports = \$40b.	Fall in economic activity J = \$120b, L = \$160b

- What is the likely relationship between leakages and injections in the following situations?*

The economy experiences economic growth	Injections greater than leakages
The unemployment rate increases	Leakages greater than injections
The rate of inflation falls	Leakages greater than injections

## Activity 8.4

- Output, income and expenditure*
- Consumption + planned investment + government spending + net exports*
- Rent, wages and salaries, interest, profit*
- (a) Australia (owned by Australians); (b) Zaire (activity took place in Zaire)*

5. GDP greater than GNP
6. Activity takes place in Australia although owners are overseas
7. (a) Gross – no allowance for depreciation; (b) Net (although neither measure will be a good indicator)
8. Problems of double counting e.g. double counting of chocolate, cherries and coconut in a Cherry Ripe
9. GDP = \$27.5b; NDP = \$25b

### Activity 8.5

1. (a) See table below; (b) 60 (level of consumption when there is no income); (c) 0.6 (consumption rises by 60 each time income rises by 100); (d) Borrowing or selling assets; (e) (i)  $C = 60 + (0.6) Y$ ; (ii)  $S = -60 + (0.4) Y$ ; (f) See text; (g) (i) 1; (ii) 1; (iii) Y; (h) \$233b.

Disposable income (\$b)	Consumption (\$b)	Saving (\$b)
0	60	-60
100	120	-20
200	180	20
300	240	60
400	300	100
500	360	140
600	420	180

2. Wealth (wealth and consumption positive relation); Interest rates (interest rates negatively related to consumption); Consumer confidence (confidence positively related with consumption).
3. See text. (a) Impact of rise in income shown by movement along existing consumption function; (b) Impact of change in non-income factor shown by a shift in the consumption function in an upwards or downwards direction.

### Activity 8.6

1. How would the following events affect the level of planned investment and be illustrated using the investment demand curve model?

Event	Impact on planned investment	How would this be shown on the investment demand model?
An economic recovery	Rise	Shift in ID to the right
A rise in interest rates	Fall	Movement along ID curve
A fall in forecast profit levels	Fall	Shift in ID to the left
A fall in the cost of borrowing money	Rise	Movement along the ID curve

2. Answers will vary according to project selected. Some suggestions are provided though.

What capital or producer goods are being created through this planned investment project?	Sports stadium. Social infrastructure, Elizabeth Quay
Which business or government organization is undertaking this planned investment?	WA Government, Sports Organisations, Private construction firms.
Is it likely that the project will be profitable? What demand will the new facility satisfy?	Probably. Depends on choice of project.
What risk or uncertainties could affect the returns received from the project?	Blow out in building costs, change in household income, success or failure by sports teams, drop in tourists.

### Activity 8.7

1. Planned investment; 2. Uncertainty about world supply and demand for energy, unproven technology may not work as hoped; 3. Barge is imported so not much in short run. Later some employment, a flow of exports, royalties for the government.

## Chapter 8 – Reality Check:

1. C; 2. C; 3. B; 4. D; 5. C; 6. A; 7. C; 8. B; 9. C; 10; B

SO YOU THINK YOU UNDERSTAND MACROECONOMIC ACTIVITY	
<b>What is macroeconomics?</b> Studies operation of economy in aggregate or operating as a while.	<b>Three forms of injection into the circular flow</b> 1 Planned investment 2 Government spending 3 Export sales
	<b>Equilibrium condition for circular flow model</b> Injections = leakages or withdrawals
<b>Key difference between macro and micro-economics?</b> Macro = aggregate economic activity Micro = operation of individual markets	<b>Four components of aggregate expenditure</b> 1 Consumption 2 Planned investment 3 Government spending 4 Net exports
<b>Three forms of economic activity</b> 1 Output = making things 2 Expenditure = buying things 3 Income = earning money from economy	<b>Equilibrium condition involving aggregate expenditure</b> Income = expenditure Aggregate supply = aggregate demand
<b>Two sectors in main circular flow</b> 1 Households = own labour resources 2 Producers (firms) = make products <b>Three other sectors in circular flow model</b> 1 Financial sector (e.g. banks) 2 Government sector 3 Overseas or international sector	<b>Main determinant of consumption</b> Income (permanent, disposable income) <b>Four non-income determinants of consumption</b> 1 Wealth / Debt 2 Household confidence or sentiment 3 Interest rates (cost and ease of borrowing) 4 Basic needs (survival consumption)
<b>Two types of flows shown in circular flow model</b> 1 Real flow (goods and services, resources) 2 Money flow (income and expenditure) <b>Four markets shown in the circular flow</b> 1 Product market 2 Factor or resource markets 3 Financial markets 4 Export and import markets	<b>Main determinant of planned investment</b> Real interest rates compared to expected rate of return <b>Two non-interest rate determinants of planned investment</b> 1 Business confidence / level of risk 2 Availability of finance
<b>Three forms of leakage from main circular flow</b> 1 Savings 2 Taxation 3 Import purchases	<b>Two types of government spending</b> 1 Structural (discretionary) 2 Cyclical (automatic)
	<b>Three factors affecting net exports</b> 1 Exchange rates 2 Level of protectionism 3 Quality of products / productivity

## CHAPTER 9 – ECONOMIC GROWTH

### Activity 9.1

1.

Year	Actual level of GDP (\$b)	Actual growth rate (%)	Capacity of economy	Growth in capacity (%)	GDP gap (\$b)
1	160.0	–	164.0	–	4
2	163.2	2%	168.1	2.5%	4.9
3	168.1	3%	173.1	3%	5
4	174.8	4%	179.2	3.5%	4.4
5	180.1	3%	184.6	3%	4.5
6	185.5	3%	188.3	2%	2.8
AVERAGE		3%			

2. See text for diagram. Economic growth is an increase in the capacity or level of possible production in an economy over a given period of time.

## Activity 9.2

1. The APF curves because of the law of diminishing marginal returns. For example, extra workers may have to compete for the use of machinery. The APF shifts in an upward direction when there is a rise in productivity or productive efficiency. Labour productivity may rise if the workers learn new skills, have a chance to work with more machinery and can use new technologies.
2. Total production is just total output. Productivity is a measure of efficiency, or output per unit of input. Labour productivity is GDP divided by hours of labour input. Multi-factor productivity is GDP divided by value of capital and hours of labour input.
3. Quantity of labour – net inwards migration, a rise in the labour force participation rate. Quality of labour – education and training, inflow of skilled migrants.
4. Land refers to all natural resources available for economic use. New geological techniques make the exploration for new mineral and energy sources easier.
5. Foreign Direct Investment (FDI) occurs when non-residents buy 10% or more of the equity in a business. FDI leads to, for example, increased sources of finance for investment, knowledge and technology transfers, opportunities for efficiencies from economies of scale and improved management practices.

## Activity 9.3

1. Growth provides the government with a 'tax dividend' through increased payments of income, company and consumption tax. This tax revenue can be used to improve social capital.
2. Extra output may deplete resources and cause negative externalities through pollution. However, as incomes rise people demand better environmental conditions and can afford to pay higher prices to achieve this.
3. Investing in, and exporting renewable sources of energy, application of technologies to production processes, recycling and reusing resources.

## Activity 9.4

1.

Year	Nominal GDP (\$b)	Price Level (index)	Real GDP (\$b)	Population (million)	Real GDP per head (\$)
1	160	100	160	50	32,000
2	168	103	163.1	52	32,621
3	179	107	172.3	55	31,329

2. Not included – cash economy, activity in informal markets, charity work; Over-valued – where there are negative externalities, where de-merit goods are produced; Under-valued – where there are positive externalities, where merit goods are produced, in caring professions such as nursing where output is difficult to value.
3. Alternative measures include some activity not accounted for in GDP data and makes allowances for income distribution, negative externalities and 'uneconomic goods', and changes to lifestyle.

## Activity 9.5

1. Reallocating resources to more productive areas (e.g. rural to industrial). Spare resources. Big productivity gains from building better infrastructure. Government control and support of research and development. Authoritarian approach of government to its people.
2. Free trade agreements – leads to more efficient allocation of resources; building infrastructure – saves time and reduces costs; funding education, training and research; changes to labour market – linking pay to productivity.
3. More people and more participation is mainly a quantitative source of growth. Higher productivity is a qualitative source of growth. New technology, investment, education and training are all linked to higher growth.

## Chapter 9 – Reality check:

1. C; 2. C; 3. B; 4. A; 5. D; 6. B; 7. A; 8. B; 9. C; 10. C

SO YOU THINK YOU NOW UNDERSTAND ECONOMIC GROWTH	
<p><b>Key words or phrases in a definition of economic growth</b></p> <ol style="list-style-type: none"> <li>Increase in capacity to produce</li> <li>Growth in output, incomes and spending over time</li> <li>Final goods / not transfers</li> </ol>	<p><b>Five benefits from economic growth</b></p> <ol style="list-style-type: none"> <li>Higher material living standards</li> <li>Better quality goods and services</li> <li>Better employment opportunities</li> <li>Provides fiscal dividend to government</li> <li>Country can deal with environment</li> </ol>
<p><b>Showing growth using PPF model</b> Outward shift of the PPF</p> <p><b>Showing growth using aggregate demand / aggregate supply model</b> Shift of AD to the right and AS down (for non-inflationary growth)</p>	<p><b>Five costs of economic growth</b></p> <ol style="list-style-type: none"> <li>Environmental concerns</li> <li>Goes hand in hand with globalisation</li> <li>Adoption of aspects of globalisation that reduce economic security</li> <li>Impact uneven – leads to income redistribution</li> <li>Leads to structural change</li> </ol>
<p><b>Five measurement issues</b></p> <ol style="list-style-type: none"> <li>Changes in population</li> <li>Double-counting – only final products</li> <li>Inflation (nominal/real data)</li> <li>Foreign ownership (national/domestic)</li> <li>Depreciation (net or gross)</li> </ol>	<p><b>Examples of quantitative sources of growth</b></p> <ol style="list-style-type: none"> <li>Trade (imported raw materials)</li> <li>Population growth / migration</li> <li>Investment in capital goods</li> <li>Tax incentives for enterprise</li> <li>Productivity</li> </ol>
<p><b>Three forms of activity that are missed</b></p> <ol style="list-style-type: none"> <li>Informal markets – unrecorded activity</li> <li>Non-marketed output – e.g. DIY</li> <li>Charity work and volunteering</li> </ol> <p><b>Three examples of overstated activity</b></p> <ol style="list-style-type: none"> <li>Creation of negative externalities</li> <li>Defensive spending</li> <li>'Uneconomic' and demerit products</li> </ol> <p><b>Two examples of under-stated activity</b></p> <ol style="list-style-type: none"> <li>Creation of positive externalities</li> <li>Some service sector activity</li> </ol>	<p><b>Examples of qualitative sources of growth</b></p> <ol style="list-style-type: none"> <li>Research / Technology</li> <li>Education, training, health</li> <li>Embodied technology, R&amp;D</li> <li>Foreign investment</li> <li>Innovation</li> </ol>
<p><b>Five problems in using GDP figures for changes in the standard of living</b></p> <ol style="list-style-type: none"> <li>Changes in the terms of trade</li> <li>Changes in quality of products</li> <li>Changes in working conditions</li> <li>Uneven distribution of income</li> <li>Changes in population</li> </ol>	<p><b>Definition of productivity</b> Output per unit of input</p> <p><b>Two measurements of productivity</b></p> <ol style="list-style-type: none"> <li>Labour productivity (output per hour)</li> <li>Multi-factor productivity (Output per unit of capital and labour)</li> </ol>
<p><b>Five factors affecting Australia's growth performance</b></p> <ol style="list-style-type: none"> <li>Mineral and energy exports</li> <li>Rise in population</li> <li>Slow growth in productivity</li> <li>Dealing with shock of pandemic</li> <li>Weak consumer/business confidence</li> </ol>	<p><b>Three features of aggregate production function model</b></p> <ol style="list-style-type: none"> <li>Output achieved from different levels of resources.</li> <li>Shape determined by diminishing marginal returns.</li> <li>Position determined by level of productivity.</li> </ol>

## CHAPTER 10 – INFLATION

### Activity 10.1

- 'Inflation = rising prices; disinflation = fallen rates inflation; deflation = falling prices.'*
- Consumer Price Index (CPI).*
- Both! Spending has increased in nominal terms but fallen in real terms.*
- Year 2 5%; Year 3 5%; inflation; Year 4 3%, disinflation; Year 5 -2%, deflation.*
- Year 1 \$190, 52; Year 2 \$199, 50, 4.7%; Year 3 \$209, 47, 5%; Year 4 \$229, 43, 10%; Year 5 \$245, 40, 7%. Inflation reduces purchasing power of money.*
- (a) Perhaps – CPI provides a reasonable estimate; (b) No – need to know about changes to income, tax and benefits; (c) No; (d) No; (e) No; (f) No.*
- It depends how old you are. As an estimate answers are (a) About \$55; (b) \$145.*
- Yes – when there is deflation or a fall in the price level.*
- (a) No – temporary; (b) Yes; (c) Yes – rise in price of imported goods.*

## Activity 10.2

1. *'It is difficult to decide in many of the examples – it depends on the reason for the price changes but probably (a) (b) (c) (i) and (j) are cost-push and (d) (e) (f) (g) and (h) are demand pull.*
2. *Demand pull inflation is linked to a rise in real GDP but cost-push causes a fall in real GDP. The government can't easily control cost-push inflation. It may have to compensate for cost-push inflation by reducing demand-pull.*
3. *Demand-pull – shift AD to the right; Cost-push – shift AS upwards.*

## Activity 10.3

1. *Probably because it is the RBA target rate. The RBA aims for 2% to 3% inflation per year over the life of the business cycle. Reduces risk of periods of deflation, and a little inflation doesn't do much harm, especially if you have debts.*
2. *(a) Bad; (b) Good; (c) Good; (d) Bad; (e) Good (assuming the borrowing was for a good purpose); (f) Bad – bracket creep; (g) Good – their debt falls, but it might be politically bad; (h) Bad; (i) Good; (j) Good.*
3. *Good deflation – fall in AS curve, real GDP rises; Bad deflation – fall in AD, real GDP falls.*
4. *Unanticipated inflation above the target rate worsens performance on all the macroeconomic objectives.*

## Activity 10.4

1. *The RBA aims for 2% to 3% inflation per year over the life of the business cycle. Most central banks in advanced economies have an inflation target set around this level, but most set a single figure (e.g. Federal Reserve in US is 2% and Bank of England in UK is also 2%).*
2. *A little below target before the pandemic. Steep rise above target post-pandemic.*
3. *Check the inflation data in the latest RBA Statement on Monetary Policy. Some factors include spending of savings built up in pandemic, transport issues, labour shortages, sanctions on Russia.*
4. *Cost of living pressure is term used by politicians and the media. It refers to inflation but also spending levels, debts and incomes.*

## Chapter 10 – Reality Check:

1. B; 2. D; 3. A; 4. D; 5. B; 6. A; 7. B; 8. C; 9. C; 10. C

SO YOU THINK YOU UNDERSTAND INFLATION	
<b>Definition of inflation</b> Persistent and appreciable rise in the general level of prices. It causes a fall in the purchasing power of money.	<b>Four causes of inflation</b> 1 Excess demand (demand pull) 2 Rise in costs (cost push) 3 Expectations of inflation 4 Excess money supply or liquidity
<b>Meaning of disinflation and deflation</b> Disinflation = fall in the rate of inflation Deflation = fall in the price level	<b>Showing inflation on AD/AS diagram</b> Demand pull – shift AD to right Cost-push – shift AS up and/or to left
Measures of inflation <b>Headline</b> = index of price changes of all items in 'basket' <b>Underlying</b> = exclude outliers and volatile items	<b>Four main problems with inflation</b> 1 Redistribution of incomes in arbitrary way 2 International competitiveness falls 3 Confidence falls 4 Efficiency lost (shoe leather and menu costs)
<b>Five steps to measuring Consumer Price Index</b> 1 Select typical basket of goods and services 2 Survey pattern of household spending 3 Attach appropriate weight to each product 4 Select a base year 5 Collect price data	<b>Inflation's impact on macro objectives</b> 1 Growth: Reduced by loss of confidence, competitiveness and efficiency 2 Employment: Falls because of slower growth 3 Inflation: Inflation spirals into more inflation 4 Income distribution: Arbitrarily redistributed from 'losers' to 'winners'
<b>Formulae</b> $\text{CPI} = \frac{\text{Current value of basket of g+s}}{\text{Base year value of same basket}} \times 100$ Rate of inflation = (CPI in Year 2 – CPI in Year 1)/CPI in Year 1	<b>Three problems with deflation</b> 1 Real debt rises 2 Profits fall (e.g. wages sticky downwards) 3 Consumers delay purchases

SO YOU THINK YOU UNDERSTAND INFLATION	
<b>Three reasons why CPI might exaggerate impact of rising price level</b> 1 People can shop around for special prices 2 People can substitute different products 3 Quality of goods changes	<b>Recent inflation performance</b> During mining boom generally above target Since GFC to 2020 generally lower than target
<b>Three issues in using CPI to indicate changes in living standards</b> 1 Lagging indicator 2 Metropolitan based measure 3 Doesn't account for changes in income, tax or transfers	<b>Factors affecting Australia's inflation</b> 1 Level of aggregate demand 2 Globalisation (supply chains, competition) 3 Movements in exchange rate 4 Wage levels 5 Productivity growth 6 Inflationary expectations 7 Regulations on suppliers

## CHAPTER 11 – UNEMPLOYMENT

### Activity 11.1

1. (a) 15m (employed + unemployed); (b) 6.67% (unemployed / labour force); (c) 0.7 or 70% (employed / working-age population); (d) 0.75 or 75% (labour force/working age population).
2. (a) Unemployment and underemployment trended down until early 2020. Both then spiked before falling back during 2021-22. (b) Typically the underemployment rate is 50% higher than the unemployment rate. (c) The participation and employment to population rate follow an inverse pattern to the unemployment and underemployment rates. (d) Steady but not strong economic growth until 2020, lockdown and restrictions during the pandemic, economic recovery after the pandemic.

### Activity 11.2

1. (a) Structural; (b) Frictional; (c) Residual – if they are in the labour force; (d) Classical or real-wage; (e) Demand-deficient, cyclical or general; (f) Structural; (g) Demand-deficient, cyclical or general; (h) Not in the labour force – part of hidden unemployment.
2. He is structurally unemployed – he can't re-skill – he might want too much pay – Australian manufacturing finds it difficult to compete with the lower costs and more efficient production in South and East Asian economies.
3. Rise in labour productivity, rise in the labour force.
4. (a) Capacity =  $100 \times \$7,000 = 700,000$ ; (b) AD = \$650,000; (c) 93 workers needed, 7% unemployment that is called demand deficiency, cyclical or general unemployment.
5. Changes to pattern of demand; new technology, failure to retrain; change in trade patterns.
6. People leaving one job before they start another. A good sign – people are confident they can get a new job.
7. Labor markets don't clear because wages are rigid or 'sticky downwards'. Work agreements may reduce flexibility. Unions may protect the wages of their members rather than encourage more employment of non-members.
8. All types other than demand-deficiency, general or cyclical unemployment.
9. (a) Yes; (b) Yes; (c) Yes; (d) Yes; (e) No; (f) Yes in short-term, no in longer-term; (g) No; (h) Yes.

### Activity 11.3

1. Not everybody makes the same contribution to GDP. It is reasonable to assume that people who are unemployed might be capable of making a smaller contribution to GDP than those in work. Under-use of labour might be twice as high as the official rate suggests. But can there ever be full employment?
2. Less income tax, less indirect tax from reduced spending. Companies pay lower company profits tax. Spending rises on welfare and social security and may rise for health and law and order elements of the social wage.
3. See text.
4. Loss of skills; loss of confidence; not job ready. This is called 'scarring'.
5. Only think about it if unemployment is clearly voluntary (then don't use the term).6. See text for difference. Arguably cost to individuals is greatest.

## Activity 11.4

1. Increase aggregate demand. Reduce the cash rate. Increase government spending and reduce tax. You will learn in Year 12 that this may not be effective.
2. Higher demand-pull inflation. Rise in public debt. Business and household confidence may be low so they don't respond to stimulus measures.
3. Retrain and educate. It would be counter-productive to use protectionist measures or to slowdown the introduction of technology.
4. Increase wage flexibility. Reduce trade union influence in wage setting.
5. Reduce welfare payments. Make people work for the dole. Increase moral hazard.

## Activity 11.5

1. (a) Inverse short-term relationship between rate of inflation and rate of unemployment;  
(b) Global and local non-demand related factors that affect inflation and unemployment. Globalisation and the effect of the global financial crisis should be mentioned.

## Activity 11.6

1. Objective is full employment. In reality this means near zero cyclical unemployment and as little of the other forms of unemployment as possible without causing inflation to rise above the 2% to 3% target range.
2. The incidence of unemployment is uneven between industries, regions, ages, ethnic groups, education and skill levels. In the period 2016-20 unemployment overall fell to about 5%, close to the NAIRU level but it then jumped as a result of the coronavirus pandemic.

## Chapter 11 – Reality Check:

1. C; 2. B; 3. D; 4. D; 5. A; 6. B; 7. A; 8. A; 9. B; 10. D

SO YOU NOW THINK YOU UNDERSTAND UNEMPLOYMENT	
<p><b>Two key points about definition of unemployment</b></p> <ol style="list-style-type: none"> <li>1 In labour force</li> <li>2 Less than 1 hr of work</li> </ol> <p><b>Three conditions for being in labour force</b></p> <ol style="list-style-type: none"> <li>1 Over 15</li> <li>2 Actively looking for work</li> <li>3 Ready to start in immediate future</li> </ol>	<p><b>Five social costs of unemployment</b></p> <ol style="list-style-type: none"> <li>1 Less harmonious society</li> <li>2 Loss of income</li> <li>3 Loss of self-esteem</li> <li>4 Physical and mental health issues</li> <li>5 Family breakdown and loss of friends</li> </ol>
<p><b>Definitions</b></p> <ol style="list-style-type: none"> <li>1 Labour force (employed + unemployed)</li> <li>2 Working age population (over 15 years)</li> </ol> <p><b>Indicators of labour market conditions</b></p> <ol style="list-style-type: none"> <li>1 Unemployment rate (unemployed / labour force)</li> <li>2 Participation rate (labour force / working age population)</li> <li>3 Employment to working age rate (employed / working age population)</li> </ol>	<p><b>Policies to reduce unemployment</b></p> <p><b>Cyclical or demand deficiency:</b> Raise aggregate demand (fiscal stimulus, reduce cash rates)</p> <p><b>Structural</b> Measures to increase mobility e.g. skills training</p> <p><b>Frictional</b> Provide information</p> <p><b>Real wage</b> Flexibility in labour market</p> <p>Control influence of trade unions</p> <p><b>Residual</b> Reduce welfare, reduce tax, increase pay.</p>
<p><b>Macroeconomic objective</b></p> <p>Full employment = natural rate = non-accelerating inflation level of unemployment (NAIRU)</p> <p><b>What is level of NAIRU?</b></p> <p>Difficult to assess given changes in participation rate and general fall in inflation – about 3.5% to 4% perhaps</p>	<p><b>Simple Phillips Curve relationship</b></p> <p><b>Axes:</b> Y = price level, X = Real GDP</p> <p><b>Phillips Curve</b> Inverse relationship between unemployment and inflation.</p> <p><b>Movements along:</b> When AD changes</p> <p><b>Shifts:</b> When non-demand factors that affect unemployment and inflation change</p>
<p><b>Two reasons why official unemployment rate understates true level</b></p> <ol style="list-style-type: none"> <li>1 Disguised unemployment – part-time workers who want to work more hours</li> <li>2 Hidden unemployed – people who have dropped out of the labour force</li> </ol>	<p><b>Five types of unemployment</b></p> <ol style="list-style-type: none"> <li>1 General, cyclical, lack of demand</li> <li>2 Frictional</li> <li>3 Real wage or classical</li> <li>4 Structural</li> <li>5 Residual</li> </ol>
<p><b>Four economic costs of unemployment</b></p> <ol style="list-style-type: none"> <li>1 Opportunity cost of lost production</li> <li>2 Loss of skills (skills atrophy)</li> <li>3 Loss of tax revenue</li> <li>4 Cost of welfare and social security</li> </ol>	<p><b>Three comments about performance</b></p> <ol style="list-style-type: none"> <li>1 Near NAIRU in mining boom</li> <li>2 Above NAIRU after GFC</li> <li>3 Varies by region, State, industry and age</li> </ol>

## CHAPTER 12 – BUSINESS CYCLES

### Activity 12.1

1. Change in output over time, above and below trend level, regular sequence of phases.
2. Trend is the average growth in output achieved in previous years. Actual growth is the current rate of increase in output.
3. See Fig 8.1 in text.

### Activity 12.2

1. Sequence is recovery, boom, downturn, slump, recovery and so on.
2. Shortages of skilled labour and components, congestion and bottlenecks in infrastructure such as ports and airports, higher inflation, higher tax payments.
3. Automatically through tax receipts and transfer payments and by making discretionary policy changes e.g. by changing tax rates and changing the level of structural spending.
4. By making changes to the cash rate in anticipation of changes in the economy.
5. The domino or multiplier effect caused because income and spending spreads around the economy, changes in household and business confidence.
6. Consumption spending on necessities helps provide a floor to the cycle.
7. Differences in consumer preferences. Wide product definitions, e.g. food are easier to classify than specific definitions (e.g. pizza).

### Activity 12.3

1. Your choice of subjects. See if you can find an example of each type of indicator.
2. Inflation rises, unemployment falls. Consumer confidence rises, planned investment rises. Output gets smaller, injections rise and leakages fall. Cash rates rise, budget outcome improves.
3. Growth and participation rate is low. Discretionary consumption falls, trade deficit narrows because of a fall in imports. Output gap is large. Injections and leakages are equal at lowest turning point. Cash rates are low. Budget outcome deteriorates (low tax and higher welfare spending).
4. State whether the following data indicates previous, current or future economic performance?

Unemployment rate	PREVIOUS LAGGING	Stock exchange indices	FUTURE LEADING
New car sales	CURRENT COINCIDENT	Rate of change in GDP	CURRENT COINCIDENT
Inflation rate	PREVIOUS LAGGING	Demand for electricity	CURRENT COINCIDENT
Purchasing managers' index (PMI)	FUTURE LEADING	Housing loan approvals	FUTURE LEADING

5. In a boom there are more cranes to see (more construction), more concrete is produced, top of the range cars are in the showrooms and, apparently, hemlines rise and people wear their hair longer.
6. (a) Leading = Stock Market index or cash rate; coincident = car sales or bankruptcies; lagging = unemployment rate and inflation rate; (b) Upswing or recovery; (c) Output gap is getting smaller and the unemployment rate is falling, fewer bankruptcies; (d) Reasonable to assume growth is above trend rate – so 3% would be an appropriate growth rate.

### Activity 12.4

1. From 2017-20 there was a steady, but relatively weak, continuation of growth. In 2020 the restrictions imposed during the pandemic led to a sharp downturn and a brief period of recession. In 2021-23 the recovery has been strong but unpredictable.
2. (a) Yes – the previous major downturn was in 2008-09; (b) Difficult to see a clear longer-term pattern. Average cycle length is probably less than 7 years; (c) Probably true; (d) No, path of the economy isn't clear; (e) No – only one in 2020.
3. (a) Recovery; Low unemployment, positive growth, rising commodity prices, more 'normal' stance for monetary and fiscal policy; (b) Positive impact from consumption and net exports, negative impact of government spending and some areas of investment; (c) Trade disputes with China, transport and production problems in China disrupting supply chains, impact of Russian invasion of Ukraine on imported inflation; (d) The cash rate has been increased and the government is looking to begin the process of debt repair – both policy areas getting back to more normal levels. Economic outcome is uncertain.

## Chapter 12 – Reality Check:

1. C; 2. A; 3. B; 4. C; 5. C; 6. D; 7. B; 8. C; 9. A; 10. C

SO YOU THINK YOU UNDERSTAND BUSINESS CYCLES	
<b>Key words or phrases in definition of business cycle</b> 1 Short-run growth path 2 Above and below trend line 3 Sequence of stages	<b>Leading, coincident and lagging indicators</b> Lagging indicators – backward looking (e.g. unemployment rate, inflation rate) Coincident indicators – current data (e.g. retail sales, GDP) Leading indicators – forward looking, predictive (e.g. investment intentions)
<b>Four stages in a typical business cycle</b> 1 Boom 2 Downturn, recession 3 Slump, trough 4 Upswing, recovery	<b>General and partial indicators</b> General indicators – economy as a whole (e.g. GDP, CPI, unemployment rate) Partial indicators – parts of economy (e.g. retail sales)
<b>What happens to macroeconomic objectives in a boom?</b> 1 Cyclical unemployment close to zero 2 Rise in demand-pull inflation 3 Growth at relatively high level 4 Uneven growth in incomes, but there is a trickle down effect	<b>Four causes of the business cycle</b> 1 Cumulative processes (e.g. multiplier, accelerator, waves of optimism) 2 Upper and lower turning points 3 Shocks (autonomous changes in AD) 4 Automatic and discretionary stabilisation (e.g. budget balance)
<b>What happens to the output gap in a boom?</b> Gap very small or may even be negative Actual output = potential output	<b>Four causes of upper turning points</b> 1 Economy operating close to full potential 2 Lack of skilled labour 3 Built-in stabilisers (e.g. budgetary) 4 Discretionary policy measures
<b>What happens to components of aggregate demand in a boom?</b> 1 Consumption rises 2 Planned investment high, may plateau 3 Net exports fall (more imports) 4 Cyclical government spending falls (less welfare)	<b>Three causes of lower turning points</b> 1 Automatic stabilisers (e.g. welfare) 2 Discretionary policy measures (e.g. lower cash rates) 3 Survival (basic) consumption
<b>What happens to cash rates and the government's budget in a boom?</b> 1 Cash rates above neutral level (over 3.5%) 2 Cyclical budget surplus (more tax revenue)	<b>Three causes of cumulative or domino changes in the economy</b> 1 Multiplier processes 2 Induced planned investment (accelerator effect) 3 Waves of optimism (rise in confidence)
<b>Four other indicators of an economic boom</b> 1 Construction high (cranes on city skyline, concrete production) 2 Power use high (e.g. electricity usage) 3 Luxury goods in stores and showrooms 4 Footfall in shopping centres (few empty shops)	<b>Five indicators of current phase for the Australian economy</b> 1 Macroeconomic indicators 2 Policy settings 3 Changes in aggregate demand and aggregate supply 4 Models (e.g. AD/AS model, Keynesian Cross) 5 Observations (e.g. number of empty shops, construction projects)

## CHAPTER 13 – DISTRIBUTION OF INCOME

### Activity 13.1

1. *Wealth is more unevenly distributed than both market and final incomes.*
2. *55–64 years old. They may have reached peak earnings and built up some wealth.*
3. *Lower incomes at the start of their working lives. Major expenses living their lives and setting up home.*
4. *Subjective question. During the pandemic many people thought workers who provided essential services were poorly paid.*

## Activity 13.2

1.

	Gini index	Palma ratio	Interpretation
Country 1	0.6	10 (50/5)	Very uneven (like South Africa)
Country 2	0.4	1.5 (27/18)	Average distribution (like New Zealand)
Country 3	0.2	0.54 (15/28)	Very even (like Finland and Denmark)

	Country name	Description of income distribution (e.g. even, very uneven)
Curve with smallest curvature (or dip)	Country 3	Even
Curve in the middle	Country 2	Average
Curve with the biggest curvature (or dip)	Country 1	Uneven

- (a) High level of government spending on welfare, merit and public goods. Relatively even distribution of disposable income; (b) Low government spending and low tax, chance to earn a fortune but also to be given a fair go plus the climate, landscape and football.
- (a) See text for Palma ratio and Gini-coefficient. Human Development is a composite measure of GDP, literacy and life expectancy.  
(b) Very brave to draw many conclusions from limited data. Possible positive relationship between development and a more even income distribution. If so, what is the direction of causation?

## Activity 13.3

- Earned income = income from employment; Unearned income = income from interest, dividends and transfers; Transfers = payments from governments e.g. aged pension and unemployment benefit; Award wages = wages covered by an industry or enterprise award or agreement; Direct taxation = tax on income; Social wage = total unearned income received from the government; Indirect taxation = tax on expenditure.
- (a) More uneven; (b) More uneven; (c) More uneven (GST is mildly regressive); (d) More uneven; (e) More uneven; (f) More even; (g) More even.
- (a) H1  $1000+800-280=1520$ ; (b) H2  $2000+700-500=2200$ ; (c) H3  $4000+600-820=3780$ .  
(b) Aged pension, unemployment benefit, disability payments; (c) Direct tax on household income. Based on ability to pay, helps income redistribution; (d) Use of merit and public goods e.g. subsidised pharmaceuticals, use of freeways, access to government schools; (f) GST and excise duty on petrol, alcohol and tobacco products.

## Chapter 13 – Reality Check:

1. D; 2. A; 3. A; 4. A; 5. A

SO YOU THINK YOU UNDERSTAND INCOME REDISTRIBUTION	
<b>Four roles of government</b> 1 Allocative role (e.g. to public and merit goods) 2 Regulatory role (e.g. health and safety) 3 Distributive role (income redistribution) 4 Demand management role (macroeconomic demand management)	<b>Lorenz curve and Gini-coefficient</b> <b>Axes:</b> Cumulative incomes, cumulative population <b>Shape: Straight line</b> = equal distribution <b>Bigger curvature</b> = more uneven distribution
<b>Four main areas of government spending</b> 1 Income redistribution / transfers 2 Health 3 Defence and border security 4 Education	<b>Palma Ratio</b> Ratio of income of richest 10% to poorest 40%. Concentrates on top and bottom of distribution because middle class / middle incomes people are probably okay.
<b>Difference between income and wealth</b> Income = flow of payments from work Wealth = value of stock of assets	<b>Five ways income is redistributed</b> 1 Transfers (e.g. pensions, welfare) 2 Minimum wage legislation 3 Direct tax 4 Indirect tax 5 Social wage (value of indirect benefits)
<b>Three roles of income</b> 1 Links to standard of living 2 Provides reward 3 Provides incentive	<b>Three issues with income redistribution</b> 1 Moral hazard 2 May reduce reward and incentive 3 Equity and fairness

## CHAPTER 14 – GOVERNMENT IN THE MACROECONOMY

### Activity 14.1

1. Government sector in Australia is about 25%, in Denmark and France it's about 45%.
2. High level of government intervention e.g. infrastructure and social security but also high levels of direct taxation. Australians are not used to paying almost 50% of their income in tax.
3. There is not always a clear measurable product e.g. from a nurse, and there is not always a clear dollar value on what is produced e.g. from road improvements.
4. Different levels of economic activity, different government philosophy, different expectations of members of society.

### Activity 14.2

1.

Area	Examples	Percentage of total
Social security and welfare	Aged pension, Disability Support pension, Family Tax benefit, support to unemployed, assistance to veterans	34%
Health	Medicare and Pharmaceutical Benefits Scheme	16%
Education	Higher education	7%
General public services	Foreign Aid	5%
Defence	Armed forces, border protection, Commonwealth police	7%
Other purposes	GST transfer to States and Territories	19%

2. (a) Allocative; (b) Redistributive; (c) Allocative; (d) Regulatory; (e) Redistributive.

### Activity 14.3

1. Income tax, Company tax, GST and Excise Duty.
2. Whether or not the burden of the tax can be passed on to someone else (No for direct tax, yes for indirect tax).
3. Tax A is progressive (% rises from 10% to 30%); Tax B is regressive (% falls from 20% to 15%); Tax C is proportional (all 20%).
4. A = 6; B = 2; C = 5; D = 7; E = 3; F = 1; G = 4.
5. (a) See text; income tax on bank interest; high compliance costs; disincentives; create deadweight loss moving equilibrium away from free market equilibrium.  
 (b) See text, income tax at low levels of income, income tax concessions for negative gearing, tax on superannuation; social security payments e.g. pensions and welfare payments; assessment of income or wealth of person receiving benefits; goods and services provided by the government e.g. roads, public schools; no but this would be what you expect to happen.  
 (c) See text; company tax; resources can be relocated between countries e.g. to Ireland.  
 (d) See text; GST at its present level of 10%; government needs revenue.  
 (e) See text; income tax and fringe benefits tax; to make them fair; people not clear of their tax liability when making economic decisions.
6. Make sure they are taxes and not fines or penalties. Window Tax and Payroll tax could be listed.

## Chapter 14 – Reality Check:

1. A; 2. A; 3. C; 4. D; 5. C.

SO YOU THINK YOU UNDERSTAND THE GOVERNMENT IN THE MACROECONOMY	
<b>Four roles of government</b> 1 Allocative 2 Regulatory 3 Redistributive 4 Management of aggregate demand	<b>Main areas of government spending</b> 1 Social security and welfare 2 Health 3 Education 4 Defence 5 Transfers to States and Territories
<b>Size of government spending and taxation</b> 1 Government spending \$625b (2022-23) 2 Taxation \$560b (2022-23) There was a budget deficit.	<b>Main sources of tax revenue</b> 1 Income tax 2 Company tax 3 Sales tax 4 Excise duties
<b>Issues when comparing international tax levels</b> 1 Measurement of inputs or outputs 2 Measurement of productivity in service sector	<b>Types of taxation</b> Progressive = Rising marginal rate of tax Regressive = Higher proportion of income paid on tax by less well off Proportional = same tax proportion at all income levels
<b>Five revenue sources for the government</b> 1 Direct taxation 2 Indirect taxation 3 Profits from government businesses 4 Sales of assets 5 Borrowing	<b>Principles of taxation</b> 1 Equity or fairness 2 Efficiency – will it harm the economy? 3 Simple and certain 4 Coherent with transfer system 5 Competitive with other countries 6 Sustainable – will it collect enough money?

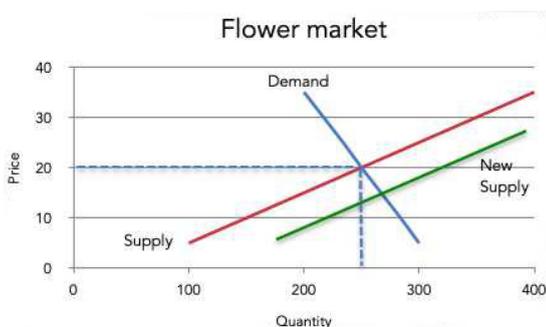
## TRIAL EXAM 1 – MICROECONOMICS

### Section A

1. B; 2. D; 3. A; 4. A; 5. B; 6. C; 7. C; 8. A; 9. B; 10. C; 11. D; 12. A; 13. C; 14. A; 15. A; 16. B; 17. C; 18. D; 19. B; 20. A; 21. B; 22. C; 23. D; 24. A

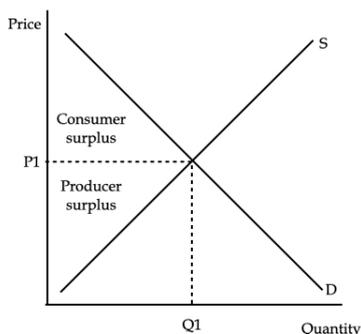
### Section B

2.5

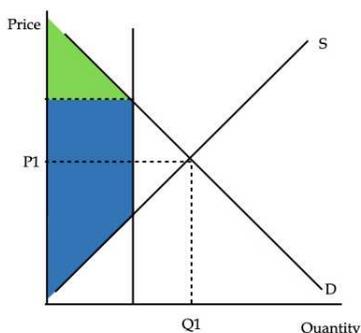


- Label the demand and supply curves – see diagram.
- Price rises by 15 from start value of 20. % change =  $(15/20) \times 100 = 75\%$  increase. Using mid-point method price rises by 15, mid-point value = 27.5 =  $(15/27.5) \times 100 = 54.5\%$  increase.
- Quantity falls by 50 from start value of 250. % change =  $(50/250) \times 100 = 20\%$  decrease. Using mid-point method quantity falls by 50, mid-point value 225 =  $(50/225) \times 100 = 22.2\%$  decrease.
- $PED = \% \text{ change in demand} / \% \text{ change in price} = 20\%/75\% = 0.27$ . Using mid-point method  $PED = 22.2\%/54.5\% = 0.41$ .
- Revenue = price x quantity sold. Revenue at price \$20 =  $\$20 \times 250 = \$5000$ . Revenue at price \$35 =  $\$35 \times 200 = \$7000$ . Revenue rises despite price increase so demand is price inelastic.
- Proportion of income spent on flowers; Number of substitutes (e.g. are chocolates suitable); Degree of necessity (e.g. higher on special days in the year); Is there time to shop around? Plus other possibilities.

- (g) See diagram. New equilibrium at about \$16, sales rise to about 270. At price 20 now a surplus of 50, so price falls. Consumers expand demand and producers reduce quantity supplied from 300 to 270. Rise in consumer surplus. Rise in producer surplus – although revenue falls to 4320. Rise in total welfare.
26. (a) Economic efficiency = productive efficiency + allocative efficiency. Productive efficiency = making output at lowest unit cost. Allocative efficiency = using resources to make products that reflect consumer demand (extra cost of using resources = extra benefits received).
- (b) Relative scarcity. Finite or limited economic resources but infinite or unlimited consumer needs and wants.
- (c) See figure 16.2 – (i) Top left triangle, (ii) Bottom left triangle.



- (d) See figure 16.3 below.



- (e) Monopoly Power – producers reduce supply to force up prices. Merit good – information gap and positive externalities ignore. Problem with supply e.g. caused by a strike so resources are unavailable.
27. (a) Merit goods – they provide positive externalities when they are used.
- (b) Draw demand (marginal private benefits) and supply (marginal private cost) diagram. Show that inclusion of positive consumption externalities creates a marginal social benefits curve to the right of the marginal private benefits curve.
- (c) Diagram shows a welfare gain when more cameras are installed. Discuss whether the revenue received from fines is a private benefit.
- (d) If the cameras raise money for the government they act like a tax on motorists. If there is no externality to correct, the tax will create a deadweight loss.

## Section C

28. (a) Buyers and sellers meet for the purpose of voluntary trade or exchange of a product. An equilibrium market price is determined as a result of the balance between demand and supply.
- (b) Goods and services are traded in product markets. For example, the car market is a product market and the market for taxis is a service market. Showing location on two-sector circular flow diagram would be rewarded.
- (c) Car workers are hired in the labour market (a resource market). The demand for them is a derived demand and depends on; the demand for cars – in turn affected by factors such as income, consumer confidence, competitiveness of substitute products such as imported cars and public transport, the combination of resources used in the production process (e.g. whether production is labour intensive or capital intensive), unit wage costs (i.e. wages and on-costs per car produced), government subsidies paid to car producers.

29. (a) Response of quantity demanded of a product to the change in price the product. The formula for calculating PED is % change in quantity demanded / % change in price. PED can be elastic (relatively responsive) or inelastic (relatively unresponsive).
- (b) Factors include; Number of substitutes (e.g. different brands or designs of chairs), Degree of necessity (e.g. is product a durable good than can purchase be postponed), time to shop around (e.g. urgency of the purchase), absolute price level (e.g. low cost items), proportion of income spent on the good (e.g. petrol), product definition (e.g. broad and generic or narrow and brand specific) and brand loyalty (e.g. to IKEA).
- (c) Producers may try to eliminate substitutes e.g. buy out rivals or make their product a unique selling proposition. Producers may promote it as a necessary purchase, e.g. essential to lifestyle, fashionable and high quality. Producers may promote brand loyalty e.g. through loyalty schemes e.g. frequent flier points, rewards programs and strive for reputation for quality or reliability. Note: Changing the price of the product does technically change PED but you would have to explain carefully how it does it.
30. (a) Define economic problem and relative scarcity – give examples. Explain that choices involve opportunity cost – i.e. foregoing something. Draw PPF and show how this provides information about opportunity cost.
- (b) Explain that a country's economic system provides the answers to the three big questions of what and how much to produce, how to produce and for whom to produce – give examples for each.  
(Countries do not allow these questions to be decided entirely in free markets because of market failure. Explain two or three causes of market failure such as; externalities, public and merit goods, information gaps and monopoly market power.
31. (a) Non-excludable (open access), but tendency to become rival in consumption. For example; fish stocks, earth's atmosphere.
- (b) Open access means everybody can use the resource for free. If only short-term self-interest is considered, each user of the resource stands to benefit from using it. Even if some individuals moderate their use, others will not and the resource is still depleted. Over-use means the quality of the resource is compromised and in the long-run destroyed.
- (c) Any two measures from; make and enforce regulations about use e.g. bag limits for fishermen, cap usage by issuing a limited amount of permits and allow people to buy and sell permits e.g. carbon emission trading, tax people for using the resource (e.g. carbon price, charges for using roads), assign property rights over the common access resource e.g. wireless frequencies, education about damage being caused (e.g. environmental education), generate alternative sources of income for people who currently use resource (e.g. tourism rather than grow crops). Others solutions are possible.

## TRIAL EXAM 2 – MACROECONOMICS

### Section A – Multiple Choice Questions

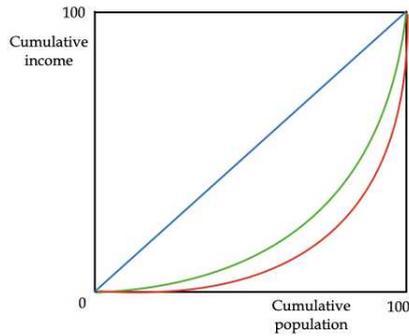
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### Section B

25. (a) Consumption (e.g. food); Planned investment (e.g. new machinery); Government spending (e.g. telecommunications infrastructure); Net exports (e.g. iron ore, LNG).
- (b) Any type is possible given the recessionary gap in the economy. See text in Chapter 11.
- (c) The economy grows from \$600b to 700b. The price level rises from 40 to 70. Cyclical unemployment probably falls.
26. (a) Two consecutive quarters of negative growth. Unofficial definitions include a rise in unemployment of more than 1%.
- (b) Low growth may cause an increase in the output, GDP or recessionary gap given potential output is increasing due to a rise in the population and/or productivity growth. A bigger gap means more demand deficiency unemployment. Other types of unemployment might be affected as well.
- (c) Government changes the budget balance by changing the level of government spending and taxation. In theory, in slumps the budget will be in deficit and in a boom the budget will be in surplus. Automatic stabilisation also takes place because government spending on welfare and tax receipts are influenced by the state of the business cycle. The RBA raises cash rates in anticipation of a boom and reduces rates to avoid a slump.

(d) *Loss of self-worth, skills atrophy, decline in health, stress on family group plus many others. See details in Chapter 11.*

27. (a)



(b) *See chart in Chapter 13*

(c) *See Chapter 13. Reasons include greater social cohesion and equity.*

(d) *Loss of incentive and reduced moral hazard.*

### Section C

28 (a) *See table in Chapter 12.*

(b) *Possible points include: (i) Improved net exports of goods and services due to fall in Australian Dollar; (ii) Lower level of mineral and energy exports; (iii) Lower level of capital goods imports; (iv) Lower level of primary income outflows due to lower profits earned by foreign owned mining companies.*

29 (a) *See text in Part 2 of Chapter 9.*

(b) *Fall in our terms of trade reduces national income; Need to compensate fall in mining investment with increase in aggregate demand elsewhere, e.g. housing, high-end manufacturing, services; fall in exchange rate means higher inflation.*

30 (a) *See diagrams and text in Chapter 10.*

(b) *See text in Chapter 10. Base answer on RICE framework (i.e. income redistribution, international competitiveness, consumer and business confidence and efficiency.)*

31 (a) *See text in Chapter 7 or 14.*

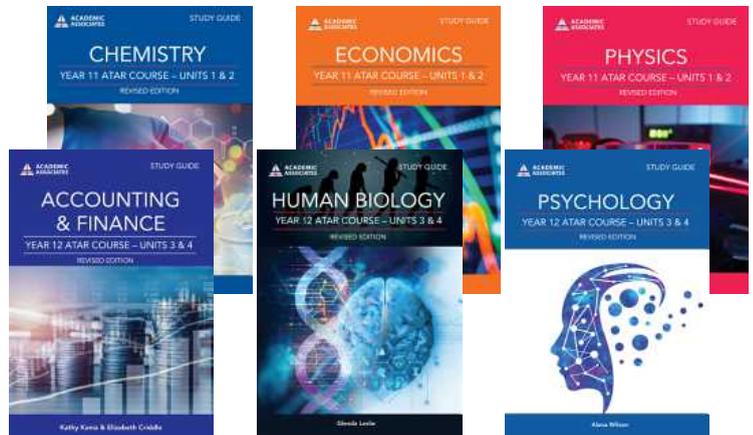
(b) *Describe problems of high or slow growth, high inflation or deflation, high unemployment, lack of distributive justice. See answer section in Chapter 14.*

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