Investigating Macroeconomics

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Greg Parry
Steven Kemp

Tactic Publications

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7th edition

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Investigating Macroeconomics

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Preface

This book has been prepared primarily for students in studying Economics in Western Australian schools. The first seven chapters relate to international trade concepts; chapters eight onward relate to macroeconomic concepts, economic policy and productivity.

We regard it as important that economic literacy should be promoted throughout the community. Understanding Australia's economic circumstances is a complex task for students, especially during a period of time when providing the 'correct' answers to economic problems is not as straight forward as it once might have seemed. It is, we feel, important for economics to be promoted as a method of thinking logically about a wide range of problems. It is hoped that students will recognise the need to be well informed about current economic issues, and be able to relate this to the economic theory presented in the text.

7th edition

Greg Parry and Steven Kemp
January 2023

Investigating Macroeconomics
7th edition

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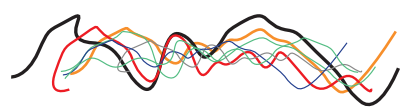
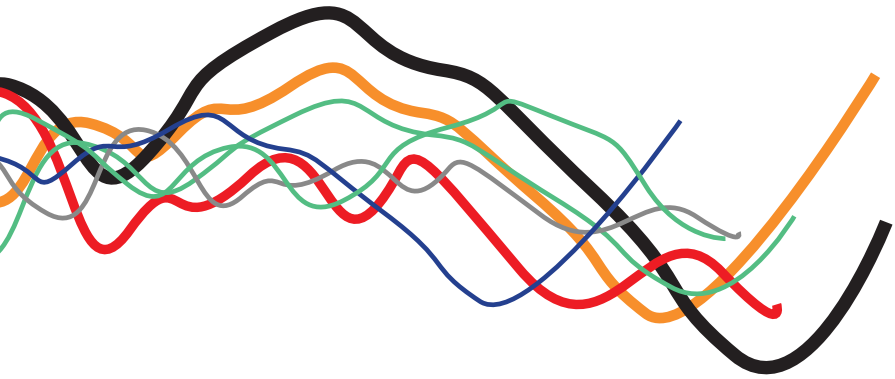


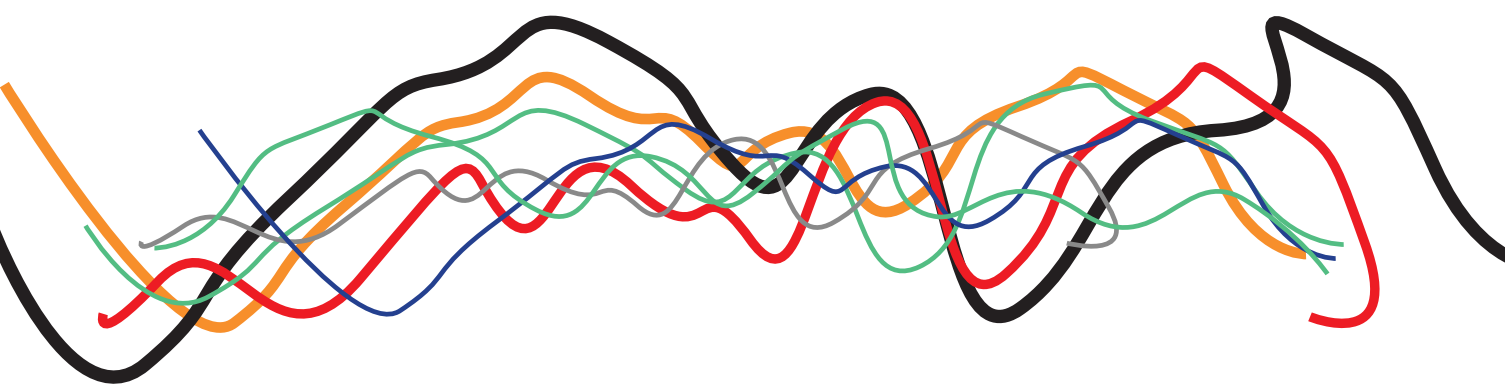


1

Global Interdependence

Chapter concepts

- *the linkages between economies, including trade, investment, tourism and immigration*
- *the patterns and trends in global trade*
- *the concept and determinants of international competitiveness*
- *the concept and extent of globalisation*
- *the factors facilitating globalisation*
- *the economic effects of globalisation*



Introduction

The pandemic of 2020-21 was a very timely reminder of how we all live in an increasingly globalised world. Rapid advances in communications and transport have increased access to all corners of the globe. It is now cheaper and quicker to fly to every major city in the world. Computers and the Internet have enabled people to instantly access the world wide web for information, for downloading documents, for streaming music and movies and for purchasing goods and services. But an interconnected world can also mean that an epidemic such as COVID-19 can quickly spread from one country to another.

Australian firms and households are constantly involved in economic transactions with other economies. Some examples include Australian firms exporting iron ore, coal and education services. Consumers purchase cars from Japan, computers from China, iPhones from the United States and coffee from Brazil. Australia has also been a major recipient of foreign investment. The world has effectively become a global market with the spread and growth of multinational corporations. But globalisation is more than just trade. People can now travel from one continent to another in a matter of hours. Communication across international borders is now instant whether by phone, video, text or the Internet.

Globalisation is the process by which the world has become more integrated economically and socially. It is characterised by the growth in trade and international investment, and by the rapid movement of information and people around the globe. It implies the opening up of international borders to the free movement of goods, services, workers, tourists and financial capital. As a result of globalisation the world has become more interconnected and more interdependent. Globalisation is important because it has been the most important factor in raising global living standards.

The Coronavirus Pandemic

The rapid spread of the Coronavirus between and within countries had devastating social and economic effects on every single nation - both rich and poor. The world was plunged into its deepest economic contraction since the Great Depression of the 1930s.

To control the spread of the virus most countries imposed strict lockdowns causing many businesses to close and many people to lose their jobs. International and domestic borders were closed to prevent travellers from transmitting the virus. Countries such as Australia and New Zealand that were quick to impose restrictions on the movement of people as well as strict social distancing regulations had much greater success in containing the spread of the disease than countries such as the United States and Europe.

There have been previous pandemics before the era of globalisation such as the Spanish flu in 1918. That virus was estimated to infect about 500 million people or one-third of the world's population. It is also important to remember that the benefit of a globalised community is that it enables a coordinated effort to develop and disseminate a vaccine more quickly than in a non-globalised world.

For economists, globalisation means the triumph of free trade and competitive markets over protection and restricted markets. It has arguably been the most important factor in raising the living standards of the world's population. Globalisation is also playing an important role in economic development. The World Trade Organisation (WTO) believes that the rise of the developing world is the most significant economic event of our time – eclipsing even the rise of the newly industrialising countries after the Second World War. Why has the developing world achieved economic lift-off? It is evident that the most important reason is its integration into the world economy. Globalisation has enabled the developing world new access to markets, technology and investment.

The WTO has identified four trends that have affected the relationship between trade and development since the start of the millennium. The four trends are:

- the economic growth of many developing countries;
- the growing integration of global production through supply chains;
- the higher prices for agricultural goods and natural resources; and
- the increasing interdependence of the world economy, which causes shocks to reverberate more quickly and globally (e.g. the global financial crisis and the COVID-19 pandemic).

The process of globalisation or 'internationalisation' is not a new one - it has been occurring for centuries. Between 1980 and 2010, the pace of globalisation was at its most rapid, fuelled by advances in transport and communication. In the past decade, however, it has slowed significantly. Globalisation is not without controversy – it has important economic and social effects which fosters much debate. It has become fashionable to blame globalisation for many of the world's problems. Critics hold it responsible for everything from poverty and inequality to environmental pollution and even for the recent pandemic. In this chapter we examine some of the important economic issues associated with globalisation.

Linkages between economies

When people think of global markets they tend to just think about international trade in goods and services – exports and imports. But economies are linked by more than just trade – there are movements in financial capital (foreign investment) and movements in people such as tourists, workers and immigrants. Figure 1.1 shows some of Australia's important links with the global economy. Exports contribute around 26 per cent of Australia's GDP and around 24 per cent of Australian workers are directly involved in trade–related activities. Australia is a major exporter of resources to the world, including iron ore, coal, natural gas, gold and bauxite. At the same time, Australia imports large quantities of capital goods, machinery, motor vehicles and consumer goods. Just think how dependent you are on other countries for many goods we take for granted - the clothes you wear, your mobile phone, the coffee you drink, your TV set, your laptop and the family car. All of these are imported goods, some of which may have used Australian resources in their manufacture.

2022	Imports/Income/People/ Investment Flowing to Australia	Exports/Income/People/ Investment Flowing from Australia
Total Goods	$387 billion	$534 billion
Total Services	$72 billion	$61 billion
Income	$88 billion	$174 billion
Tourist Travellers (2022)	1.8 million	3.4 million
Foreign Investment	$125 billion	$174 billion
Overseas arrivals/departures (2021)	146,000	235,000

Figure 1.1 Australia's links with the global economy

Australia is also a multicultural nation. Immigration has been an important source of skilled labour and has helped to boost Australia's population growth. Around 30 per cent of Australia's population were born overseas. Traditionally, more people immigrate to, than emigrate from Australia each year. From 2006 to 2020, net overseas migration contributed more each year to Australia's population growth than natural increase. Population growth is important for continued economic growth. In 2021, net migration to Australia was negative due to the effects of the pandemic. This is the first time this has happened since the end of World War in 1945. International tourism has grown in importance due to improvements in transport and communications and ranks fourth (after fuels, chemicals and automotive products) in global exports. Tourism now accounts for 30 per cent of the world's exports of commercial services. It is interesting to note that tourism is the main source of foreign exchange for one–third of developing countries.

The Australian economy has throughout its history relied on foreign investment to supplement its domestic savings to help fund its economic development. The mining and resources sector would not have been developed without foreign investment. Normally inflows of foreign investment into the Australian economy exceed outflows, however in 2022 the opposite scenario occurred. Australian investment into foreign economies was $174 billion, while foreign investment into the Australian economy equalled $125 billion.

Australia is an outward–looking country that is strongly engaged with the rest of the world. Australia has a number of globally significant industries:

- agricultural products – top 12 exporter in the world
- international tourism – 11th largest in the world
- fuels and mining – 4th largest exporter in the world
- travel services - 4th largest exporter in the world
- financial services - 9th largest exporter in the world
- investment fund assets - 3rd largest in the world

Australia also plays an active role in a wide variety of global and regional groups. Some of these include:

- The United Nations (UN)
- The World Trade Organisation (WTO)
- Group of 20 major economies (G20)
- Association of South East Asian Nations (ASEAN)
- Asia Pacific Economic Cooperation (APEC)

Patterns and trends in global trade

One of the key features of the modern era has been the rapid growth of world trade. This was especially evident in the period before the Global Financial Crisis (GFC) of 2009. China, for example, joined the World Trade Organisation in 2002 and in the space of a decade overtook the United states to become the world's leading exporter. One reliable measure of globalisation is trade intensity – this measures total trade (exports + imports) as a per cent of global GDP. Figure 1.2 shows the relationship between trade intensity and GDP per capita, which is an approximate measure of world living standards.

The graph shows that a rising share of world trade in GDP has been accompanied by rising per capita GDP. In other words there is a strong positive correlation between trade intensity and living standards. Figure 1.2 shows the rapid increase in globalisation up to the global financial crisis (GFC) of 2009. World trade (exports plus imports) as a percentage of GDP has increased from around 37 per cent in 1991 to 61 per cent in 2008 (its highest level). GDP per capita experienced an even faster rate of increase - more than doubling over this period, from around $US4,400 in 1991 to $US9,500 in 2008. Since the GFC the pace of globalisation has decelerated with a marked slowdown in global trade intensity. From 2012, trade intensity has fallen from 60 per cent to 57 per cent in 2021. Notice the negative impact of the 2020 pandemic on both trade intensity and GDP per capita. Economists believe that increased trade intensity is an important catalyst for both higher economic growth and higher real incomes. In

Trade is an engine of growth that creates jobs, reduces poverty and increases economic opportunity. Over one billion people have moved out of poverty because of economic growth underpinned by open trade since 1990.

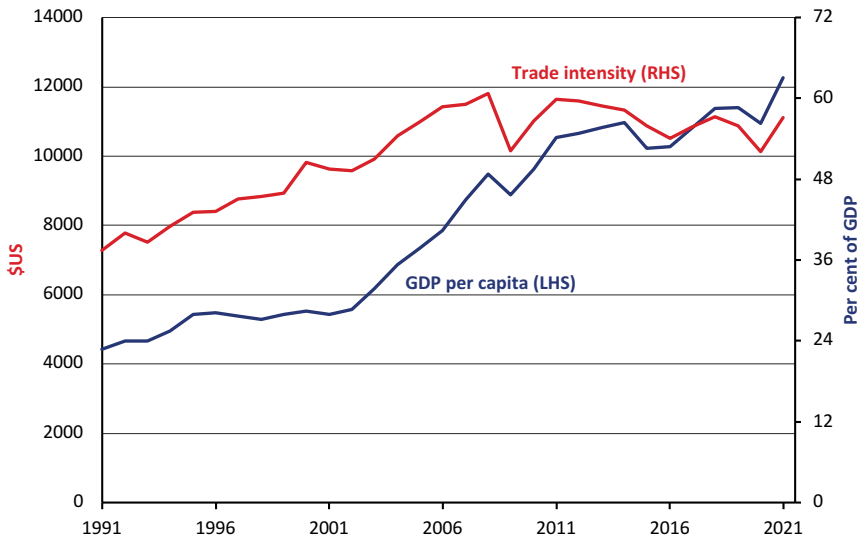


Figure 1.2 Global GDP and trade

periods when global trade has slowed, world economic growth has also been relatively weak.

Why did world trade experience rapid growth in the period following World War II? It was partly due to the success of world organisations such as the World Trade Organisation (WTO), the International Monetary Fund (IMF) and the World Bank in promoting the liberalisation of world trade. It was also due to improvements in transport and communication which drastically lowered the costs of international commerce. Trade has always been seen by economists as an 'engine of growth'. Specialisation and exchange is the cornerstone of all modern economies and is the key factor in raising living standards. For most economies, including Australia, trade as a proportion of GDP has been increasing over time. Economies are becoming more open to trade and investment and as a result, living standards have increased. In the past decade, the pace of globalisation has slowed with many countries turning away from free trade and adopting more protectionist policies. Weaker economic activity has also led to many countries adopting protectionist measures, such as tariffs as a means to stimulate domestic employment. This has had a negative impact on global trade.

International trade can be broadly distinguished between trade in goods (merchandise) and trade in services. The bulk of international trade concerns physical goods (79 per cent), while services account for a much lower share (21 per cent). This makes sense given that goods are generally easier to trade than services. Many services are in fact non–tradable. For example, it is not possible to export a haircut or a restaurant meal. But services trade, including tourism, financial, and professional services is starting to accelerate. Merchandise

World Exports 2021	
Manufacturing	*55%*
Fuels & Minerals	*15%*
Agriculture	*9%*
Services	*21%*

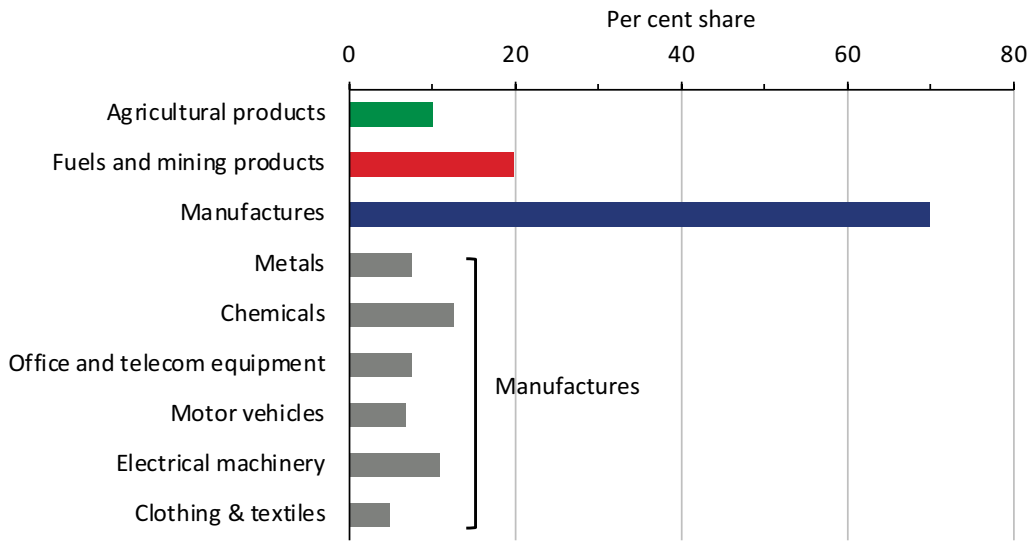


Figure 1.3 World merchandise exports by major product group

trade is divided into three main categories: agriculture, mining and fuels, and manufactured goods. Trade in manufactured goods dominates world trade accounting for over half of all trade flows.

Mining and agriculture account for around 24 per cent of total trade. Figure 1.3 shows some of the major merchandise product groups exported in the world. Important categories in manufactured exports are chemicals, electrical machinery which includes household appliances,office and telecommunications equipment, metals and motor vehicles. Trade in services comprises transport, travel and other services, which includes categories such as telecommunications, financial services, construction and computer services. Transport and travel (tourism) services normally account for around 50 per cent of total services trade. But in 2020, due to the impact of the pandemic, these categories shrank to just 33 per cent. In many developing countries, tourism ranks as the major export sector.

Not surprisingly, the countries that dominate world trade are the largest economies – the United States, China and Germany. These three countries account for almost one third of world merchandise exports. China is the world's largest exporter, while the United States is the largest importer. The three largest exporters of commercial services are the United States, United Kingdom and Germany. Figure 1.4 provides a breakdown of world exports by region over several decades. The most notable change is the rapid emergence of China –from 1 per cent of world exports in 1983, to 15 per cent in 2020. At the same, Japan's relative importance has slipped, its share of world exports halving over this period. While Europe is still the dominant region for exports, accounting for 38 per cent, Asia's share has increased significantly over the period, from 19 per cent in 1983 to 36 per cent in 2020.

World trade is dominated by the largest economies – the United States, China and Germany. These three countries account for 30% of world exports. China has emerged rapidly to become the world's largest exporter – from 1 per cent of world exports in 1983 to nearly 15 per cent in 2020. Europe is still the dominant region for exports, but will soon be overtaken by Asia.

World Exports by Region & Selected Country				
Region/Country	**1983**	**1993**	**2003**	**2020**
North America	16.8	17.9	15.8	13.1
United States	11.2	12.6	9.8	8.4
Canada	4.2	3.9	3.7	2.3
South & Central America	4.5	3.0	3.1	3.1
Europe	43.5	45.3	46.2	38.2
Germany	9.2	10.3	10.2	8.1
Netherlands	3.5	3.8	4.0	4.0
France	5.2	6.0	5.3	2.9
United Kingdom	5.0	4.9	4.2	2.4
Africa	4.5	2.5	2.4	2.2
Middle East	6.7	3.5	4.1	4.5
Asia	19.1	26.0	26.1	36.1
China	1.2	2.5	5.9	15.2
Japan	8.0	9.8	6.4	3.8
India	0.5	0.6	0.8	1.6
Australia & NZ	1.4	1.4	1.2	1.7

Figure 1.4 World exports by region and country

Remember that it is individuals (both firms and households) that engage in trade, not countries. Why do people trade? Because it is advantageous. Trade enables people to consume a greater variety of goods and services. Everyone gains when they engage in trade. When a country exports its goods and services, domestic producers gain from higher prices and greater production. When a country imports, domestic consumers gain from lower prices and greater consumption.

Cross border trade is no different than trade in a local market, with one exception. Most countries have their own currency and so an exchange rate needs to be established before international trade can take place.

There are a number of factors that affect economic transactions between different economies:

- The exchange rate – movements in the exchange rate affect the price of exports and imports. For example, if the Australian dollar (AUD) falls in value (a depreciation), Australia's exports become cheaper to overseas buyers, while imports increase in price to Australian buyers.
- World economic growth – Australia's exports are dependent on foreign demand. Increased economic growth in foreign countries will increase the demand for Australia's exports. China and Japan, for example, are our most important customers for our mineral and

Global Value Chains - today, most goods and an increasing share of services are "made in the world"

World trade, investment and production are increasingly organised around global value chains (GVCs). A value chain is the full range of activities that firms engage in to bring a product to the market, from conception to final use. Such activities range from design, production, marketing, logistics and distribution to support to the final customer. They may be performed by the same firm or shared among several firms. The growth of GVCs has increased the interconnectedness of economies. It has been estimated that more than half of world trade in goods and services takes place within GVCs.

The tendency of countries to specialise in particular stages of a good's production (known as vertical specialisation), has created new trade opportunities, especially for small developing countries. As a result, world trade in intermediate goods, capital goods and services has grown with the rise of vertical specialisation. The expansion of the operations of multinational enterprises (MNEs) through foreign direct investment (FDI) has been a major driver of the growth of GVCs. Participation in GVCs contributes to economic growth through the gains that firms achieve from specialisation and improved productivity (access to new technology and knowledge).

Source: OECD Interconnected Economies

energy resources. If their economies grow, then the demand for our resources increases.

- Domestic economic growth – Australia's imports are determined by domestic economic activity. Higher economic activity in Australia raises domestic income which increases demand for imported consumer goods and services while increased investment will increase capital goods imports.
- Relative inflation rates – if Australia's inflation rate is greater than our trading partners it will reduce the competitiveness of domestic goods and increase the competitiveness of foreign goods.
- Relative interest rates (the interest rate differential) – if interest rates in Australia are relatively higher than other economies, especially the United States then financial capital will flow into the Australian economy.
- Productivity & cost efficiency – the cost efficiency of domestic firms relative to foreign firms will determine their success in the global market. Productivity improves cost efficiency by increasing output per worker and will increase exports.

International competitiveness

International competitiveness is an important aspect of globalisation. The OECD defines a nation's competitiveness as *'the degree to which a country can produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term'*. A

much simpler definition of international competitiveness is the ability of a country to compete successfully against other countries in international trade.

There are several organisations that produce annual competitiveness reports:

- the World Economic Forum (WEF) and
- the International Institute for Management Development (IMD)

The World Economic Forum is the international organisation for public-private cooperation. Its focus is to tackle important global issues by bringing together both governments and private corporations. Each year, the WEF compiles a Global Competitiveness report that provides a detailed map of the factors that drive productivity, growth and human development. The WEF defines competitiveness as '*the set of institutions, policies, and factors that determine the level of productivity of a country*'. The Report covers 141 economies, which account for 99% of the world's GDP. A competitiveness index is derived for each country and is based on a set of twelve key factors called the '12 Pillars of Competitiveness'. These are the factors that are considered to be most important in increasing a country's productivity and therefore its economic growth. The index aims to measure the drivers of 'multi factor productivity' (MFP), which is the part of economic growth that is not explained by growth in the factors of production. MFP can be interpreted as reflecting improvements in the quality of both labour and capital.

The International Institute for Management Development (IMD) is a top-ranked global business school based in Switzerland which also publishes an annual world competitiveness ranking. IMD defines competitiveness in terms of the ability of nations to create and maintain an environment which sustains the

The 12 Pillars of Competitiveness (World Economic Forum)

1. Institutions: the legal and administrative framework within which individuals, firms, and governments interact
2. Infrastructure: extensive and efficient infrastructure such as a well-developed transport and communications network and efficient electricity supplies
3. ICT adoption: information and communication technology (ICT) access and usage are key factors affecting a countries' overall technological readiness
4. Macroeconomic stability: low inflation, low unemployment
5. Health: extent and quality of health services is critical to maintain an active & fit workforce
6. Education and skills: extent and quality of education and training
7. Product market efficiency: competitive markets lower costs and promote improvements in productivity
8. Labour market efficiency: labour market flexibility enables workers to shift from one economic activity to another rapidly at low cost
9. Efficient financial system: economies require sophisticated financial markets that can make capital available for private-sector investment
10. Market size: large markets allow firms to exploit economies of scale.
11. Business dynamism: attitude to risk and entrepreneurship
12. Innovation capability: requires sufficient investment in research and development (R&D)

Ranking	IMD World Competitiveness Report	WEF Global Competitiveness Report	GDP per capita 2021
1	Denmark	Singapore	Luxembourg
2	Switzerland	United States	Ireland
3	Singapore	Hong Kong	Switzerland
4	Sweden	Netherlands	Norway
5	Hong Kong	Switzerland	Singapore
6	Netherlands	Japan	United States
7	Taiwan	Germany	Denmark
8	Finland	Sweden	Sweden
9	Norway	United Kingdom	Australia
10	United States	Denmark	Netherlands
	(Australia 19th)	*(Australia 16th)*	*(Australia 9th)*

Figure 1.5 International competitiveness rankings

competitiveness of firms. It benchmarks the performance of 63 countries, based on more than 340 criteria - both statistical data and survey data. The IMD focuses on four main factors that are seen as the drivers of competitiveness:

- economic performance – domestic economy, international trade, inflation and unemployment;
- government efficiency – public finance, fiscal policy, business legislation, institutional framework;
- business efficiency – productivity, labour market, finance, management practices; and
- infrastructure - basic infrastructure, technological and scientific infrastructure, health and environment, education.

Notice that these factors are not that dissimilar to the '12 pillars of competitiveness' and are a useful way to think about the determinants of competitiveness. Notice also that both the government and the private sector are important in determining a country's international competitiveness. Figure 1.5 compares the ranking of each organisation's latest competitiveness report. Singapore achieves a first and a third which reflects its strong performance in trade, its high quality education system and its sound technological infrastructure. It is not surprising that seven of the top ten ranked countries are common to both lists: Singapore, Denmark, Switzerland, the Netherlands, Hong Kong, Sweden, and the United States. Australia was ranked 19th by IMD and 16th by the WEF. What is also interesting is the close correlation with the GDP per capita ranking. This makes sense given that a high level of competitiveness would indicate high labour productivity and therefore high income levels.

International competitiveness affects a country's ability to engage in international trade and will therefore have a positive effect on a country's production and

income. A fall in competitiveness implies that goods and services produced within a country have difficulty finding buyers in both foreign and domestic markets. Competitiveness matters because it can affect a country's standard of living. The ultimate economic objective for any country is to improve the economic welfare or living standard of its inhabitants. Improved competitiveness implies that a country can increase its national income. The competitiveness of a country's goods and services depends on a large number of factors, but some of the key economic determinants are:

- changes in labour productivity due to factors such as technology, education and training;
- changes in a country's price level (inflation) relative to its trading partners;
- changes in a country's wages relative to its trading partners; and
- changes in the exchange rate.

Most statistical indicators of international competitiveness try to reflect these changes by using price measures. Two of the more commonly used measures are a nation's real unit labour costs and the value of its exchange rate. Real unit labour costs reflect changes in a country's wages relative to its productivity. Productivity measures how much output can be produced from a given input, such as labour. It is usually measured by dividing total production (GDP) by the number of hours worked. An increase in productivity will increase competitiveness. Real unit labour costs will fall if either productivity rises or if wage costs fall. This will cause an increase in competitiveness. To compare the value of Australia's exchange rate with other countries it is important to use a trade weighted exchange rate rather than a single rate such as the US dollar. Australia's trade-weighted index (TWI) measures the change in the value of the Australian dollar relative to its major trading partners. The real TWI takes into account changes in Australia's inflation rate relative to trading partners. If the real TWI falls (a depreciation) then this implies an improvement in competitiveness since the price of Australia's exports to overseas buyers will fall. An appreciation in the exchange rate will have the opposite effect, causing a decrease in competitiveness.

Australia's international competitiveness improves if either the real trade weighted index (TWI) falls and/or if real unit labour costs fall.

Figure 1.6 shows changes in Australia's real unit labour costs and the real TWI since 2010. Between 2010 and 2012 both the RULC index and the RTWI were relatively high due to the mining boom in Australia. After 2012, world commodity prices (especially iron ore and coal) fell, bringing an end to the decade long mining boom. As a result, the real exchange rate fell from its 'dizzy' heights.

Between 2013 and 2020, the real TWI depreciated by around 25 per cent, boosting the competitiveness of the traded goods sector. Real unit labour costs remained relatively high in Australia up to 2016 before falling by around 13 per cent by 2020 also boosting Australia's competitiveness. It is interesting to note that Australia's trade balance increased significantly over this period of improving competitiveness.

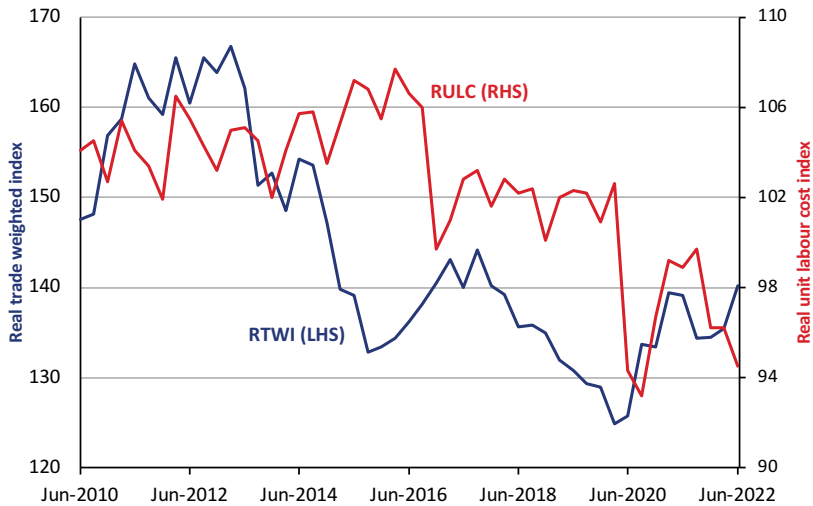


Figure 1.6 Measures of international competitiveness

Purchasing Power Parity

Should the same goods sell for the same price in different countries? For example, should the same model iPhone sell for the same price in Australia and the United States, after the prices are converted using the current exchange rate? Purchasing power parity (PPP) is the theory that says they should. If the prices are different then this would suggest that the exchange rates are not correctly aligned. If a good in Australia sells for $100, then that same good should sell for $75 in the United States if the exchange rate was AUD 1 = USD 0.75 (or USD 1 = AUD 1.33).

So the simple formula to see if PPP holds is:

$$Ep = P1/P2$$

where: Ep is the ppp exchange rate between the two countries ; P1 is the price of the good in country 1; and P2 is the price of the good in country 2

Let's test the formula for a number of different goods. The following table shows the prices for four different goods in the US and Australia as at 26th October 2022 and then shows the implied PPP exchange rate. The actual exchange rate at the time was AUD 1 = USD 0.64. Notice the wide range of values for the implied exchange rate - from AUD 1 = USD 0.57 to USD 0.71.

Good	Price in $US	Price in $AUD	PPP exchange rate
iPhone 14 pro	$999	$1749	$AUD1 = $US0.57
Starbucks latte	$2.95	$4.80	$AUD1 = $US0.61
iPad	$449	$749	$AUD1 = $US0.60
Microsoft 365	$69.99	$99	$AUD1 = $US0.71

A famous example of applying the PPP theory is the 'Big Mac' index created by the Economist magazine. This index compares the prices for a 'Big Mac' sold in McDonald's stores in different countries. This simple index is useful in determining whether an exchange rate is under or overvalued. The 'Big Mac' index for 2022 is shown in figure 1.7. According to the Purchasing Power Parity (PPP) theory, a 'Big Mac' should sell for the same price in different countries, once converted to a common exchange rate. Column 2 in the table shows the prices for a Big Mac in each country's local currency. This is converted into the US price using the exchange rate. For example, in Australia a Big Mac sells for $6.70 (USD4.63. In July 2022 the exchange rate was USD 1 = AUD 1.45 or AUD 1 = USD 0.69.

The table shows the wide disparity in the price of a Big Mac measured in US dollars – from $2.34 in Indonesia (less than half the US price) to $6.70 in Switzerland. We can use the data to derive some interesting results. If we divide the actual Australian price of the Big Mac ($6.70) by the US price ($5.15) we get the implied PPP exchange rate. This suggests that USD 1 should equal AUD 1.30 or equivalently AUD 1 should equal USD 0.77. This suggests that Australia's exchange rate in July 2022 was undervalued by 10 per cent. When you compare actual exchange rates in the table with the implied PPP rate, you will see that most currencies are trading well below their implied value, meaning that they are undervalued. Two currencies in the table that are overvalued are Sweden (9 per cent more expensive) and Switzerland (30 per cent more expensive).

It is important to remember that PPP is meant to be a long term indicator showing where currencies might trend in the future. Why do the prices in the Big Mac index vary so widely once converted into a common currency? It is basically due

Figure 1.7 The 'Big Mac' Index (July 2022)

According to the purchasing power parity (PPP) theory, the same product should sell for the same price in different countries. This table shows a wide disparity in the price of a Big Mac measured in US dollars - from $2.34 in Indonesia to $6.70 in Switzerland.

Country	Big Mac in local currency	Exchange rate ($1US) July 2022	Big Mac in $US	Implied PPP of $US	% Over or Under Valued
Australia	A$6.70	1.45	4.63	1.30	-10
Britain	£3.69	0.83	4.29	0.59	-25
Canada	C$6.77	1.29	5.25	1.31	+2
China	Yn24	6.75	3.55	4.66	-31
Euro Area	€4.65	0.97	4.79	0.90	-7
Indonesia	35000R	14977	2.34	6796	-55
Japan	¥ 390	137.9	2.83	75.7	-45
Malaysia	Myr 10.9	4.45	2.45	2.12	-52
Singapore	S$5.90	1.39	4.24	1.15	-17
Sweden	Kr 57	10.20	5.59	11.07	+9
Switzerland	Fr 6.50	0.97	6.70	1.26	+30
United States	$5.15	1.00	5.15	1.00	0

to differences in the costs of producing a Big Mac across countries. Prices will reflect the cost of key inputs such as raw materials and wages. Real wages are determined by labour productivity. A country that is relatively more productive at producing tradable goods will have higher wages for workers in that sector. This will drive up prices and wages in the non-tradable sector, including the fast food industry. This is why the price of a Big Mac is higher in countries such as Sweden and Switzerland and lower in Indonesia and China.

A better guide to show purchasing power parity would be to compare the prices of a good which did not reflect differences in input costs, for example a uniform product such as the Apple iPad or iPhone. The official price for an iPad in Australia in October 2022 was A$749 while in the United States it was $449. The implied PPP of the US dollar is 1.67 (749/449) which suggests that the implied exchange rate of the Australian dollar should be US$0.60. The actual exchange rate was AUD 1 = USD 0.64. This suggests that the Australian dollar is relatively close to its implied PPP value. What if we compare the prices of the iPhone 14? In the United States it sells for US$799, while in Australia it sells for $1399. This implies that AUD 1 should equal USD 0.57! This seems odd given that the iPad price difference is closer to the PPP value. Perhaps Apple is taking advantage of the popularity of the iPhone in Australia? There are only three countries where the iPhone has 60 per cent or more of the market - Japan, the United States and Australia. This means that Apple can sell its smart phone at a premium price in these markets.

Globalisation

Globalisation is one of the defining trends of the modern era. It is discussed everywhere from political and business circles to the ordinary person in the street. The term globalisation generally refers to the opening of international borders to the flows of trade, investment, immigration, information and technology. The many, substantial benefits of globalisation include higher average incomes, greater innovation, richer cultural exchanges and improved standards of living around the world. Globalisation is often wrongly blamed for many of the world's problems including climate change, world poverty and environmental degradation. But this is a myth reported by those who are opposed to change and progress. What is an undeniable fact, is that globalisation has been responsible for creating unprecedented prosperity. The evidence for globalisation is seen in the ever expanding trade in goods and services, the growth in foreign investment and the increased movement of people. It has been propelled by cheaper and faster transportation, more innovative information technology, fewer or lower trade barriers, and better economic management. Joseph Stiglitz, a winner of the Nobel Prize for Economics, defines globalisation as:

> *"the closer integration of the countries and peoples of the world brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and people across borders".*

Indicators	1990	2000	2010	2021
A. Economic:				
Total Trade (% GDP)	39	51	57	57
High income countries	41	51	59	57
Low income countries	-	59.1	66.9	53.5
Tariff rate, mean all products	15.0	10.8	7.5	5.2
High income countries	8.4	6.5	4.8	3.9
Low income countries	-	13.4	12.8	11.0
FDI net inflows, $US billions	205	1357	1391	1582
High income countries	171	1134	761	746
Low income countries,	0.5	5	23	26
B. Social				
Fixed Broadband Subscribers, per 100 people	..	0.4	8	16
High income countries,	..	1.7	26	36
Low income countries	..	..	0.1	0.5
Mobile Phones, per 100 people	0.1	12	76	106
High income countries,	1.0	48	109	122
Low income countries,	0.0	0.0	28	59
International Tourist Arrivals, millions	1082	1332	1756	2403
High income countries, millions	790	930	1153	1522
Low income countries, millions	-	4.4	13.4	17.4

Source: World Bank

Figure 1.8 Indicators of globalisation

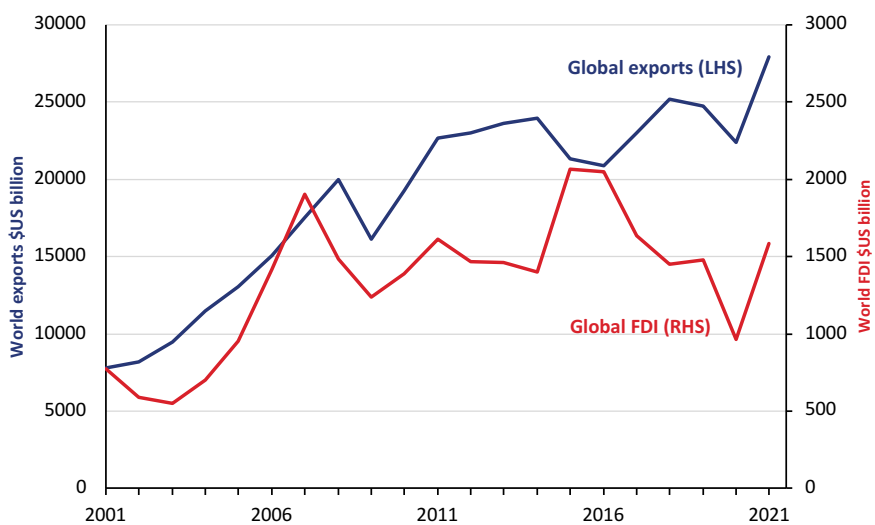
There are many indicators that illustrate how goods, capital, and people have become more globalised:

- the value of trade (goods and services) as a percentage of world GDP increased from 39 percent in 1990 to 57 percent in 2021;
- the average global tariff rate on all goods has fallen dramatically from 15 per cent in 1990 to just 5 per cent in 2020;
- since 1990, inflows of foreign direct investment (FDI) have increased by a factor of seven - increasing from US$205bn in 1990 to US$1582bn in 2021;
- the number of internet subscribers per 100 people has increased from 0.4 in 2000 to 16 in 2021 (a factor of 40);
- the number of mobile phone subscriptions per 100 people has increased from 12 in 2000 to 106 in 2021 (a factor of 9); and
- the number of international tourist arrivals has more than doubled between 1990 and 2021.

The key measures of globalisation that most economists focus on are trade in goods and services and foreign direct investment (FDI) flows. FDI involves the direct investment by companies or governments into foreign firms or projects. It is usually defined as an investment that acquires at least 10 per cent equity in the foreign enterprise. Foreign investment brings many benefits to the recipient economy in terms of because it brings with it new technology, management know-how, skilled labour and access to international markets.

Trade has been the 'engine of globalisation'. Since 1990, the volume of world trade has grown at twice the rate compared with the growth of world GDP. The most commonly used measure of a country's trade openness is the ratio of a country's trade to GDP. This ratio, has on average, increased quite markedly across all groups of economies, including both developed and developing countries. It represents a quick and simple measure of a country's level of integration with the rest of the world. Research has shown that those economies that increase their trade openness over time experience faster rates of economic growth. Between 1990 and 2021, world trade as a proportion of GDP have increased from 39 per cent to 57 per cent. Figure 1.9 shows the growth in both global exports and foreign direct investment (FDI) since 2001 measured in billions of $US. Notice that FDI flows are more volatile than trade. World exports more than tripled between 2001 and 2021, rising from $US 8 trillion to $US 28 trillion while FDI inflows doubled over the same period from $US 800 billion to $US 1600 billion. Generally world trade and FDI show a positive relationship since they both correlate with global economic growth. Rising trade and investment are associated with periods of strong economic activity. Periods of contraction such as the global financial crisis (GFC) and the pandemic of 2019-20 saw sharp declines in both trade and investment.

Figure 1.9 Global exports and foreign direct investment



Many people think that globalisation is a relatively recent phenomenon, however, it has been occurring since the dawn of civilisation. The first wave started in Europe around 1870 and ended with the beginning of World War I (1870 - 1914). This wave of international integration was fueled by colonial expansion and the onset of the industrial revolution. The second wave of globalisation began after the Second World War and extended to the GFC of 2009. Both episodes were characterised by strong growth in trade and living standards (GDP per capita). The period of history between these waves was a period of economic upheaval with the World Wars and the Great Depression of 1930. This was an era of anti–globalisation, during which countries pursued protectionist policies which slowed world growth and development. The decades between 1990 and 2010 were a particularly rapid era of globalisation that coincided with a number of important global events – the end of the Cold War; the birth of the Internet; the creation of the World Trade Organisation (WTO) and the emergence of China as an economic superpower.

The decade after 2010 has been quite different with a marked slowdown in the pace of globalisation. The Economist magazine referred to this period as the era of 'slobalisation'. This period has been characterised by an escalation of trade tensions with many countries. The global financial crisis of 2009 caused the world economy to contract and this had a lasting negative impact on world trade. Many countries reverted to protectionist policies and imposed barriers on the movement of both goods and people. The US-China trade war and the pandemic resulted in a decrease in all the measured indicators of globalisation – trade, investment and travel.

The Swiss Economic Institute (KOF) publishes an annual globalisation index which measures the economic, social and political dimensions of globalisation. It is used to monitor changes in the levels of globalisation of different countries over a long period of time. Figure 1.10 shows this index for several countries, including Australia, from 1985 to 2019 (latest data available). The index measures globalisation on a scale from 1 to 100. The economic dimension includes both trade flows and financial flows. The social dimension includes personal contact, information flows and cultural globalisation. The political dimension is measured in terms of the numbers of embassies and international nongovernmental organisations (NGOs) as well as participation in UN peacekeeping missions.

The Netherlands was ranked the most highly globalised country in the world in 2019, followed by Switzerland and Belgium. Interestingly, the top 15 ranked economies are all in Europe, due to their high levels of economic, social and political connections within the European Union.

Small countries tend to be more strongly globalised than large ones because they are more highly interconnected with neighbouring countries. The United States was ranked 24th, while Japan – the world's third-largest economy – was 36th. China comes in the lower third of the overall index, ranking 80th. Australia was 28 out of 208 countries which given its isolation as an island continent, means it 'punches above its weight'. What the graph reveals is that most countries

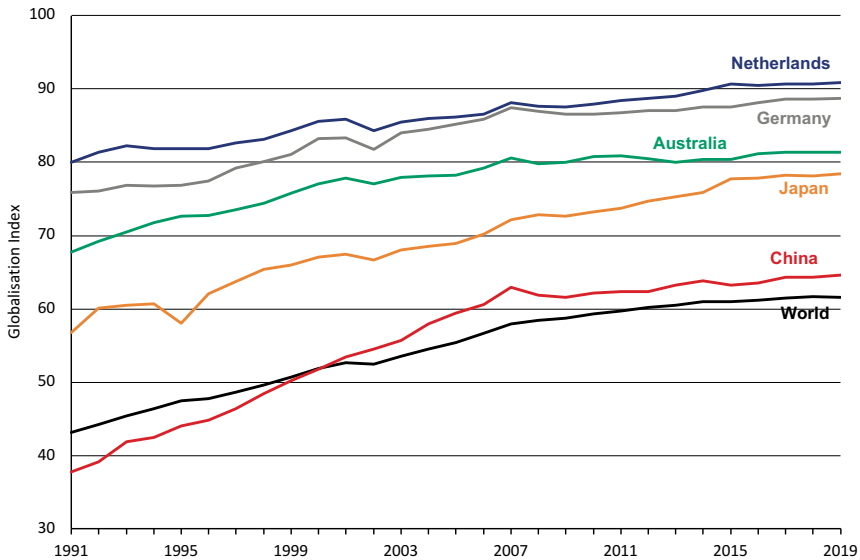


Figure 1.10 The KOF index of globalisation

experienced a consistent rise in their index from 1991 to 2010. But since 2010, the index has plateaued due to the weaker world economy and opposition to free trade. The 2020 pandemic is likely to have a negative effect on each countries index.

Factors facilitating globalisation

There have been a number of important drivers of globalisation. The first has been the liberalisation of markets to the flow of goods, services and investment. This process began after World War II with the establishment of a number of United Nations organisations, including the GATT, the International Monetary Fund (IMF) and the World Bank. Chief of these was the GATT – the General Agreement on Tariffs and Trade. This was set up in 1947 with the aim of reducing barriers to trade to increase general living standards and promote full employment.

Originally, the GATT was supposed to become a full international organization like the World Bank, but it remained an agreement until superseded by the WTO in 1995. Since 1990 world tariff rates have fallen from an average of 15 per cent to just 5 per cent. Today average tariff rates are below 4 per cent in high income economies and 11 per cent in low income countries. Regional trading groups (or trading blocs) such as the European Union, NAFTA and ASEAN have also flourished and have encouraged the expansion of free trade by reducing or eliminating trade barriers. Australia, for example, has been very active in pursuing free trade agreements with both individual countries and with regional groups.

A second factor driving recent globalisation has been technology. Advances in transport and communication have resulted in 'the death of distance'. Transport costs and travel time have been drastically cut, helping to boost the volume of merchandise trade and increase tourist travel to record numbers. Advances

International agencies fostering globalisation

The *World Trade Organisation (WTO) - the successor or 'son of GATT' was established in 1995 and is the only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible. It does this by administering trade agreements, acting as a forum for trade negotiations and settling trade disputes.*

The International Monetary Fund (IMF) - is an organization of 186 countries, working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world. The IMF was established at the end of World War II with the responsibility of overseeing the international monetary system to ensure exchange rate stability and encouraging members to eliminate exchange restrictions that hinder trade.

The World Bank - was also established in 1944 with the purpose of reducing world poverty by promoting global economic development. It does this by providing low or no interest loans and grants for economic and social development projects to developing countries that have limited access to international credit markets.

in information technology have enabled the growth of trade in services. Many services that were once thought of as non-tradable are now being outsourced to countries such as India - business services such as accounting, marketing and IT support. India has now become the world's leading exporter of IT services.

Multinational corporations have also played an important role in promoting globalisation. Multinational corporations (MNCs) are very large firms with headquarters in one country and subsidiaries in one or more other countries. These firms establish production and/or retail and distribution facilities in other countries. Think of major global firms such as Facebook, Apple, Nike and Microsoft from the United States, Shell and Vodafone from the United Kingdom, Toyota and Sony from Japan, Samsung and Hyundai from Korea, Nestle from Switzerland and Volkswagen from Germany. Even Australia has several MNCs, including BHP and Rio Tinto. Over the last 40 years, the number and size of multinational corporations has increased dramatically.

In 1970, there were just 7,000 MNCs, whilst today there are over 100,000 parent companies operating with around one million subsidiaries or affiliates in almost all industries and countries in the world. Multinational corporations account for around a quarter of global GDP. Why do multinational firms expand into foreign markets? Basically to increase their sales, market share and profits. To increase sales to a foreign market a firm has a choice of either exporting to the foreign location or establishing a subsidiary through foreign direct investment. Foreign direct investment (FDI) occurs when a firm in one economy acquires at least 10 per cent ownership of a foreign firm. Foreign direct investment has become an important link in the process of globalisation. In developed economies, FDI tends to be associated with mergers and acquisitions of foreign companies. In developing economies FDI is more associated with the construction of new facilities and is known as 'greenfield' investment.

The effects of globalisation

Globalisation has become a controversial issue. On one side are the economic rationalists who argue that globalisation will improve economic welfare. On the other side are the critics who argue that globalisation, while creating benefits for some, imposes costs on poorer economies and on disadvantaged workers. They argue that globalisation is simply making the rich richer and the poor poorer. First lets focus on the arguments against globalisation. Meetings of the WTO and other global groups such as the G20 are often plagued by violent demonstrations against free trade. Globalisation is seen as favouring the richer, developed nations of the world at the expense of the less developed countries. Global poverty has not been reduced and income inequality around the world appears to have increased. Anti–globalisers argue that free trade results in job losses in less competitive economies. By erecting barriers to trade such as tariffs, local jobs can be protected against unfair foreign competition. Free trade is also seen as leading to greater environmental damage due to increased industrialisation. Some argue that globalisation destroys cultural diversity with local markets being overrun by global brands. The recent increase in global financial flows is also seen as the cause of financial crises in many developing economies.

How do the advocates of globalisation respond to the critics? Most economists understand the economic case for free trade and see the modern form of globalisation as part of this process. The case for trade was put succinctly by the WTO Director General Mike Moore. He regards trade as an important ingredient to improved living standards:

> *"Trade works its wonders in many ways. Higher exports pay for goods and services that are more cheaply priced abroad. The need to compete in world markets forces companies to become more efficient. And exporting firms provide good, high paying jobs...Imports too bring many benefits. Cheaper food and clothing for working families. Cheaper and better cars and electronic goods. Cheaper inputs to make businesses more competitive. And last but not least, new technologies and greater competition, both of which boost economic growth."*

Arguments for globalisation	Arguments against globalisation
It provides access to a wider variety of goods and services	It results in higher unemployment among low-skilled workers
It lowers prices	It lowers wages
It provides more and better-paying jobs	It destroys local cultures
It increases competition & efficiency	It erodes democracy
It reduces global poverty	It increases poverty
It increases economic growth	It is unfair to developing countries
It increases overall living standards	It increases environmental damage
It has enabled developing economies to access foreign investment	Volatile capital flows have destabilised developing economies
It increases multiculturalism	It can enable the rapid spread of a pandemic

There is substantial evidence that as countries 'globalise' their people benefit, in the form of access to a wider variety of goods and services, lower prices, more and better-paying jobs, improved health, and higher overall living standards. The evidence shows that over the past 30 years, as the number of countries engaging in globalisation has increased, the percentage of people living in extreme poverty (defined as living on less than $1 per day) has been cut in half.

A core element of globalisation is the expansion of world trade through the elimination or reduction of trade barriers, such as import tariffs. Greater imports offer consumers a wider variety of goods at lower prices, while providing strong incentives for domestic industries to remain competitive. The East Asian miracle is testament to the success of export led growth. Producing for the world market promotes efficiency and enhances national competitiveness. Open economies lead to more jobs, higher wages and better standards of living. Greater openness can also attract foreign direct investment (FDI), which helps to boost domestic production and employment and is an important source of new technologies – thus promoting higher productivity. Foreign direct investment (FDI) is a key element in international economic integration. FDI creates direct, stable and long-lasting links between economies. It encourages the transfer of technology and know-how, and is also an additional source of funding for investment

"It has been said that arguing against globalisation is like arguing against the law of gravity." (former UN Secretary General Kofi Annan)

Globalisation unites people around the world by promoting a common culture. The more economically interdependent the world becomes, the more people will trade and communicate with one another. This leads to inherent stability and the promotion of world peace. Notice that the most politically unstable and violent time of the 20th century was the period between 1914 and 1945. This was the period of 'protectionism' when globalisation went underground.

Free trade does create winners and losers. However the winners gain more than the losers, so that it is possible to compensate the losers and result in a net gain for the economy. It is a similar argument to the effects of technological change. Technology imposes costs on some sections of the community but also leads to net gains. Should the world stop the advance in technology? Of course not. Research carried out by the World Bank found that since 1980, globalisation has contributed to a reduction in poverty as well as a reduction in global income inequality. They found that in 'globalising' countries in the developing world, income per person grew three–and–a-half times faster than in 'non-globalising' countries'. In general, they concluded that 'higher growth rates in globalising developing countries have translated into higher incomes for the poor.'

More recent events such as the China/United states trade war, the United Kingdom exiting the European Union (Brexit) and the COVID-19 pandemic signal that the world maybe moving away from globalisation. A new political climate is developing in which trade liberalisation is increasingly unpopular. The IMF believes that the failure to support displaced workers and others affected

by globalisation has encouraged protectionist sentiment in many countries. To prevent the world from slipping into a new protectionist era, governments should not only focus on economic growth but also on reducing inequality. It is prudent to conclude the discussion of the globalisation debate with a quote from one of the world's leading economists, and Nobel Prize winner, in the field of economic development, Amartya Sen:

> *"Over thousands of years, globalisation has contributed to the progress of the world, through travel, trade, migration, spread of cultural influences, and dissemination of knowledge and understanding (including of science and technology). To have stopped globalisation would have done irreparable harm to the progress of humanity."*

Worksheet 1

Read the introductory sections of the chapter to answer these questions:

1. What are the key elements in the definition of globalisation?
2. Why do open economies grow faster?
3. Describe the main linkages between economies.
4. Why is merchandise trade much larger than trade in services?
5. Explain why there is a positive relationship between trade and economic growth.
6. What is the largest category of world trade?
7. Describe the main types of services that are traded.
8. Manufactured goods account for ____ % while services account for ____ % of world trade.
9. Which three countries are the world's leading exporters?
10. Explain why China has become the world's largest exporter.
11. Explain how a currency depreciation will affect a country's trade?
12. How will an increase in productivity affect Australia's trade?

Worksheet 2

Read the competitiveness and globalisation sections to answer these questions:

1. Define international competitiveness.
2. Explain the key factors that affect a country's international competitiveness.
3. What are the important drivers of competitiveness according to the WEF and the IMD?
4. What is the trade weighted index?
5. What impact does an appreciation have on a country's international competitiveness?
6. Describe the purpose of the 'Big Mac' index.
7. What does purchasing power parity mean?
8. Explain why the prices of Big Macs are not the same worldwide.
9. Define globalisation.
10. What is the 'engine of globalisation'?
11. How is trade openness measured?
12. Describe four different indicators of globalisation.
13. Describe three main causes of globalisation?
14. Outline three arguments against globalisation and three arguments for globalisation.

Multiple Choice

1. Which of the following describes an effect of globalisation?
   a. There has been a greater divergence in world economic systems.
   b. There has been an increase in global poverty.
   c. There has been an increasing trend towards regulation of markets.
   d. There has been an increase in the flow of financial capita.l

2. What would limit the globalisation process among nations?
   a. Increases in the number of free trade agreements.
   b. Increases in the flow of direct foreign investment.
   c. Increases in the volume of trade flows.
   d. Increases in tariffs.

3. Which of the following describes a role of the World Trade Organisation?
   a. it promotes international financial stability.
   b. it regulates investment in public infrastructure.
   c. it advocates protectionist policies for developing countries.
   d. Iit monitors developments in world trade and reviews barriers to trade.

4. Multinational corporations
   a. seek to maximize profit margins in all of their subsidiary operations.
   b. cannot exist without global markets.
   c. are the merger of companies from two or more countries.
   d. invest and/or operate in more than one country.

5. Which of the following is not an international capital flow?
   a. An American depositing money in a bank account in Switzerland.
   b. A Canadian purchase of a Japanese-made automobile.
   c. A Brazilian firm borrows from an Argentine bank.
   d. A Korean car company buys a factory in California.

6. Critics of globalisation generally argue that globalisation
   a. helps spread the best of each country's culture.
   b. reduces income inequality.
   c. causes a degradation in the world's environment.
   d. helps each country safeguard the best of its own culture.

7. Which international organisation is mainly responsible for monitoring and enforcing global multilateral trade agreements?
   a. The Global Trade Network.
   b. Asia Pacific Economic Co-operation.
   c. World Trade Organisation.
   d. International Monetary Fund.

8. What is the role of the International Monetary Fund (IMF)?
   a. To implement and advance global trade agreements.
   b. To settle industrial and trade disputes between members.
   c. To help poorer countries with their economic development.
   d. To maintain international financial stability in global financial markets.

9. Which of the following would increase Australia's competitiveness?
   a. An increase in Australian tariffs.
   b. An increase in Australian wage rates.
   c. An increase in productivity.
   d. An increase in inflation in Australia.

10. Which of the following could decrease Australia's competitiveness?
    a. An decrease in Australia's inflation rate.
    b. A fall in interest rates in Australia.
    c. An appreciation of the Australian dollar.
    d. A decrease in average weekly earnings in Australia.

11. The largest category of global trade is
    a. agriculture.
    b. manufacturing.
    c. oil.
    d. services.

12. If the same basket of goods cost $400 in Australia and 200 pounds in the UK, then according to the purchasing power parity theory
    a. goods must cost half as much in the UK as in Australia.
    b. the exchange rate should approach $2 per pound.
    c. the exchange rate should approach $0.50 per pound.
    d. goods must cost half as much in Australia as in the UK.

13. If the purchasing power parity theory is true then
    a. the price of a traded good should be the same everywhere in the world.
    b. exchange rates should be the same everywhere in the world.
    c. interest rates should equalise around the world.
    d. inflation rates should equalise around the world.

14. Research by the World Bank has concluded that globalisation has
    a. increased world poverty and income inequality.
    b. decreased world poverty and income inequality.
    c. decreased world poverty but increased environmental damage.
    d. increased income inequality but decreased world poverty.

15. One possible argument against globalisation is that it may
    a. lead to higher rates of domestic inflation.
    b. create short term structural unemployment in less efficient industries.
    c. result in increasing deficits in Australia's trade balance.
    d. lead to lower rates of economic growth.

16. Which of the following is not likely to be associated with globalisation?
    a. Higher levels of protection against cheap foreign imports.
    b. An increase in exports as a proportion of nations' Gross Domestic Product.
    c. Growth in the influence of multinational corporations.
    d. Higher rates of economic growth for countries becoming more open.

17. Governments have facilitated globalisation by
    a. encouraging democracy.
    b. reducing restrictions on international businesses.
    c. encouraging people to buy domestic production only.
    d. introducing subsidies.

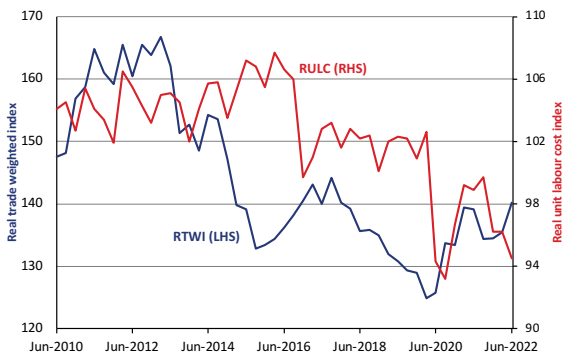
18. Australia's international competitiveness will most likely increase if
    a. the Australian dollar appreciates relative to our trading partners' currencies.
    b. the Australian Government spends more on ports and railroads.
    c. Australian workers' wages increase faster than their productivity.
    d. GDP growth is higher in Australia than in other countries.

19. Australia's international competitiveness would improve if
    a. the nation's trade intensity was reduced.
    b. wage costs rose faster than productivity.
    c. the Trade Weighted Index rose.
    d. industry subsidies and tariffs were further reduced.

20. Which of the following would support economic growth in a developing economy?
    a. Increased government control of key industries and resources.
    b. Government policies aimed at national self-sufficiency.
    c. Ttariffs on imports to support local industries.
    d. Greater integration into the world economy.

Data interpretation

Refer to the graph showing Australia's real TWI and real unit labour costs.



1. What does the real trade weighted index measure?
2. Explain the change in the real TWI between 2017 and 2020. How would this affect Australia's tourism and education sectors?
3. Explain the effect of the following on RULCs:
    i. an increase in productivity;
    ii. an increase in inflation.
4. Explain why a rise in real unit labour costs decreases competitiveness.

Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples if appropriate. Pay attention to the allocation of marks when writing your answer.

1. Explain the meaning and significance of the concept 'international competitiveness'. What factors are important in determining a country's competitiveness? [20 marks]

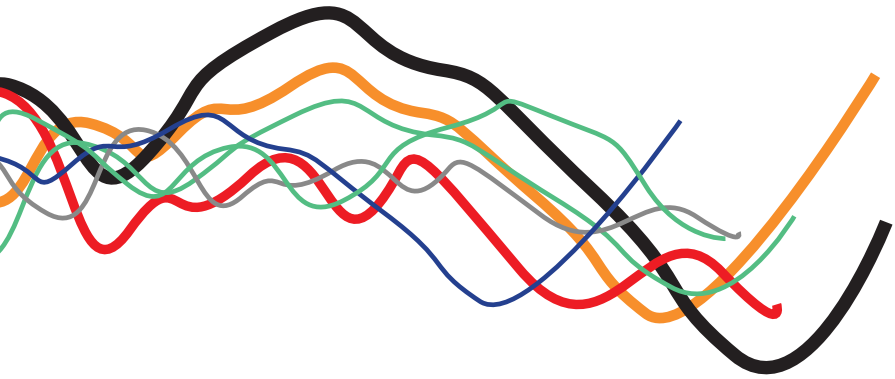
2. a. Discuss the nature of globalisation and the factors that have facilitated globalisation. [10 marks]

   b. Evaluate the arguments for and against globalisation. [10 marks]

3. Consider Stiglitz's definition of globalisation. What examples can you offer of "the closer integration of the countries and peoples of the world"? Why have the costs of transportation and communication come down so dramatically? What "artificial barriers" do you think Stiglitz is referring to? [20 marks]

4. a. Describe the linkages between economies, including trade, investment, tourism and immigration. [10 marks]

   b. Discuss the economic effects of globalisation. [10 marks]

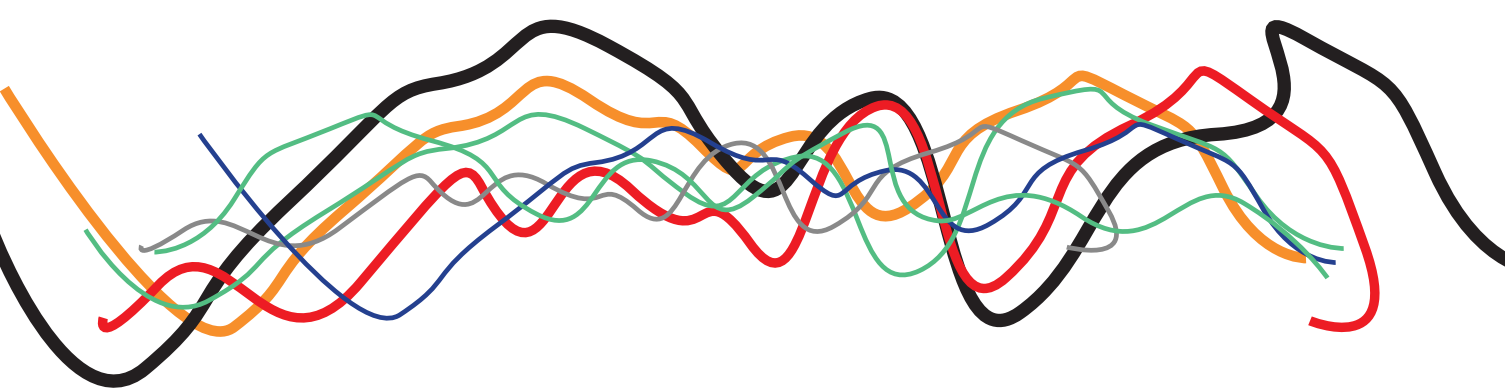


2

Free Trade and Protection

Chapter concepts

- *the significance of trade for the Australian economy*
- *the theories of absolute and comparative advantage*
- *the gains from specialisation and trade*
- *forms of protection*
- *the operation of tariffs and subsidies as forms of protection*
- *arguments for and against trade liberalisation*
- *the influence of trade agreements, organisations and blocs on world trade*



The significance of international trade

The Australian economy has always relied on the international sector – not just for the sale and purchase of goods and services, but also for funds for investment. Historically, Australia has been a significant exporter of primary commodities (minerals and agricultural products); an importer of manufactured goods; and an importer of financial capital. This has meant that trade and foreign investment have played a major role in the economic development of our economy.

Traditionally, Australia has been described as a small open economy. The 'small' refers to the size of its economy in terms of both population and total production or Gross Domestic Product. But Australia could no longer be described as a small economy. Australia's population has now grown to over 26 million and Australia's annual GDP exceeds $2 trillion. Australia has in fact become the world's 12th largest economy. It would be more correct to refer to Australia as a medium size open economy. The 'open' means that the movement of goods, services and capital is generally unrestricted, that is, they can move freely between Australia and the rest of the world. Protectionist policies such as the use of tariffs, subsidies and quotas hamper the free movement of goods and services, and Australia has reduced its level of protection to domestic industry to historically low levels.

Trade is important because it can expand a nation's consumption possibilities by providing access to other countries' production through imports. Exporting increases a nation's production, while importing increases consumption. A country gains when it exports goods and services it can produce at a relatively low cost. But equally a country also gains when it imports goods and services it produces at a relatively high cost. Exporting enables Australian firms to reach a potential market of over 7 billion people. Importing allows Australian households to consume goods and services that are either not produced in Australia or are too costly to produce. Engaging in trade permits increased specialisation, economies of scale, increased productivity and higher real incomes. There is a strong link between trade and economic growth. The countries that have experienced the fastest growth rates in trade have also achieved high rates of per capita income growth. Trade has been an important 'engine of growth' for many countries. This has certainly been the case for explaining the rapid growth of the East Asian region – economies such as Japan, Korea, Singapore and China.

Did you know . . .? Australia is the world's

- largest exporter of iron ore and coal
- largest exporter of liquefied natural gas (LNG)
- largest producer of lithium, zirconium and titanium mineral sands
- largest producer of iron ore and bauxite
- 2nd largest producer of gold
- 2nd largest producer of wool
- 2nd largest exporter of beef
- 3rd largest exporter of copper ores

Trade is vitally important to the Australian economy

- Trade (exports and imports) is a large part of the Australian economy, accounting for over 46 per cent of GDP.
- Trade has been an important driver of economic growth. Over the past 30 years, Australia's economy has doubled in size; exports have accounted for over a quarter of this growth.
- Trade liberalisation over the past 30 years has benefited the Australian economy, with both real GDP and real income being much higher than otherwise.
- Many Australian jobs rely on trade. Around one in five Australian workers are employed in a trade-related activity. This includes workers in export-focused industries like agriculture, minerals and energy, but also, in the many industries involved with the importation of goods and services.
- Consumers are big beneficiaries of trade. Trade means access to a wider variety of goods and services at more competitive prices, boosting living standards. The price of audio, visual and computing equipment has fallen over 50 per cent in the past five years.
- Imports reduce Australian production costs and increase employment. Over half of all Australian imports are essential inputs that businesses use to produce goods locally.
- Exposure to competition from overseas compels Australian firms to innovate and adopt more efficient production methods. More efficient resource use boosts economic growth.

Source: Productivity Commission

Figure 2.1 The significance of trade

International trade has become more important to the Australian economy over time. In 1990, exports accounted for 15 per cent of Australia's GDP. By 2020, exports had increased to 24 per cent of GDP. This means that around one quarter of Australia's income is sourced from exports and that one in five jobs is linked to trade. On the world stage, Australia is a relatively small exporter – Australia accounts for just 1.4 per cent of global exports, compared with around 11 per cent for China, the world's leading exporter. Exports add to national income, which can then be used to purchase imports. Given that Australia has a small economic base in terms of labour and capital, producing for the world market is a rational strategy to promote economic growth and higher living standards.

The gains from specialisation and trade

Nations trade because it is advantageous to do so. Any form of trade or exchange involves gains to both buyer and seller, whether it be at the international or personal level. The exchange of goods and services is a necessary characteristic of a specialised economy. Specialisation is not possible unless trade takes place. Teachers, doctors, tradesmen, miners and farmers are all specialists. The income they earn is used to purchase the goods and services they require which they do not produce themselves.

People specialise in tasks to which they are best suited, that is, in which they have an advantage. Likewise, countries specialise in the production of certain goods and services to which they are best suited. Surplus production can then be exchanged or traded for other goods and services. The alternative to specialisation is self–sufficiency. This would be equivalent to people having to grow their own food, make their own clothes, build their own houses, and provide for all their own medical and other professional services. In other words, a 'Robinson Crusoe' type economy.

International specialisation is made possible because of the uneven distribution and quality of resources between countries. Australia for example is well endowed with natural resources such as arable land, forests, minerals and energy supplies. Australia has become a very efficient producer of mineral resources, becoming a global leader in the export of iron ore, coal and liquefied natural gas. Japan is an example of an economy that lacks many natural resources, including mineral and energy resources, but has a relatively large skilled workforce and a highly developed industrial base. Japan has developed an expertise in producing high quality manufactured goods, such as motor vehicles and electronic equipment. Differences in the distribution of resources in terms of both quantity and quality will affect the cost of supplying goods and services. If production costs differ, then countries will benefit by specialising in the goods and services in which they are most efficient, exporting the surplus production and importing those goods and services in which they are less efficient at producing domestically.

In economics, relative efficiency is measured in terms of opportunity cost, which reflects the real cost of production. For example, an accountant may be highly skilled at two tasks – auditing and word processing. Should she divide her time between both tasks or employ an assistant to do the word processing, even though she is more efficient than the assistant? In this example, the accountant is said to have an absolute advantage over the assistant in both auditing and word processing, but her relative advantage is in auditing. The administration assistant is not absolutely efficient in either task, but he is relatively more efficient than the accountant in word processing. Relative advantage is called comparative advantage. The accountant is said to have an absolute advantage in both tasks, but has a comparative advantage in auditing while the assistant has a comparative advantage in word processing. In other words, the accountant would gain if she devoted all her time to her best task – auditing – while employing another person to perform the other task.

Rafael Nadal is an exceptional tennis player. He may also excel at cooking paella. Should Rafa divide his time between tennis and cooking? Of course not. Rafa is much better off by devoting his time to what he does relatively best – playing tennis – and pay someone to cook his favourite paella. In other words Rafa's comparative advantage is in playing tennis. At the international level, countries may also possess an absolute advantage or a comparative (relative) advantage in the production of goods and services. Countries will be better off if they export goods and services in which they possess a comparative advantage and import those goods and services in which they have a comparative disadvantage. This is a key point to remember – trade is based on differences in relative cost rather than absolute cost.

The principle of absolute advantage

A country is said to have an absolute advantage in the production of a good or service over another country if it can produce a greater quantity of that good with the same quantity of inputs (or the same quantity of output with fewer inputs). This means that a country with an absolute advantage in a good can produce that good at a lower absolute cost per unit. A simple model demonstrates how countries can gain through based on absolute advantage. The assumptions for this model are:

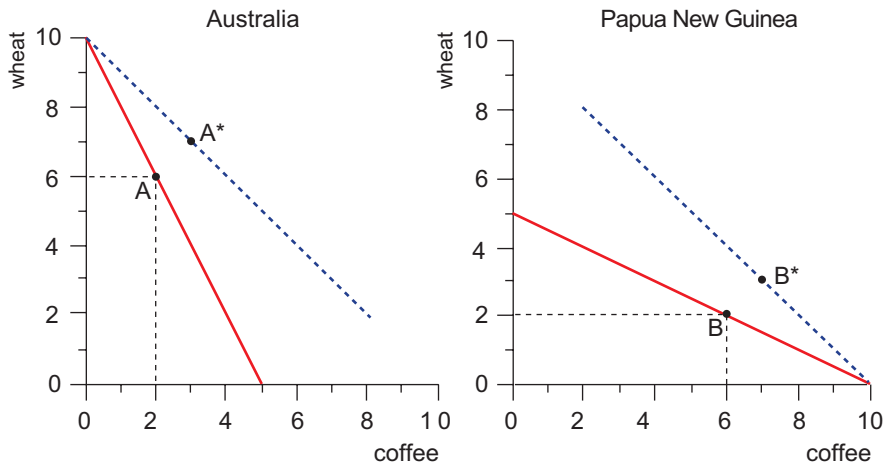
- the world consists of two countries – Australia and Papua New Guinea;
- each country produces and consumes two goods – wheat and coffee;
- resources are perfectly mobile – resources can be shifted between industries with zero displacement cost; and
- transport costs are not considered.

Figure 2.2 illustrates the model of absolute advantage. It shows the production possibilities for the two countries, assuming that they devote all their resources to producing either wheat or coffee. If Australia only produced wheat its total output would be 10 units. If it used all its resources to produce just coffee, then its output would be 5 units. Papua New Guinea with its resources can produce either 5 units of wheat or 10 units of coffee. This information is used to construct a production possibility frontier for each economy. Australia is said to have an absolute advantage in the production of wheat, while Papua New Guinea has an absolute advantage in the production of coffee. In isolation, each country can choose to produce at any point on their production possibility curve. This will depend on the country's preferences for the two products.

Assume that Australia chooses to produce at point A, while Papua New Guinea chooses to produce at point B. Before specialisation the 'world' production of wheat is 8 units, while the total production of coffee is also 8 units. If both countries specialise in producing the goods in which they have an absolute advantage, then total production will increase. Australia will specialise in producing wheat and Papua New Guinea will specialise in producing coffee. The total production of both wheat and coffee will now increase to 10 units – a net increase of two units of output for each good.

One possible trading position is shown in the bottom table of figure 2.2. Australia may choose to keep 7 units of wheat and export 3 units to Papua New Guinea in return for 3 units of coffee. In this case the terms of trade or rate of exchange would equal 1 unit of wheat to 1 unit of coffee. The terms of trade represents the rate at which different commodities exchange for each other between countries. The terms of trade or rate of exchange will always lie somewhere between the opportunity cost ratios for the two goods being traded. For example, the opportunity cost of 1 unit of wheat in Australia is 0.5 coffee, while in Papua New Guinea, the opportunity cost of 1 wheat is 2 coffee. Australia will export wheat as long as it can get more than 0.5 units of coffee. New Guinea, on the other hand will export coffee as long at it receives more than 0.5 units of wheat.

Production possibilities			
Country	Wheat		Coffee
Australia	10	or	5
Papua New Guinea	5	or	10



		Australia	PNG	Total
Before specialisation	wheat	6	2	8
	coffee	2	6	8
After specialisation	wheat	10	0	10
	coffee	0	10	10
After trade	wheat	7	3	10
	coffee	3	7	10

Figure 2.2 Absolute advantage

The blue dotted line represents the 'trading' frontier for each country based on the rate of exchange: 1 wheat = 1 coffee. After specialising and trading, each country is able to consume one more unit of both wheat and coffee. Australia can now consume at point A*, while Papua New Guinea can consume at B*. Each country is then able to enjoy a higher standard of living – able to consume outside their production possibility frontier! What if one country had the absolute advantage in both goods, that is, one country could produce both commodities more efficiently? Would it still be possible for both countries to gain in terms of higher consumption? To answer this question and show that it is possible for countries to gain even though they do not have an absolute advantage we need to look at the principle of comparative advantage.

The principle of comparative advantage

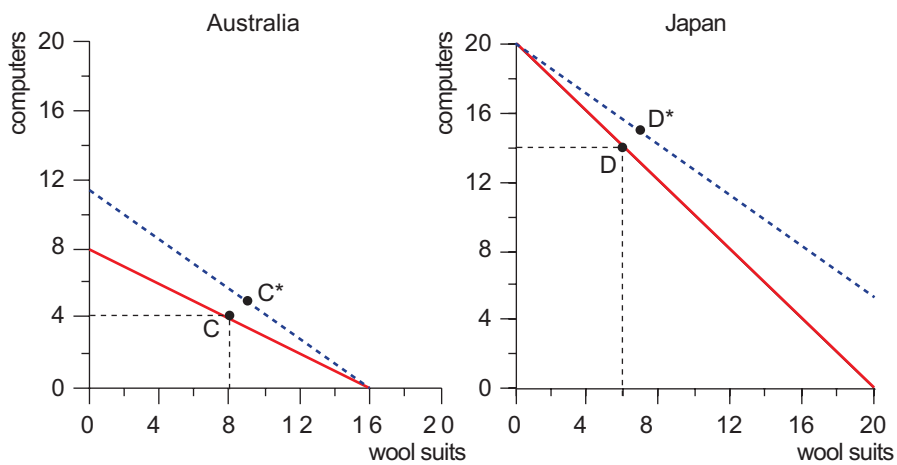
When a country has an absolute advantage in the production of both goods, its comparative advantage lies where its absolute advantage is greatest. The country

that has no absolute advantage has a comparative advantage in the good where its absolute disadvantage is smallest. A country is said to have a comparative advantage in producing a good or service if it can produce that good or service at a lower opportunity cost than another country. To illustrate the principle of comparative advantage for a country we will employ the same assumptions we used for the model of absolute advantage, except the two countries will be Australia and Japan, and the two commodities will be computers and wool suits.

Figure 2.3 illustrates the production possibilities frontiers for both Japan and Australia. Japan has an absolute advantage in the production of both computers and wool suits. It can produce a greater output from a given quantity of resources than can Australia. Japan's greatest absolute advantage, however, is in computers, while Australia's least disadvantage is in wool suits. In other words, Japan has a

Figure 2.3 Comparative advantage

Production Possibilities				Opportunity Costs		
Country	Computers		Clothing	Good	Australia	Japan
Australia	8	or	16	1 computer	2 clothing	1 clothing
Japan	20	or	20	1 clothing	0.5 computer	1 computer



		Australia	Japan	Total
Before specialisation	computers	4	14	18
	wool suits	8	6	14
After specialisation	computers	0	20	20
	wool suits	16	0	16
After trade	computers	5	15	20
	wool suits	9	7	16

comparative advantage in computers and Australia has a comparative advantage in wool suits. Comparative advantage is measured in terms of opportunity cost. For Australia, the opportunity cost of producing eight computers is the sixteen wool suits that cannot be produced. The opportunity cost of one computer therefore, is two wool suits. In Japan, the opportunity cost of one computer is only one wool suit. The opportunity cost of producing computers is lower in Japan than in Australia. Conversely, the opportunity cost of producing 16 wool suits in Australia is the 8 computers foregone. The opportunity cost of one wool suit in Australia, therefore is 0.5 of a computer. In Japan, the opportunity cost of one wool suit is one computer. Clothing is thus relatively cheaper to produce in Australia than in Japan (see figure 2.4). In our example, Australia has a lower opportunity cost in producing wool suits while Japan has a lower opportunity cost in producing computers. Australia should therefore specialise in producing wool suits while Japan should devote its resources to producing computers.

Both countries will gain if they specialise on the basis of comparative advantage and then trade their surplus production. The results are summarised in figure 2.3, given that Australia chooses to produce and consume initially at point C on its production possibility curve, while Japan chooses point D on its production frontier. After specialisation, total production of both computers and wool suits has increased by two units. Australia will export wool suits to Japan and import computers. The rate of exchange between computers and wool suits will again lie between the opportunity cost ratios. Australia will want to receive more than 0.5 computer for each wool suit it sells to Japan, while Japan will want to receive more than 1 wool suit for each computer it exports to Australia. In figure 2.4, one possible rate of exchange is shown - 1 computer for 1.4 wool suits or 1 wool suit for 0.71 computer. The blue dotted lines represent the 'trading' frontiers for each country based on the rate of exchange: 1 computer for 1.4 wool suits (or 1 wool suit for 0.71 computer). Australia keeps 9 wool suits and exports 7 to Japan. Japan keeps 15 computers and exports 5. After specialising and trading, each country is able to consume one more unit of each good. Australia can now consume at point C*, while Japan can consume at D*. Each country is then able to enjoy a higher standard of living - to consume outside their production possibility frontier!

The theory of comparative advantage has demonstrated that countries gain by specialising in the production of goods in which they have an opportunity cost advantage. That is, in goods which they are relatively more cost efficient. In fact, it is comparative advantage and not absolute advantage that is the basis for international trade. It is the difference in relative and not absolute costs that is important. Figure 2.4 provides a summary of the theory of international specialisation. In Case 1, Australia has an absolute advantage in wheat and Papua New Guinea has an absolute advantage in coffee. But the reason why both countries are able to gain as a result of specialisation and trade is because their opportunity costs differ. Australia has a lower opportunity cost in producing wheat (0.5 coffee) compared with Papua New Guinea (2 coffee), while the opportunity cost of producing coffee is lower in New Guinea (0.5 wheat) compared with Australia (2 wheat).

Case 1	Wheat		Coffee	Comment
Australia	10	or	5	Australia has an absolute (and comparative) advantage in wheat, Papua New Guinea has an absolute (and comparative) advantage in coffee.
Papua N.G	5	or	10	
Case 2	Computers		Wool Suits	Japan has an absolute advantage in both goods. Australia has a comparative advantage in wool suits, and Japan has a comparative advantage in computers.
Australia	8	or	16	
Japan	20	or	20	
Case 3	Good X		Good Y	Country A has an absolute advantage in both goods, but neither country has a comparative advantage, since the opportunity cost ratios are the same.
Country A	100	or	50	
Country B	60	or	30	

Figure 2.4 The gains from specialisation

Comparative advantage using inputs

Is it possible to determine comparative advantage when comparing the quantity of inputs to produce a good. For example the following table shows the number of labour hours it takes to produce one bicycle and one computer in two different countries.

Good	Country X	Country Y
Bicycle	30	40
Computer	20	50

Who has the absolute advantage? The answer is that country X has an absolute advantage in both products since it takes less hours to produce each good.

But which country has the comparative advantage? Country X's biggest advantage is in producing computers while country Y's least disadvantage is in producing bicycles. Can we still use opportunity cost ratios? The answer is yes, but it is calculated differently.

Country X: the opportunity cost of 1 bicycle = 1.5 computers (30/20)
the opportunity cost of 1 computer = 0.67 bicycles (20/30)
Country Y: the opportunity cost of 1 bicycle = 0.8 computers (40/50)
the opportunity cost of 1 computer = 1.25 bicycles (50/40)

Comparative advantage is still identified by who has the lowest opportunity cost - country X for computers and country Y for bicycles.

This means that Australia actually has a comparative advantage in wheat and Papua New Guinea has a comparative advantage in coffee. This is why specialisation results in an increase in production. In Case 2, Japan has an absolute advantage in the production of both goods but is relatively more efficient in computers while Australia is relatively more efficient in wool suits. Again there is a difference in opportunity costs, that is, there is a difference in comparative costs. When both countries specialise based on comparative advantage they will increase their consumption. In Case 3, country A has an absolute advantage in the production of both goods but has no comparative advantage since the opportunity costs are the same in both countries. In other words absolute advantage on its own is not sufficient to explain international specialisation. International trade hinges on differences in opportunity costs – comparative advantage.

Comparative advantage - the demand/supply model

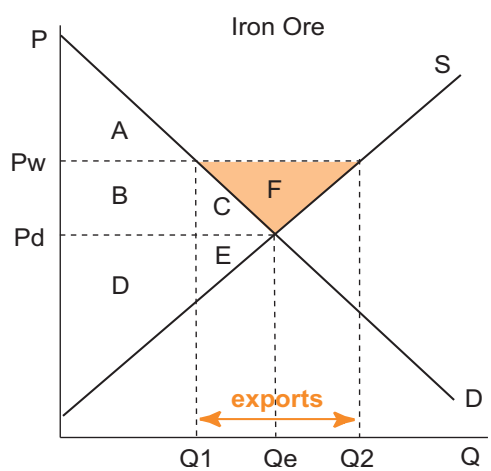
Comparative advantage and the gains from trade can also be illustrated using the model of demand and supply. A country will export a good or service if it has a comparative advantage in producing that good. Comparative advantage is measured using opportunity cost. The model of demand and supply determines the relative price of a good which is the same thing as opportunity cost. This means that by comparing the domestic price of a good with the world price we can determine whether a country has a comparative advantage. If the domestic price is lower than the world price, then the country must be relatively more efficient at producing this good. In other words, it has a lower opportunity cost - a comparative advantage – and it will benefit by exporting this good to the rest of the world.

Consider the market for iron ore shown in figure 2.5. Australia is an efficient producer of iron ore – the domestic price of wheat (Pd) is lower than the world price of iron ore (Pw). Australia has a comparative advantage in iron ore production. If Australia enters the international market it can sell its iron ore at the higher world price. Iron ore consumption in Australia will fall to Q1 but iron ore production will increase to

Figure 2.5 The gains from exports

If the world price for iron ore is above the domestic price for iron ore, Australia has a comparative advantage in producing iron ore and will export iron ore.
Exports = Q1Q2.

Australian iron ore producers gain, but domestic iron ore consumers lose. Consumer surplus falls by areas B and C. Producer surplus increases by areas B, C and F. Notice that producers gain more than consumers lose. Area F is the net increase in total surplus or economic welfare.

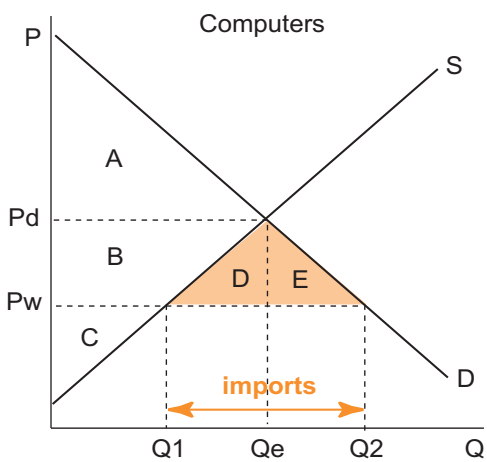


Q2. Australia will now export iron ore equal to Q1Q2. Notice that after trade, iron ore producers gain by selling more iron ore and receiving a higher price. Iron ore consumers in Australia however will lose because they consume less iron ore and pay a higher price. Trade always results in one group gaining while another group loses. Is there any point in trading? Yes, because the gains always exceed the losses. Australian producers of iron ore gain more than iron ore consumers lose! Australia will be better off by exporting – economic welfare will increase as a result of exports.

We can use the concepts of consumer and producer surplus to show the welfare effects of exports using figure 2.5. Before trade, consumer surplus equals the area A + B + C, while producer surplus equals the area D + E. After trade, consumer surplus decreases to area A – consumers lose areas B and C, due to the higher price, which is transferred to domestic producers. But not only do producers gain areas B and C, they also gain area F. Area F represents the net gain from exports. Exports therefore result in a net increase in economic welfare.

Can a country gain from imports? If a country does not have a comparative advantage in producing a good, then the domestic price will exceed the world price. This means that the rest of the world is relatively more cost efficient in producing the good. In this case, it will benefit the country by importing the good. Imports bring benefits in the same way as exports. Consider the market for computers in figure 2.6. The world price of computers (Pw) is lower than the Australian price of computers (Pd). This means that Australia is not as efficient in producing computers compared with the rest of the world. It will pay Australia to import computers at the lower world price. Consumption will increase to Q2 while domestic computer production will fall to Q1. Computer imports will equal Q1Q2. In the case of imports, domestic consumers gain from lower prices and increased consumption. Domestic producers of computers lose – they receive lower prices and sell less. However, consumers gain more than producers lose, so that overall economic welfare is again increased.

Figure 2.6 The gains from imports



If the world price for computers is below the domestic price for computers then Australia does not have a comparative advantage in producing computers and will import computers. Computer imports = Q1Q2. Australian consumers of computers will gain, but domestic computer producers will lose.

Consumer surplus increases by areas B, D & E. Producer surplus decreases by area B. Notice that consumers gain more than producers lose. Area D+E is the net increase in total surplus or economic welfare.

Figure 2.6 uses the concepts of consumer and producer surplus to show the welfare effects of imports. Before trade, consumer surplus equals the area A, while producer surplus equals the area B + C. After trade, consumer surplus increases to area A + B + D + E - consumers gain areas B, D and E due to the lower price. But after trade, producer surplus falls to area C - domestic producers lose area B to consumers. Area D + E represents the net gain from imports. The surprising result is that imports also create a net increase in economic welfare - just like exports. It is important to realise that countries gain from both exports and imports. Both result in a net increase in total surplus. In the case of exports, producers gain more than consumers lose, while in the case of imports, consumers gain more than producers lose.

The sources of comparative advantage

What determines a country's comparative advantage? What are the sources of comparative advantage? Comparative advantage is determined by the quantity and quality of the nation's human, natural and capital resources, and by technological progress. The sidebar shows some well-known areas of specialisation for several countries. Comparative advantage can be based on differences in climate and endowment of natural resources. Australia has traditionally had a comparative advantage in many primary industries such as agriculture and mining: wheat, wool, beef, iron ore, coal and natural gas. The Middle East is endowed with vast oil supplies, Canada has extensive forests and Brazil produces most of the world's coffee.

Country	Specialisation
Australia	iron ore, coal, education
Brazil	coffee
China	clothing, electronics
France	wine
Germany	motor vehicles
Korea	motor vehicles, electronics
Saudi Arabia	oil
Switzerland	watches, banking services
United States	software, aircraft, movies

Comparative advantage is not just limited to endowments of natural resources. It is also determined by the quantity and quality of a country's labour and capital resources. For example, Switzerland is renowned for its watch making industry and the provision of banking services. The United States has developed a comparative advantage in the television and film industry as well as computer software. Comparative advantage can and does change over time with improvements in technology and productivity. Japan became a major manufacturing nation post World War II. Over time Japan developed a comparative advantage in many industries, including motor vehicles and electronics. Australia has now developed a comparative advantage in education services and in medical research.

Not all countries take advantage of the theory of comparative advantage. Countries may choose to support and protect industries that are not economically efficient for cultural or political reasons – the tradeoff is a lower level of national income. The theory of comparative advantage is the theory of free trade. It is one of the most important principle of economics. Specialisation and trade has enabled the spectacular increase in global living standards witnessed over the past century. Many people attempt to criticise the theory of comparative advantage by arguing that it

is based on simple assumptions such as zero transport costs. But transport costs can easily be incorporated in the model without affecting the validity of the theory. The model also assumes that the resources in the trading nations are relatively mobile. This means that resources such as workers and capital equipment could be transferred from one industry to another at a constant cost (straight line PPFs). Again this is just a convenient simplification and has no relevance to the model's conclusions. Despite the critics of free trade, the theory of comparative advantage does actually help to explain global trade patterns. Countries will in the long run achieve a higher standard of living if they pursue policies that promote free trade and competition.

Protection

In this section, we investigate the types of protection that countries employ to restrict international trade. Protection refers to any action by the government designed to give the domestic producer an artificial advantage over a foreign producer. Protective measures can be classified into three main types:

- those that increase the domestic price of the foreign product, such as tariffs;
- those that provide domestic producers with a cost advantage, for example subsidies; and
- those that impose a quantitative restriction on imports, such as quotas.

The goal of protection is to increase domestic production in the protected industries and decrease the consumption of imported goods and services. Those that benefit from protection include the owners and workers in the protected industries and sometimes the government in the case of tariff revenue. Protection does however, impose a cost or burden on the economy. The industries given protection will expand production and consume resources that other industries could have used. Production in non-protected industries will fall. These industries may also have to pay higher prices for imported inputs which will reduce their competitiveness. Protection, while decreasing imports, will also decrease exports. Consumers are also disadvantaged since they will have to pay higher prices for both domestic and imported goods and the quantity of goods they can consume will decrease. In other words consumers 'pay more and get less'. The important point to note is that all forms of protection result in a net welfare loss for the economy. The losses from protection always outweigh the gains.

Tariffs

Tariffs are the most widely used protective measure. In Australia tariffs were frequently applied on imported motor vehicles and clothing and footwear. A tariff is simply a tax placed on an import. It is designed to increase the price of the foreign good or service so that the competing domestic good receives a price benefit. The tariff is also an important source of revenue for the government. Figure 2.7 illustrates the effects of a tariff imposed on imported computers. The world price of computers

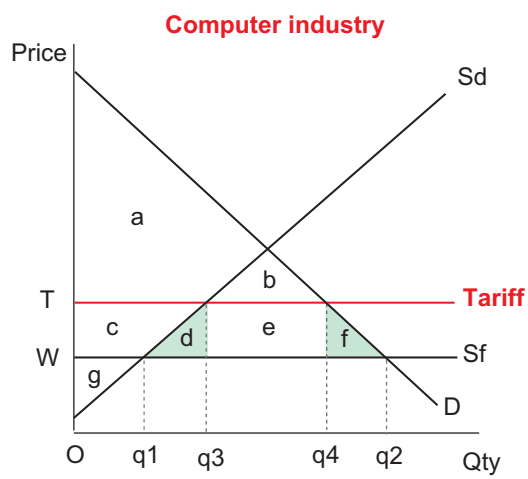
(OW) is lower than the domestic equilibrium price. This means the economy will import computers because it has a comparative disadvantage in producing computers. At the world price of OW, foreign supply (Sf) is perfectly elastic – any quantity of imports can be supplied at this price. The effect on the domestic industry of an open economy is that local production of computers contracts to Oq1, while demand expands to Oq2. The shortfall between domestic production and demand – q1q2 - is made up by imports. If the government imposes a tariff on imports, then it has the same effect as placing a tax on the imported good. The tariff has the effect of decreasing the foreign producers' supply curve – Sf moves up by the amount of the tax. This will mean that less imports will be sold on the domestic market, and they will be sold at a higher price.

In figure 2.7, the tariff is equal to WT and the new price of the good on the domestic market is OT. The higher price benefits local producers because they can now compete more favourably against the imports. Remember the tariff is only placed on imported goods, but this raises the effective price for both imports and locally produced goods. Domestic production expands from Oq1 to Oq3, consumption contracts from Oq2 to Oq4 and imports are reduced to q3q4. The tariff thus results in domestic producers gaining a bigger slice of the market. They now sell more at a higher price. The government receives revenue from the tariff equal to area e. The revenue is equal to the size of the tax (WT) multiplied by the number of imports (q3q4). If both domestic producers in this particular industry and the government gain from the imposition of a tariff, why all the fuss? Does anybody lose? The answer is that consumers lose in a big way! Consumers are getting less of the product and have to pay a higher price.

Their loss more than offsets the gain to producers and the government. We can use the concepts of consumer and producer surplus to analyse the welfare effects of a tariff. In figure 2.7, consumer surplus before the tariff equals areas a+b+c+d+e+f. Producer surplus is represented by area (g). After the tariff, consumer surplus falls

Figure 2.7 The effects of a tariff

Tariffs are a tax on imports. They result in higher prices for consumers and decreased domestic consumption. Tariffs protect the domestic industry by switching consumption away from imports to domestic goods. Domestic producers gain by increasing output. But other domestic producers, including exporters, suffer because tariffs increase their costs. Economists are opposed to tariffs because they distort resource allocation and result in a net welfare loss for the economy. A tariff creates a deadweight loss equal to areas d + f.



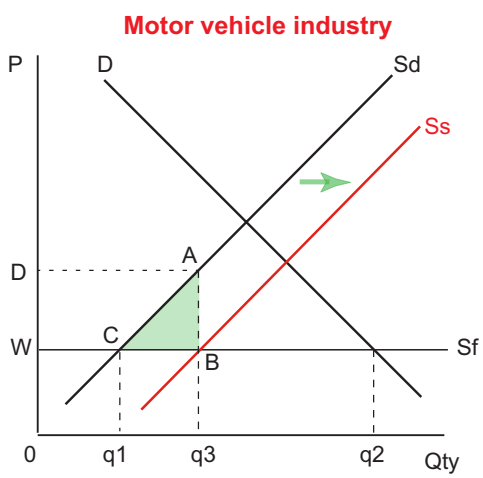
to areas (a+b). Consumers lose a significant amount – areas (c+d+e+f) – because they now pay more and receive less. Some of the consumer surplus lost has been transferred to domestic producers and the government - producer surplus increases by area (c) and area (e) is transferred to the government as tax revenue. But areas (d) and (f) are not accounted for - this is the lost consumer surplus or the deadweight loss of the tariff.

The welfare or total surplus of society as a whole is reduced whenever a tariff is imposed. The deadweight loss in figure 2.7 may appear small, however it will be multiplied across the entire economy given that every other industry uses computers, and will have to pay higher prices for them. This will mean that their costs will increase. The adverse effects of a tariff will ripple through the economy lowering production and consumption in other sectors of the economy. Tariffs, while decreasing imports in the protected industry may actually result in lower exports for other producers and will result in a net decrease in employment. The higher the tariff, the greater the protection afforded to domestic producers since imports would contract while domestic production would increase. One might think that as the tariff rate was increased government revenue would also increase, but, this is not the case. If the tariff was so large as to raise the price up to the old equilibrium price, then imports would fall to zero. There would be 100 per cent protection for the domestic industry but government revenue would fall to zero.

Subsidies

Subsidies are grants or payments made by the government to domestic producers. They are paid for out of general taxation revenue and directly lower a producer's costs of production. Government subsidies worth billions of dollars were used to support the motor vehicle industry in Australia for many years. A subsidy enables a domestic producer to sell their product at a lower price to compete against imports.

Figure 2.8 The effect of a subsidy



Subsidies are a payment or a grant to domestic producers by the government. They result in lowering the domestic producers' costs so that they can compete more favourably against imports. The subsidy shifts the supply curve to Ss. Domestic production increases from q1 to q3 while imports are reduced to q3q2. While subsidies do not reduce consumer surplus, they still result in a welfare loss for society. The cost of the subsidy (DABW) exceeds the increase in producer surplus (DACW) resulting in a deadweight loss = ABC.

Figure 2.8 shows the effects of a subsidy granted to domestic producers. We begin with the world price for the good at OW. Total demand for the good is Oq2, of which Oq1 is locally supplied and q1q2 is imported. If the government pays a subsidy to local firms, then their supply curve effectively increases – it shifts to the right. A subsidy has the same effect as a decrease in costs. Domestic firms can now supply more at the same price. They expand production to Oq3 gaining a larger share of the market while imports are reduced to q3q2.

If we compare the economic effects of the subsidy with a tariff it is easy to see why many people favour subsidies as a means of protection over tariffs. With a subsidy there are no direct adverse effects on consumers. Consumers pay the same price and purchase the same quantity of the good. Consumers do however bear an indirect burden in that the cost of the subsidy has to be paid for from government taxation revenue. There is an opportunity cost here because this revenue could have been used to spend on other goods and services, such as education or health. Resource allocation in the economy is also affected. Inefficient producers are being rewarded at the expense of efficient producers.

Subsidies represent a type of hidden or 'invisible' tax on consumers. It might appear that no-one loses with a subsidy because producer surplus increases and there is no decrease in consumer surplus, but this is wrong. In figure 2.8, the cost of the subsidy is equal to area DABW but the increase in producer surplus is equal to area DACW. Notice that the cost is greater than the benefit by area ABC – this the deadweight loss of the subsidy. So even though a subsidy does not decrease consumer surplus and actually increases producer surplus, it still results in a welfare loss for society. Many countries use subsidies because they are perceived to be less restrictive than tariffs. They don't raise prices or reduce overall consumption. They are politically popular because they favour local producers without upsetting consumers. But this is what

China imposes tariffs on Australian barley

In May 2020, China imposed anti-dumping and anti-subsidy tariffs totalling 80% on Australian barley - effectively stopping a billion-dollar trade in its tracks. China actually introduced two tariffs on the import of Australian barley — the first was a massive 74 per cent, because it claimed Australia sold barley into China for cheaper than it cost to grow it. In other words, China accused Australian barley producers of 'dumping' their product into the China market. The other 7 per cent tariff was because China claimed Australian farmers were being subsidised by the Australian Government to grow their crops.

Australia, of course, denied any dumping of barley, and have stated that there is no evidence to support China's claims that Australian farmers had sold barley into China for less than it cost to produce. In fact, the OECD considers Australian farmers to be among the least subsidised in the world, receiving little government assistance to grow food. China, on the other hand, now has the highest levels of agricultural protection in the world.

The Australian government suggested the move would backfire on Chinese consumers. Economic research estimates the loss to Australian farmers at $330 million, but the loss to China was potentially around $3.6 billion, given China's reliance on high-quality Australian barley for brewing beer.

makes them dangerous! The 'invisible tax' often hurts the economy more than the visible tax.

Subsidies distort resource allocation and cause just as much harm to world trade as tariffs do. It is important to remember that all forms of protection are inefficient - they all reduce total surplus and create a deadweight loss for the economy.

Arguments for protection

It is very rare to find an economist who agrees with protectionist trade policies. The case for free trade based on comparative advantage is very strong. The case for free trade is the case for competition, high quality goods, economic growth and lower prices. Free trade enables countries to increase their real income and living standards. Free trade allows consumption to be greater than production. Through specialisation and trade, countries can consume beyond their production possibility frontier. Yet many countries still use various measures to protect certain industries. How can this paradox exist? The simple answer is that protection benefits a small group of special interests whereas free trade benefits the general public. Protection is politically motivated – it brings significant gains to a select group of producers, but imposes costs on consumers, other producers and taxpayers.

In the United States, industries such as sugar, beef, wheat and steel are heavily protected. Japan imposes high barriers on imported rice and other food products. France protects its wheat producers. Governments use protection to gain political advantage – they 'buy' the votes of those industries that lobby for protection against foreign competition. There are many specific arguments raised in defence of protection. Our purpose is to assess these arguments from an economic perspective. The economist would argue that no protection is good protection, but there may be circumstances when a case can be made for temporary protection.

The anti-dumping argument

The World Trade Organisation (WTO) defines dumping as: "*the practice whereby a company exports a product at a price lower than the price it normally charges on its own home market.*" It is argued that the foreign firm is engaging in unfair competition in order to drive out the domestic producers. The overseas firm may be large enough to sustain short run losses by selling at abnormally low prices and then increase its price in the long run. Dumping may also occur when firms have large surpluses they cannot sell in their own market or their product has been banned because it is injurious to health or it is illegal. The firm may then try to off-load the product in an overseas market for whatever price it can get. One difficulty with this argument is proving whether dumping is actually taking place. Foreign goods may be lower priced because of productive efficiencies. If dumping does cause harm to domestic producers, then temporary protection may deter this type of activity.

The infant industry argument

It is argued that infant or newly established industries need protection in their early years until they mature and can take advantages of economies of scale. It is

argued that infant industries will over time become internationally competitive and develop a comparative advantage. This argument was used in support for Australian manufacturing industries. The problem with the argument is that protection tends to become long term rather than short term as it was originally designed. The infant industry becomes accustomed to operating with very little competition and the incentive to innovate and increase efficiency is removed. Infant industry protection maybe justified in the short term, but it is crucial that the level of protection be frequently reviewed and progressively reduced over time. What tends to happen is that the infant industry assistance eventually turns into an old age pension!

The diversification argument

If a country completely applied the principle of comparative advantage, then it may specialise in a narrow range of products. In Australia's case, we would specialise in rural and mineral products. If all resources were employed in just these industries, then changes in world demand and prices could have significant effects on the economy. The crux of this argument is that rather than 'place all of one's eggs in the same basket', a country may benefit by diversifying its industrial base. Protection may then be justified to establish a range of diversified industries. Over time, the industry may increase its efficiency and become competitive so that in the long run, the level of protection could be reduced. This argument is weakened by the fact that no countries just have a comparative advantage in only one or two industries. Economies are also dynamic and change over time as world demand and technology change. Should the government be trying to predict which industries will expand or contract into the future? The simple answer is no.

The national security (defence) argument

It is argued that import barriers are necessary to protect those industries that are vital to the economy in case of a wartime emergency. The problem with this argument is identifying those industries that are 'vital' to the economy. Every industry could probably present a case for why they are important. This argument was popular in the era of global conflict but seems outdated now. Furthermore, trade fosters international cooperation, while protectionist policies reduce it.

The increased employment argument

This argument asserts that protection will shift consumers' spending from the foreign goods to the domestic good and thus increase employment in the protected industry. This sounds like an appealing argument but it suffers from a basic flaw in logic. Employment in the protected industry may rise but employment in other domestic industries will suffer – industries that use the products of the protected industry as inputs will face higher production costs. Consumers will also have less to spend on the output of other industries. A gain in employment in the protected industry means a loss in employment in other industries.

The cheap foreign labour argument

This is another fallacious argument similar to the employment argument. It is often

claimed that Australian industries need to be protected from countries where wages are much lower. This argument could be turned around to say that less developed countries need protection from countries like Australia because it has superior capital equipment and technology. The level of wages is a function of productivity. The reason why Australian workers receive a higher wage is because their productivity is higher. Countries that have an abundance of labour relative to other resources will have a comparative advantage in labour intensive goods. Countries like Australia should reap the benefits by importing these goods and producing those goods in which it is relatively more efficient.

The favourable balance of trade argument

It is argued that a trade deficit could be eliminated or reduced by restricting imports through protective measures. This argument assumes that there is something wrong with a trade deficit – that imports are 'bad' and exports are 'good'. It implies that a trade surplus is favourable and that a trade deficit is unfavourable. But again this is incorrect. Protectionist policies designed to decrease imports will cause exports to decrease as well. Protection raises the costs of other domestic industries which reduces their competitiveness and therefore their exports. Other countries may also retaliate and impose restrictions on their imports. It is important to remember that both exports and imports bring gains to the economy. Over time, a country should aim to increase both exports and imports.

Trade liberalisation and the WTO

The WTO is the only international organization dealing with the global rules of trade between nations.

Trade liberalisation has been a major trend in the world economy since the Second World War. Trade liberalisation is the opposite of protection. Liberalising trade is achieved by removing or reducing any restrictions which limit trade in goods and services. The World Trade Organisation (WTO) is the only global international organization dealing with the rules of trade between nations. The WTO promotes trade liberalisation by helping to lower trade barriers and by discouraging 'unfair' practices such as export subsidies.

Did you know?

A trade war

In 2018, then President Trump started a trade war with China and several other countries that he believed were trading unfairly with the United States. A trade war begins when a country places tariffs on another nation's imports in order to protect its domestic industries, and the other nation retaliates with its own tariffs.

What arguments did President Trump use to justify his actions? He believed that protection was necessary for national security, to prevent other countries from 'dumping', to increase US employment and to reduce the US trade deficit.

Most economists believe that this 'tit-for-tat' process of protectionism hurts economies - ultimately everyone loses from a trade war. Consumers end up paying more, while higher costs are imposed on other domestic industries. Global trade wars will actually reduce production and employment and could even push the world economy into a recession.

The WTO was established in 1995 as the successor to the General Agreement on Tariffs and Trade. Since 1948, the GATT had provided the rules for the international trading system. Whereas the GATT had mainly dealt with trade in goods, the WTO added trade in services and in intellectual property. The WTO's main activities are negotiating the reduction or elimination of obstacles to trade (e.g. import tariffs) and agreeing on rules governing the conduct of international trade (e.g. anti–dumping and subsidies).

Trade is vital to the world economy and the WTO tries to ensure that it flows smoothly and freely. The WTO has 164 members (2020), accounting for over 98% of world trade. There are only 16 countries that are not members. The WTO promotes multilateralism - trying to persuade all countries to lower or remove their trade barriers together. Since 1945 there have been a number of rounds of multilateral trade negotiations which have been successful in cutting tariffs from an average of around 40 per cent to around 4 per cent on industrial goods in developed economies. By opening world markets, the WTO has enabled world trade to increase by a factor of 22 since 1950.

One of the key principles of the WTO trading system is that trade should be conducted free of discrimination. This means that member countries cannot discriminate between their trading partners - all countries should be treated equally. This principle is known as the 'most-favoured-nation' (MFN) treatment. For example, if Australia improves the benefits that it gives to one trading partner, it has to give the same treatment to all the other WTO members. In other words every member country has to be given the same 'best' treatment. There are some exceptions to this rule - countries can set up a free trade agreement that applies only to goods traded within the group (for example, the European Union and ASEAN).

There are two key principles of the WTO trading system: the most favoured nation principle and the national treatment principle.

A second important principle of the WTO trading system is called 'national treatment'. This means that imported goods and services should be treated the same as domestic goods and services. This means that there should be no discrimination between foreign goods and domestic goods, once the foreign goods have entered the country. Notice that this does not prevent a country from applying a tariff to an imported good or service before the good enters the market.

Arguments for trade liberalisation

There is a very strong link between economic growth and international trade. The best way to increase world incomes and living standards is through economic growth. It is no mere coincidence that the period of fastest growth in world trade (1950–73) was also the period of highest global economic growth. It is a simple economic fact that when barriers to international trade fall, living standards rise. Trade liberalisation delivers a more productive, outward-looking economy with higher incomes and more job opportunities. It delivers more appropriate use of resources, lower prices for consumers and lower input costs for producers.

The arguments for free trade are based on the theory of comparative advantage and the theory of competitive markets. Countries gain when they specialise in producing

those goods and services that they can produce at a lower opportunity cost than other nations. By exporting goods and services that can be produced more efficiently and importing goods and services that other nations produce at a lower opportunity cost, a country can increase both its production and consumption. Specialisation and trade results in a higher level of real income, greater consumption and higher living standards. It is important to realise that countries gain through both exports and imports. Exports add to production while imports add to consumption. Free trade helps to increase both exports and imports. Industries benefit from exporting in terms of greater output and employment. Consumers benefit from imports in terms of a greater variety of goods at lower prices.

The level of protection on Australian industry has been reduced significantly over time as Governments have realised the high costs that protective measures impose on both consumers and producers. The average level of tariff protection across all manufacturing industries is now below 5 per cent. In Australia consumers have benefited from the significant falls in the real price of many traded goods over the past 30 years. Clothing, footwear, motor vehicles and consumer electronics are much less expensive now in real terms than they were 30 years ago when high tariffs and tight quotas were applied to imports.

The Productivity Commission has estimated the effect of trade liberalisation on the Australian economy over the last 30 years. The results, shown in the sidebar, support the theory of free trade – greater economic growth, higher real incomes and wages, and lower prices. In other words, trade liberalisation has a positive and effect on economic activity and living standards. A key result is that there is an increase in both exports and imports. This clearly dispels the belief that lowering trade barriers simply increases imports. Lowering trade barriers reduces costs for all industries in the economy making them more efficient and competitive. Australians are beginning to understand that protection can impose a significant cost disadvantage on the economy.

Effect of trade liberalisation on the Australian economy

Indicator	Impact
Real GDP	*+5.4%*
Consumption	*+2.1%*
Exports	*+28.5%*
Imports	*+28.6%*
Investment	*+11.7%*
Real wages	*+7.4%*
Prices	*-3.4%*
Household income	*+$8500*

Source: Productivity Commission

The problem with protection is that inefficient industries benefit at the expense of efficient industries. Protection results in resources being attracted away from efficient sectors of the economy to the less efficient. The advantage of removing or reducing protection levels is that the industries concerned must increase their efficiency in order to compete. Reducing or dismantling protection can have short term costs in terms of creating unemployment in the affected industries, but over time these resources are absorbed by the more efficient sectors. What is forgotten is that by reducing trade barriers, employment in export and the non-protected industries actually increases. Reducing trade barriers will lead to a net increase in employment. By lowering protection, consumers benefit, input costs are lowered and efficient industries are able to grow and prosper. The net result is a more productive and competitive economy.

Arguments for trade liberalisation
Increases real incomes and living standards
Increases efficiency through greater competition
Increases productivity through efficient resource allocation
Consumers gain through lower prices, greater variety and quality of goods
Exporters gain through higher prices and increased market access
Domestic producers gain through lower input prices
Enables greater specialisation and economies of scale
Openess to trade and investment is a major catalyst for economic growth

Trade agreements and trade blocs

Regional trade agreements (RTAs) cover more than half of international trade and have become more popular given the difficulty of achieving global agreement with multilateral trade negotiations. The WTO has had difficulty in getting all member countries to reach consensus in lowering trade barriers. For this reason many countries have opted to participate in bilateral agreements. Regional trade agreements imply both trade liberalisation and trade discrimination. They are certainly favourable to increasing trade between the member countries by lowering or removing trade barriers. In this way, RTAs are meant to complement the multilateral trading system. But at the same time, regional trade agreements can be discriminatory and go against the 'most favoured nation' (MFN) principle of the WTO.

Regional trade agreements can be attractive because it may be easier for a small group of neighbouring countries with similar concerns to agree on opening markets in a particular area than to reach agreement in a wider forum such as the WTO. But regional agreements also risk making it harder for countries outside the region to trade with those inside and may discourage further opening up of markets, ultimately limiting growth prospects for all. In this way a regional trade agreement acts as a 'trade bloc'. Multilateral negotiations, on the other hand, deal with more countries and more sectors, and so offer greater potential for mutual gain than limited bilateral or regional deals.

A trade bloc is a group of countries that agree to reduce trade barriers between themselves but impose barriers on countries outside the 'bloc'. The most important trade blocs include the European Union (EU), the North American Free Trade Agreement (NAFTA) and the Association of South East Asian Nations (ASEAN). These three groups account for nearly 60 per cent of world trade. The European Union EU has become the most powerful trading bloc in the world with a GDP as large as that of the United States. The EU consists of 26 countries and has eliminated trade barriers between the member countries so they can trade freely with each other. A trade bloc typically applies a common external tariff on goods and services imported from countries outside the bloc.

There is an important debate about whether trade blocs are 'trade creating' or 'trade diverting'. Removing trade barriers will help to increase the volume of trade – this is trade creation. But trade blocs are about establishing preferential trade between specific countries. Often they will cause trade diversion, rather than trade creation. Trade diversion occurs when trade is diverted from a low cost producer outside the trade agreement, to a higher cost producer within the group. Trade diversion is seen as a potential disadvantage of trade agreements. According to the Department of Foreign Affairs and Trade (DFAT) the research on free trade agreements suggests there has been little trade diversion and that regional agreements have been effective in encouraging wider trade liberalisation. DFAT points out that a practical advantage of trade agreements is that they are quicker and easier to negotiate than multilateral agreements because fewer parties are involved.

Australia's free trade agreements

A free trade agreement (FTA) is an international treaty between two or more economies that reduces or eliminates certain barriers to trade in goods and services, as well as investment. Australia has currently fifteen free trade agreements with 26 countries. The FTAs in force are: New Zealand (1983), Singapore (2003), Thailand (2005), US (2005), Chile (2009), ASEAN (2010), Malaysia (2013), Korea (2014), Japan (2015), China (2015), the Trans Pacific Partnership (2018), Hong Kong (2020), Peru (2020), Indonesia (2020) and the Regional Comprehensive Economic Partnership or RCEP (2022). 7Three quarters of Australia's trading markets are now covered by free trade agreements, representing preferential access to 3.5 billion customers. Free trade agreements result in increased economic activity and therefore greater employment opportunities. They make it easier for Australian businesses to access foreign markets and they provide Australian consumers better access to a wider range of goods and services.

FTAs provide Australian importers, exporters, producers and investors with better access to international markets

Under WTO rules FTAs must adhere to two key principles:

- eliminate tariffs and other trade restrictions on 'substantially all the trade' in goods between the member countries, and
- eliminate substantially all discrimination against service suppliers from member countries.

Australia's most recent FTA - the RCEP - came into force in 2022 and is the world's largest trading bloc covering 30 per cent of the world's population. The countries covered by this agreement include China, Japan, Korea, New Zealand and the ASEAN economies. Economists have estimated that the RCEP will boost intraregional exports by over $US40 billion. This is the result of the two forces:

- trade creation – lower tariffs will stimulate trade between members and
- trade diversion – lower tariffs within RCEP will redirect trade away from non-members to members.

Worksheet - free trade

1. Why do nations trade?
2. In the example in figure 2.2 which country has the absolute advantage in (a) producing coffee (b) producing wheat?
3. Explain the difference between absolute and comparative advantage.
4. In the example in figure 2.3 in which product does Australia have an absolute advantage; a comparative advantage?
5. In the following example identify the comparative advantage for each country by determining opportunity costs. The figures represent output.

	Good A	Good B
Country X	240	480
Country Z	150	450

6. Under what circumstances would two countries not possess a comparative advantage?
7. Use the model of demand and supply to explain why Australia exports iron ore.
8. Who gains from exports and who loses?
9. Explain why exports result in an increase in total surplus.
10. Use the model of demand and supply to explain why Australia imports motor vehicles.
11. Who gains from imports and who loses?
12. Explain why imports result in an increase in total surplus.
13. Which is more important to the economy – exports or imports?
14. What factors determine a country's comparative advantage?
15. List five goods and services in which Australia has a comparative advantage.

Multiple choice 1 - free trade

Choose the best alternative in the following questions.

1. For Australia, exports represent approximately
   a. 40-45 percent of GDP.
   b. 25-30 percent of GDP.
   c. 15-20 percent of GDP.
   d. 10-15 percent of GDP.

2. Demand for Australia's exports depends mainly on
   a. the level of domestic spending in Australia.
   b. the level of government assistance to Australian industries.
   c. economic growth in Australia's trading partners.
   d. the demand for overseas imports.

3. Which of the following is a correct statement?
   a. 'Exports are more important than imports because they increase income'.
   b. 'Imports are more important than exports since they increase consumption'.
   c. 'A country should aim to increase its trade surplus'.
   d. 'Exports and imports are equivalent in terms of economic welfare'.

4. If the opportunity cost of producing goods differs between two countries
   a. neither country has a comparative advantage.
   b. there cannot be any gains from trade.
   c. the countries will engage in exporting but not importing.
   d. trade can lead to increases in the consumption of all goods.

Questions 5-9 refer to the following information:

Output	Good X	Good Y
Country A	40	80
Country B	60	90

5. Country A has the absolute advantage over country B in the production of:
   a. good X only.
   b. good Y only.
   c. both goods X and Y.
   d. neither good X nor good Y.

6. Country A has a comparative advantage over country B in the production of:
   a. good X.
   b. good Y.
   c. both goods X and Y.
   d. neither good X nor good Y.

7. To gain from trade, country B should specialise in the production of:
   a. good X only.
   b. good Y only.
   c. both goods X and Y.
   d. neither good X nor good Y.

8. The opportunity cost of producing each unit of good Y in country A is:
   a. 0.5 units of good X.
   b. 2 units of good X.
   c. 4 units of good X.
   d. 40 units of good X.

9. For both countries to gain from trading, the terms of trade must lie between:
   a. one unit of good X would sell between 1 and 2 units of good Y.
   b. one unit of good X would sell between 0.5 and 1 unit of good Y.
   c. one unit of good X would sell between 1.5 and 2 units of good Y.
   d. one unit of good X would sell between 8 and 9 units of good Y.

10. If a country specialises in producing goods it has a comparative advantage in and then undertakes trade, then this country is likely to be:
   a. producing inside its production possibility frontier.
   b. consuming inside its production possibility frontier.
   c. consuming outside its production possibility frontier.
   d. producing outside its production possibility frontier.

11. Who gains from international trade?
   a. Only the exporting nation.
   b. Only the importing nation.
   c. Both the importing and the exporting nations.
   d. Neither the importing nor the exporting nations.

12. How can a domestic producer determine whether or not it has a comparative advantage in the production of a good or service?
   a. It cannot.
   b. By comparing the price it receives to the prices of other domestic producers
   c. By comparing the price it receives to the world price
   d. By comparing the quantity it produces to the quantity produced in the world

Working with models

A. The production possibilities for two countries A land and B land are shown below.

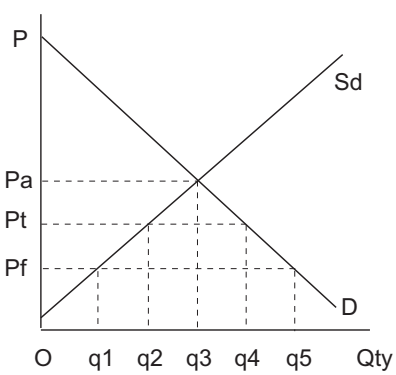
	Apples		Oranges
A land	6000	or	6000
B land	2000	or	4000

1. Construct a production possibility curve for each country .
2. Which country has the absolute advantage in producing apples?
3. Which country has the absolute advantage in producing oranges?
4. What is the opportunity cost of producing apples in both countries?
5. What is the opportunity cost of producing oranges in both countries?
6. Who has the comparative advantage in producing apples?
7. Who has the comparative advantage in producing oranges?
8. If both countries decide to trade, which country will export apples and which country will export oranges?
9. If both countries decide to trade, within what range will the terms of trade lie?
10. Complete the missing cells in the table.
11. As a result of specialisation and trade, these two countries are better off because they are consuming more apples and oranges than before trade - apple production has increased by _____ units while orange production increased by _____ units.

Before specialisation	Apples	Oranges
Country A	4500	....
Country B	....	2000
Total	5500	3500
After specialisation		
Country A	.....	....
Country B	.....	....
Total	.....	....
After trade (assume terms of trade: 1 apple = 1.5 oranges		
Country A	4800	....
Country B	1200	....
Total	6000	4000

B. Use the tariff diagram below to complete the missing values in the table.

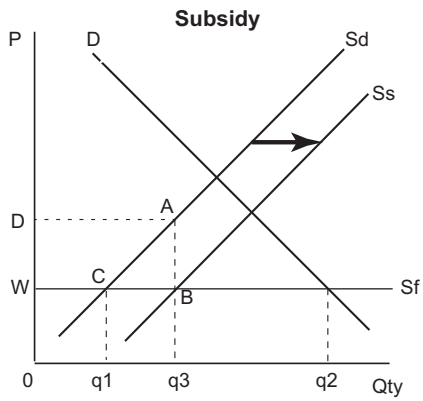
1. Who benefits from the tariff?
2. Who loses from the tariff?
3. Why are tariffs considered inefficient?



	With tariff	Tariff removed
Price		
Quantity consumed		
Quantity produced		
Imports		
Consumer surplus		
Producer surplus		
Govt revenue		
Deadweight loss		

C. Refer to the subsidy diagram below to complete the missing values.

1. After the subsidy is paid to domestic producers does consumer surplus increase, decrease or stay the same?
2. After the subsidy, does producer surplus increase, decrease or stay the same?
3. What is the cost of the subsidy?
4. What is the deadweight loss associated with the subsidy?



	Before subsidy	After subsidy removed
Price		
Quantity consumed		
Quantity produced		
Imports		
Deadweight loss		

Worksheet - protection & trade liberalisation

1. Define protection. What are the three broad types of protection?
2. Does protection result in a net gain or a net loss for society?
3. What is a tariff? Draw a diagram to help explain the effects of a tariff. Show that a tariff results in higher prices and lower consumption.
4. Which groups gain from tariffs and which groups lose?
5. Draw a diagram to illustrate the effects of a subsidy. How does a subsidy differ from a tariff?
6. Explain why a subsidy results in a deadweight loss.
7. List and explain three arguments for protection.
8. Outline four arguments for trade liberalisation.
9. What is the aim of the WTO? Explain the 'most favoured nation' principle?
10. What is a regional trade agreement?
11. What is the purpose of a 'trade bloc'?
12. Distinguish between trade creation and trade diversion.
13. Why are bilateral trade agreements more common than multilateral agreements?

Articles to review

The questions below refer to article 1 (see over)

1. Define a free trade agreement.
2. How do Australian exporters gain from an FTA?
3. How do Australian consumers gain from an FTA?
4. Explain how an FTA can contribute to higher GDP growth.

Article 1 Free Trade Agreements

Across the globe, there is an expanding network of free trade agreements (FTAs). High-quality, comprehensive free trade agreements can play an important role in supporting global trade liberalisation and are explicitly allowed for under the World Trade Organization (WTO) rules. An FTA is an international treaty which removes barriers to trade and facilitates stronger trade and commercial ties, contributing to increased economic integration between participating countries. FTAs can cover entire regions with multiple participants or link just two economies. FTAs open up opportunities for Australian exporters and investors to expand their businesses into key overseas markets. FTAs can improve market access across all areas of trade and help to maintain and stimulate the competitiveness of Australian firms. This benefits Australian consumers through access to an increased range of better value goods and services.

FTAs offer preferential treatment in partner countries for Australian goods, in the form of tariff elimination or reduction. For businesses already exporting goods to an FTA partner country, this increases the competitiveness of their products in those markets, especially compared to competitors from countries that do not receive preferential treatment under an FTA. Lower tariffs or other preferential treatment can be a good incentive for Australian businesses to consider exporting to a new market for the first time or expanding a product range. Foreign businesses may be more interested in importing Australian products as a result of an FTA coming into force. FTAs can increase Australia's productivity and contribute to higher GDP growth by allowing domestic businesses access to cheaper inputs, introducing new technologies, and fostering competition and innovation. *(Source: DFAT)*

Article 2 China imposes massive tariffs on Australian wine

On March 26, 2021, China's government imposed tariffs of 116–218% on bottled Australian wine imports through to 2026. This effectively shut the doors on what was Australia's largest wine export market. Why did this happen? China believed that Australian exporters were selling wine for less than it cost to produce. The selling of products by exporters below cost or for less overseas than in their domestic market is viewed as dumping. No other country had accused Australia of dumping or subsidising its wine industry.

The Australian wine industry relies heavily on exports, shipping 60% its production overseas. Australian wine sales in China had grown rapidly and by 2019, China had become Australia's first AUD $1 billion a year wine market. China accounted for 40% of all Australian wine exports.

Both Australian wine producers and Chinese importers reject claims that Australian wine in being "dumped" below cost in China. Instead many believe that China is using the 'dumping' allegation in order to protect its own domestic wine industry from losing market share to Australia. Previously, under the China-Australia Free Trade Agreement (Chafta), there were zero tariffs on Australian wine, This compares to tariffs of more than 80 per cent on American wine. This helps explain why Australian wines have captured the Chinese market. By the end of 2021, a year after the first round of tariffs, Australian wine exports to mainland China had decreased by 97% in value.

Questions for article 2

1. Why did China impose tariffs on Australian wine?
2. What is the economic definition of 'dumping'?
3. Why is dumping viewed as harmful?
4. Analyse the effects of China imposing a tariff on Australian wine exporters and on Chinese wine consumers.

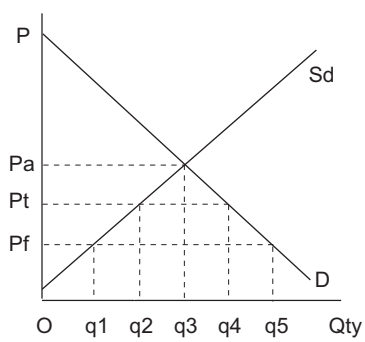
Multiple choice 2 - protection & trade liberalisation

1. The purpose of protection is to
   a. increase income for the whole economy.
   b. increase income for the protected industry.
   c. increase efficiency in the protected industry.
   d. increase the volume of trade.

2. A tariff protects domestic industry by
   a. raising the price of imported goods.
   b. lowering the cost of domestically produced goods.
   c. raising government revenue which is then returned to the protected industry.
   d. increasing productivity in the protected industry.

3. Protection results in a
   a. more efficient allocation of resources and a lower level of national income.
   b. less efficient allocation of resources and a higher level of national income.
   c. less efficient allocation of resources and a lower level of national income.
   d. more efficient allocation of resources and a higher level of national income.

Questions 4-5 are based on the diagram at right. A tariff of PfPt is applied to the good.



4. The tariff boosts domestic production by
   a. q1q2.
   b. q1q3.
   c. q2q4.
   d. q3q4.

5. If the tariff was removed then consumers would pay ____ and imports would equal ____
   a. Pa; q2q4.
   b. Pf; q1q5.
   c. Pf; q2q4.
   d. Pf; q1q5.

6. The effect of a tariff is to
   a. increase consumer surplus and decrease producer surplus.
   b. increase producer surplus and decrease consumer surplus.
   c. increase consumer surplus and increase producer surplus.
   d. decrease consumer surplus and decrease producer surplus.

7. A subsidy paid to an import-competing domestic industry will
   a. raise the world price of the product.
   b. result in lower average living standards for society.
   c. improve the efficiency of the domestic industry.
   d. shift the demand curve for the product to the right.

8. A country imposes a tariff to improve the welfare of
   a. some domestic producers at the expense of other domestic producers.
   b. some domestic producers at no expense of other domestic producers.
   c. domestic consumers.
   d. domestic exporters.

9. A subsidy paid to an import-competing domestic industry will
   a. decrease producer surplus and increase consumer surplus.
   b. increase producer surplus and decrease consumer surplus.
   c. increase producer surplus but create a deadweight loss.
   d. increase producer surplus and increase government revenue.

10. A likely effect of the imposition of tariffs on steel imports by the United States is
    a. lower costs for American consumers when they purchase domestically-produced goods.
    b. greater international competitiveness of the American steel industry.
    c. a net increase in employment in American manufacturing industries.
    d. reduced exports for other American producers, who face higher costs.

11. Which of the following chain of events occurs when a tariff is imposed on a good?
    a. Domestic prices rise, shifting the domestic supply curve rightward.
    b. Domestic prices fall, shifting the demand curve right, and consumers buy more of the good.
    c. Domestic prices fall, decreasing the domestic quantity supplied and increasing the quantity demanded.
    d. Domestic prices rise, decreasing the quantity demanded and increasing the domestic quantity supplied.

Extended responses

Answer each of the following questions in about 2-3 pages of normal writing. Use economic models and examples where appropriate. Each question is worth 20 marks.

1. Using a model, demonstrate and explain the gains from specialisation and trade. Include an explanation of the principle of comparative advantage.

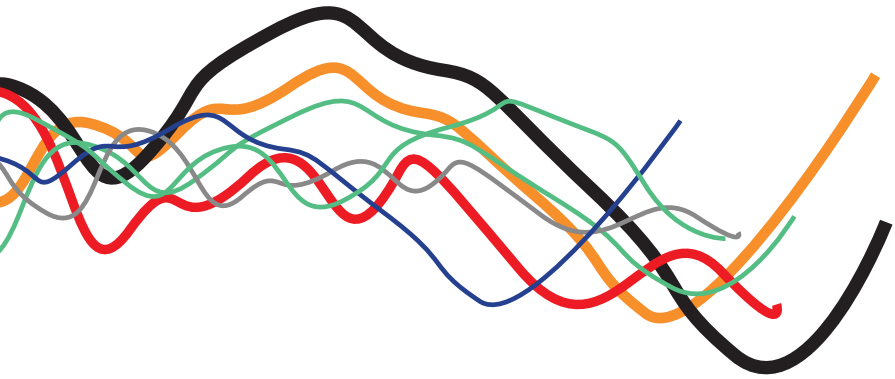
2. a. Using a model, demonstrate and explain how either a tariff or a subsidy affects trade and market efficiency. [12 marks]

   b. Outline four arguments for protection. [8 marks]

3. Evaluate the arguments for and against trade protection. [20 marks]

4. When Donald Trump became President of the United States in 2018 he announced a range of trade protection measures. His arguments for this action were to improve US national security, stop importers 'dumping' products in the US market, increase US employment, and reduce the US trade deficit.

   Evaluate the economic validity of the President's arguments for trade protection. [20 marks]

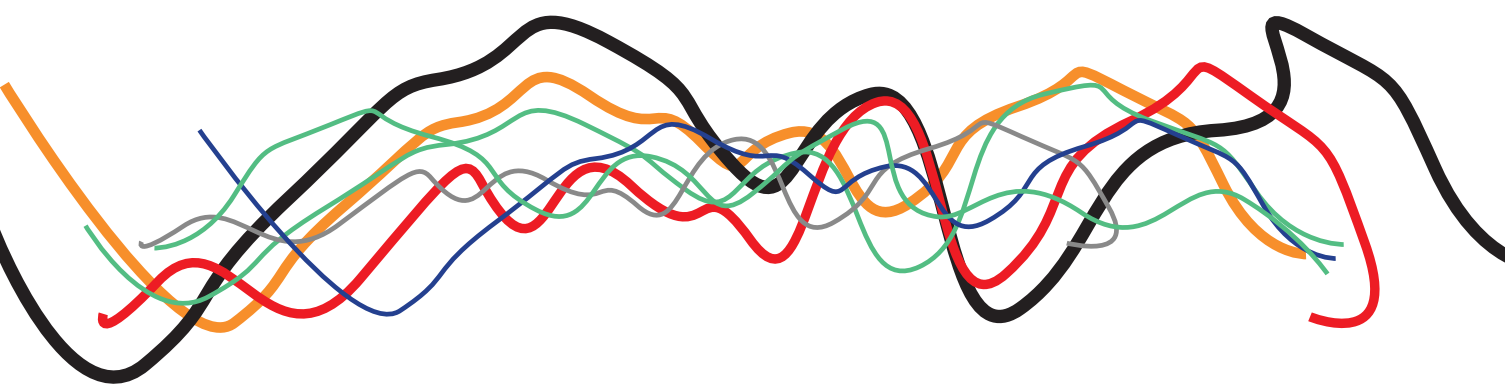


3

Australia's pattern of trade

Chapter concepts

- *Australia's trade intensity*
- *patterns and trends in the composition of Australian trade*
- *patterns and trends in the direction of Australian trade*



International trade has become more important to the Australian economy over time. In 1990, total trade (exports plus imports) accounted for 30 per cent of Australia's GDP. By 2022, total trade had increased to over 50 per cent of GDP. On the world stage, Australia is a relatively small exporter – accounting for just 1.5 per cent of global exports, compared with around 15 per cent for China, the world's leading exporter (refer to figure 3.1). Australia is ranked 19th as a world exporter of goods and services and yet is the 12th largest economy. Does this mean that Australia is lagging in the trade stakes? No, not necessarily. Notice that of the countries shown, Australia is the only economy located in the southern hemisphere and Australia is also the only country that is an island. Remember that most of the world's major economies are located in the northern hemisphere. So in a way, Australia is probably 'punching above its weight'.

A country's level of exports will be determined by a number of factors: the size and structure of the economy, its relative competitiveness and its location. Australia is an island continent, relatively isolated from the rest of the world. Remember that most of the world's population lives in the northern hemisphere – Asia, Europe, North America. This means that global output and economic activity is concentrated in the northern half of the globe. If Australia was located in Europe, or shared a border with the United States (like Canada), then its ranking in world exports would be much higher. In fact, on a per capita basis, Australia's export performance could be considered quite remarkable. A useful way to measure the importance of international trade is to calculate the share of trade in its Gross Domestic Product (GDP). This trade-to-GDP ratio is often called the 'trade openness ratio' or the 'trade intensity ratio'. It is a measure of the sum of exports and imports (of both goods and services) as a percentage of GDP. The ratio can be expressed as:

$$\text{Trade intensity} = (X + M)/GDP] \times 100$$

Figure 3.1 Australia's rank in global exports

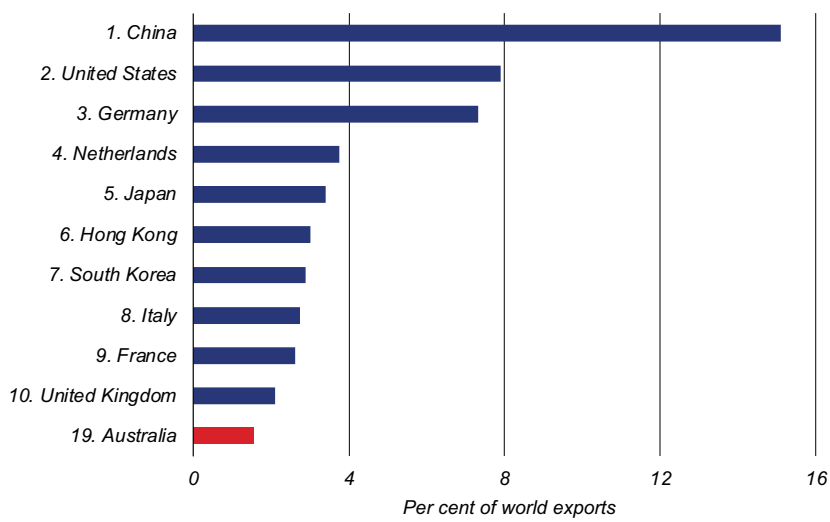


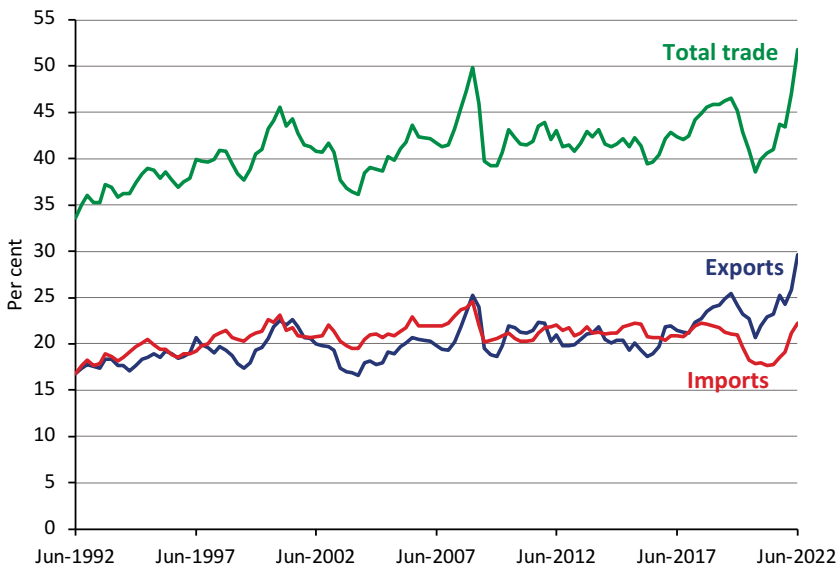
Figure 3.2 shows Australia's trade intensity increasing significantly over the past few decades, rising from 34 per cent in 1992 to 52 per cent in 2022. Both exports and imports as a per cent of GDP have risen over time, which reflects Australia's increasingly open economy. Notice the significant effect that the COVID pandemic had on Australia's trade intensity during 2020 causing it to fall to below 40 per cent. When compared with other developed economies, Australia's trade intensity is relatively low. European economies, for example, tend to have a relatively high trade intensity because of the ease of trading within the Euro zone. For the countries shown in the sidebar, only the USA, China and Japan have lower trade to GDP ratios than Australia. This is explained by the size of their domestic economies, which enables them to reap the advantages of economies of scale. Large economies such as the United States, China and Japan do not need to rely on trade as much as a smaller economy such as Australia because domestic competition is so strong.

Trade to GDP ratio	2021
Australia	**50**
Canada	61
China	37
Germany	89
Italy	63
Japan	31
Netherlands	156
Sweden	88
United Kingdom	55
United States	23
World	*52*

Source: World Bank

What factors determine a country's trade intensity? Factors such as the relative size of the economy, its location relative to foreign markets and the extent of barriers to trade – both natural and artificial. While Australia has been lowering its artificial barriers such as tariffs, it is hindered by more natural barriers such as high transport costs as a result of its geographic isolation. A famous Australian historian, Geoffrey Blainey, referred to the problem of Australia's isolation as its 'tyranny of distance'. Australia has also not had the opportunity of being part of a major regional trading bloc such as the European Union (EU) or NAFTA.

Figure 3.2 Australia's trade intensity



Australia's trade intensity has increased over time – from 34 per cent of GDP in 1992 to over 50 per cent in 2022. Note the dramatic decline in 2020 due to the COVID-19 pandemic.

The purpose of economic growth is to enable a high level of consumption and a high standard of living. Exports add to national income, which can then be used to consume imports. Given that Australia has a small economic base in terms of labour and capital, producing for the world market is a rational strategy to promote economic growth and higher living standards.

The pattern of Australia's trade

There have been major changes in the pattern of Australia's trade over recent decades, both with respect to the composition and direction of trade. Primary industries (agricultural and mineral resources) have always dominated Australia's exports while manufactured goods have been our most important import category. These changes have been associated with the rapid increase in mineral and energy exports and the decline in rural exports. At the same time, the focus of Australia's trade has shifted away from Europe to the Western Pacific and East Asian regions.

The composition of Australia's trade will reflect Australia's comparative advantage. Traditionally Australia has been a major exporter of primary commodities. This is not surprising given Australia's large natural resource/population ratio and substantial mineral wealth. Australia has for a long time enjoyed a comparative advantage in the production of primary goods - specifically agricultural and resources (minerals and fuels). Australia has been a leading world producer in wool, wheat and beef and a significant producer of iron ore, coal, natural gas, bauxite, gold, and mineral sands.

Over the past few decades there has been a significant increase in the relative importance of mineral and energy exports and a decline in the importance of rural and manufactured exports. However, agricultural exports still comprise a relatively large proportion of Australia's exports compared to other industrial economies. Primary goods (commodities) have always dominated Australia's exports. Figure 3.3 reveals that over time commodities have increased to account for 78 per cent or around three quarters of Australia's total goods and services exports.

For the first half of the 20th century, the rural sector dominated, making up for more than half of all exports. However, since the 1970s, rural exports have declined quite dramatically falling from 40 per cent to just 11 per cent by 2022. Australia no longer 'rides on the sheep's back!' Instead, Australia now rides in the back of an iron ore truck! Today, resources, such as minerals (iron ore, gold) and energy exports (coal, natural gas) have become the dominant category - rising from around 30 per cent of total exports in the 1990s to 67 per cent in 2022.

What has driven this change? The answer is the rapid growth of China and other Asian economies that resulted in a major resources boom in Australia from 2001-2012, boosting the demand for resources such as iron ore, coal, and natural gas. Even with the end of the mining boom, resources have remained the dominant category. The export of services, especially education and tourism, has increased

	1970s	1980s	1990s	2000s	2022
Commodities	%	%	%	%	%
Rural	40	31	22	16	11
Resources (incl gold)	26	31	31	41	67
Total	**66**	**62**	**53**	**57**	**78**
Non-commodities					
Manufactures	19	19	24	21	12
Services	15	18	23	22	10
Total	**34**	**37**	**47**	**43**	**22**

Figure 3.3 Australia's changing exports

in importance over time accounting for 21 per cent of all exports in 2019. The COVID pandemic caused service exports to collapse during 2020-22 with its share falling to just 10 per cent.

The major changes in the composition of Australia's exports have been:

- a dramatic decline in rural exports:
- a significant increase in resource (minerals & fuels) exports:
- a significant decline in manufacturing exports; and
- the increasing importance of services exports (esp. tourism and education).

The broad composition of Australia's trade (by category) is illustrated in figure 3.4. The dominance of the resources sector in exports is evident (78 per cent), comprising mainly minerals and energy. For imports the largest category is intermediate goods, consisting of fuels and processed industrial goods. Notice that most imported goods are manufactured goods – either in the form of consumer goods or as inputs for Australian industry. In contrast to exports, there are very few imported primary goods, other than fuels. The composition of our trade is a reflection of the structure of the economy. Australia has a very efficient and

Figure 3.4 Australia's composition of trade

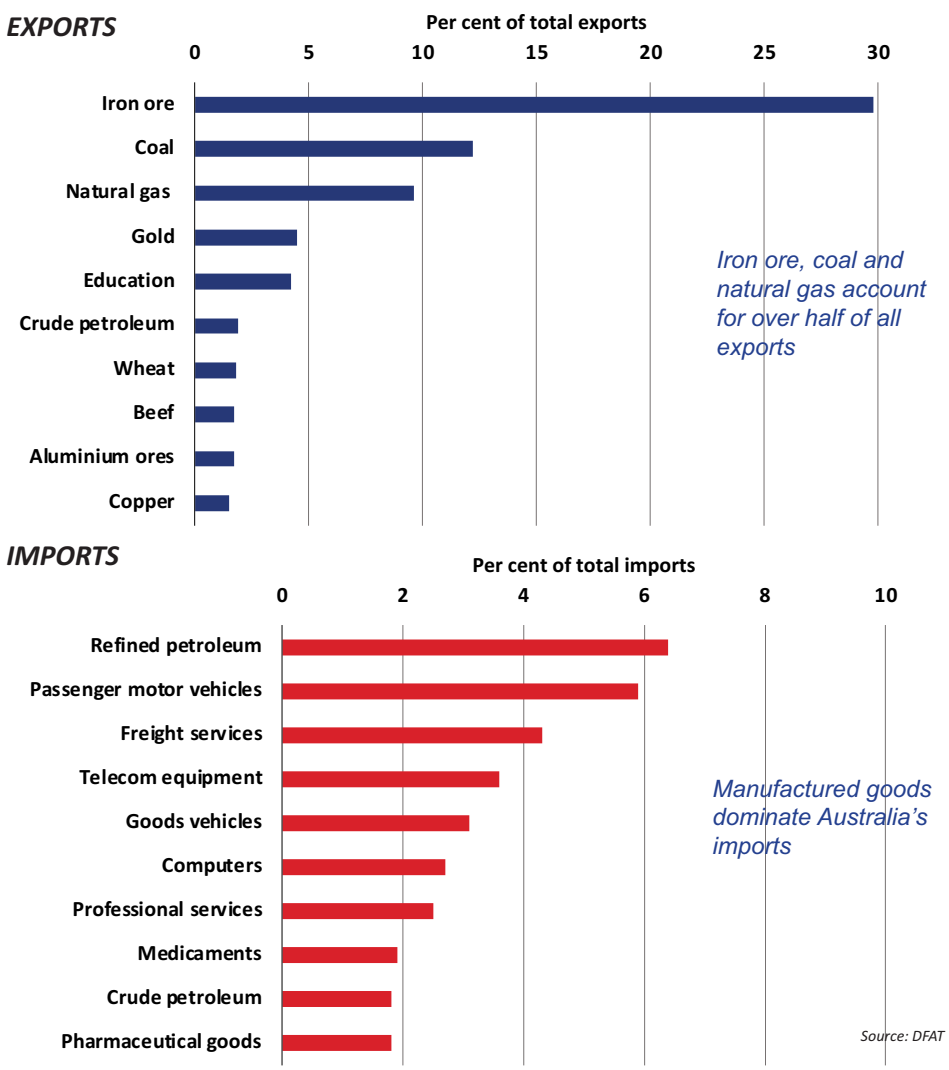
EXPORTS - % share	2022
Total Primary	**78**
Rural	11
Minerals/metal ores	29
Energy (coal & gas)	34
Gold	4
Total Manufactures	**12**
Services	**10**
Education	5
Tourism	5

IMPORTS - % share	2022
Consumption Goods	**28**
Motor vehicles	6
Clothing & footwear	5
Capital Goods	**22**
Machinery	6
Intermediate goods	**34**
Fuels (petrol)	11
Services	**16**
Tourism	3

internationally competitive primary sector – both mining and agriculture, while our manufacturing sector is smaller and relatively less efficient. This means that Australia has a strong comparative advantage in the resources sector but equally a comparative disadvantage in the manufacturing sector. The services category in both exports and imports is growing in importance.

Australia's most important service export is education, which is almost equal to all of Australia's rural exports. Australia's largest imports are refined petroleum and passenger motor vehicles. Figure 3.5 provides a ranking of Australia's top ten exports and imports (by value) in 2022. It is not surprising to see that iron ore, coal and natural gas have become Australia's largest exports. But many people would be surprised to see gold and education services at positions four and five in the top ten list, higher than other more traditional exports such as wheat and beef.

Figure 3.5 Australia's main exports and imports (2022)



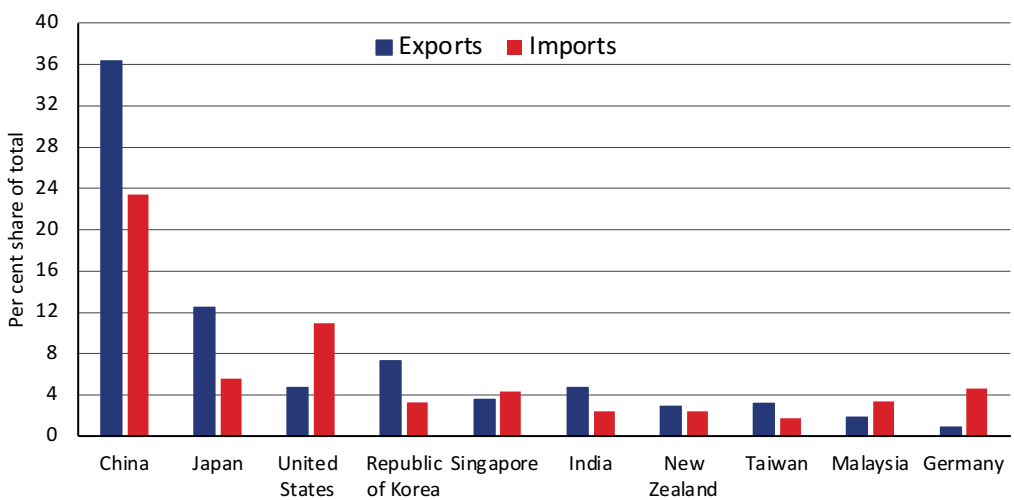
Notice that nine of the top ten exports are primary goods. Currently Australia's most important imports are petroleum and motor vehicles. But prior to the Covid pandemic, Australia's largest import was personal travel - Australian tourists travelling overseas. In coming years this is likely to regain its position at the top of the import list. The most important import category is manufactured goods including machinery, telecom equipment and computers.

Australia is fortunate to be located on the doorstep of the fastest developing region of the world with a massive appetite for our natural resource wealth. The bulk of Australia's exports will continue to be in the primary sector given the strong demand for our resources from the fast growing economies of China, Korea and India. But the future of trade is likely to be services. As incomes and living standards rise, the demand for services such as travel (tourism), health and education will increase significantly. This is because these services are very income elastic. Again Australia is well placed to take advantage of rising incomes in the east Asian region.

The direction of trade

There has been a significant shift in the direction of Australia's trade over the past few decades. The shift in direction has been primarily from Europe to the Pacific–Asian region, comprising East Asia, North America and Oceania. This region has become the dominant trading group for Australia, accounting for over 80 per cent of Australia's exports and 70 per cent of imports. Figure 3.6 shows Australia's ten leading trading partners. China has become Australia's most important trading partner - for both exports (36% share) and imports (23% share). It is important not to underestimate the significance of China to Australia's economy - an apt saying sums up the relationship: *"If China sneezes, Australia will catch pneumonia!"* The top four countries – China, Japan, United States and Korea account for over 50 per cent of Australia's total trade.

Figure 3.6 The direction of Australia's trade



Notice that nine of the ten countries shown in the graph are in the Asia Pacific region. Japan is Australia's second most important export destination (12% share) while the United States is Australia's second most important import source (11% share). Over the past 30 years, the share of trade to Europe has fallen dramatically, from 40 per cent of the total to less than 13 per cent today. While the pattern for imports has followed a similar trend, a key difference has been the replacement of Europe by China and the United States as Australia's most important source of imports. The Asia-Pacific region has become the dominant region for both Australia's exports and imports accounting for 80 per cent of total trade.

There are a number of reasons for the change in direction of Australia's trade. Geographically, Australia is part of the Asia-Pacific region but historically Australia has had strong ties with the United Kingdom and Europe. When the United Kingdom joined the European Union Australia was forced to establish new markets. The Asia-Pacific region had the advantage of much lower transport costs for Australia compared to Europe and the region has the advantage of a large and growing population that is very near to Australia's shores. Since East Asia has a limited supply of raw materials relative to its population, Australia provides an obvious complement in terms of its very small population and its rich endowment of natural resources. Australia is indeed a lucky country in terms of its vast wealth of mineral and energy resources. The fast growing economies of East Asia require long term supplies of cheap energy such as coal and natural gas as well as minerals including iron ore, aluminium and copper. The Asia region is also home to two thirds of the global population and Australia also has a comparative advantage in the supply of food crops and livestock.

Australia's trade by region 2021
(per cent share)

	Exports	Imports
Africa	1	1
Asia	81	56
America	6	15
Europe	6	22
Oceania	4	3

Source: DFAT

Learning activity

Apply economic reasoning - Australia negotiates FTA with the EU

In 2020 the Australian Government began negotiating a free trade agreement (FTA) with the European Union (EU). The government believes it has the potential to open up a market for Australian goods and services of half a billion people and a GDP of US$23 trillion. As a bloc, the EU is Australia's second largest trading partner and fourth largest source of foreign investment.

1. Name four of the largest economies in the EU.
2. Explain how the EU acts as a trading bloc (research the term in google).
3. Explain why the government is pursuing an FTA with the EU.
4. Does Australia normally record a trade surplus or a trade deficit with the EU? Explain why

Worksheet

1. What is Australia's rank in world exports? Why is it a relatively small exporter?
2. How is trade intensity measured?
3. How does Australia's trade intensity compare with other countries?
4. It is said that the composition of Australia's trade reflects Australia's comparative advantage. Explain this statement.
5. Describe the major changes in the composition of Australia's trade.
6. Why have resource exports increased in importance?
7. Refer to figure 3.5 to list Australia's top 5 exports and top 5 imports.
8. Why does Australia import mainly manufactured goods?
9. Describe the pattern in Australia's direction of trade.
10. Why is Asia more important to Australia than Europe in terms of trade?
11. Who are Australia's three main export partners and import partners?
12. Which countries are most important in Australia's services trade?
13. What trade advantages does the Asia-Pacific region offer Australia?
14. What effect has the resources boom had on the composition and direction of Australia's trade?

Multiple choice

1. The most important market in terms of value for Australian exports is
   a. China.
   b. Korea.
   c. Japan.
   d. the United States of America.

2. The most important market in terms of value for Australian imports is
   a. the United Kingdom.
   b. the United States of America.
   c. Japan.
   d. China.

3. Which export category has increased most rapidly since 2000?
   a. Rural commodities.
   b. Resources.
   c. Manufactures.
   d. Services.

4. When the Australian economy grows at a fast rate it tends to
   a. increase its spending on imports, especially capital equipment.
   b. increase its exports of rural products.
   c. export more manufactured goods and less primary goods.
   d. all the above.

5. Which one of the following describes the long term trend in the composition of Australia's exports?
   a. Services exports have become relatively less significant while manufactured exports have increased in importance.
   b. Exports of resources have become more significant while rural exports have declined in importance.
   c. Commodity exports have become relatively less significant while services and manufactured exports have increased in importance.
   d. The relative shares of all export groups have been increasing over time.

6. Which of the following statements regarding Australia's trade is correct?
   a. Australia is a major importer of manufactured products.
   b. Australia is a major importer of primary products.
   c. Australia is a major exporter of manufactured products.
   d. Australia is a major exporter of services.

7. The main change in Australia's direction of trade has been from
   a. the Asian region to the American region.
   b. the Indian Ocean region to the Pacific Ocean region.
   c. Europe to the Asia-Pacific region.
   d. the American region to the Asian region.

8. Which of the following is not a reason for the shift in the direction of Australia's trade?
   a. East Asia has a relatively limited supply of raw materials.
   b. Australia is geographically a part of the Asia-pacific region.
   c. Australia is geographically a part of the European region.
   d. The Asia-Pacific region has lower transport costs compared with Europe.

9. Primary commodities account for approximately what proportion of Australia's exports?
   a. 20%
   b. 40%
   c. 60%
   d. 90%

10. Services account for approximately what proportion of Australia's exports?
    a. 20%
    b. 40%
    c. 60%
    d. 80%

11. The most important trading region for Australia is
    a. North East Asia.
    b. South East Asia.
    c. Europe.
    d. North America.

12. In 2015 Australia's largest import by value was _____ and largest export was _____ .
    a. refined petroleum; iron ore.
    b. crude petroleum; coal.
    c. oil; gold.
    d. motor vehicles; education.

13. Which of the following developments does not explain the change in direction of Australia's pattern of trade in recent years?
    a. The Asia-Pacific region has achieved higher rates of economic growth than Europe.
    b. The discovery and development of major natural gas reserves in Australia is expanding.
    c. Lower transport costs have given Australia an advantage when exporting to the Asia-Pacific region compared with Europe.
    d. China has become a more significant participant in world trade.

14. The main reason for Australia's relatively low trade intensity [(exports + imports)/GDP] is
    a. its relatively high level of economic development (high GDP/capita).
    b. its relatively small population compared with the major developed economies.
    c. its protectionist trade policy stance resulting in a closed economy.
    d. its geographic isolation from the large economies of Western Europe.

Data analysis

Refer to the table showing Australia's trade with China.

Australia's trade with China 2021					
Exports	**$ billion**	**% share**	**Imports**	**$ billion**	**% share**
Iron ore	126.8	67.1	Telecom equipment	8.8	9.4
Natural gas	18.5	....	Computers	8.1	....
Gold	7.0	....	Furniture, mattresses	4.1	....
Education	4.4	....	Toys, games, sporting goods	3.4	....
Personal, recreational & cultural services	3.4	....	Plastic articles	2.6	....
Total exports	188.9	100.0	Total imports	93.3	100.0

China is Australia's largest trading partner in goods and services (valued at around $282 billion in 2021), our largest export destination ($189 billion), and our largest source of imports ($93 billion). China buys around one third of all Australian exports, and is the top overseas market for many Australian goods and services. The Australia-China economic relationship is extensive. The two economies are highly complementary and provide a broad range of opportunities for two-way trade and investment. Resources and energy make up the largest share of Australia's exports to China, with iron ore and natural gas leading the way. China is also Australia's largest services export market and is the largest market for agriculture. China is the largest source of tourism income and the largest source of overseas student enrolments.

Questions

1. For both exports and imports, calculate the per cent share columns.
2. Describe the nature of Australia's exports to China.
3. Describe the nature of Australia's imports to China.
4. Calculate the size of Australia's trade balance with China.
5. In which categories of goods does Australia have a comparative advantage with China?
6. In which categories of goods does Australia have a comparative disadvantage with China?

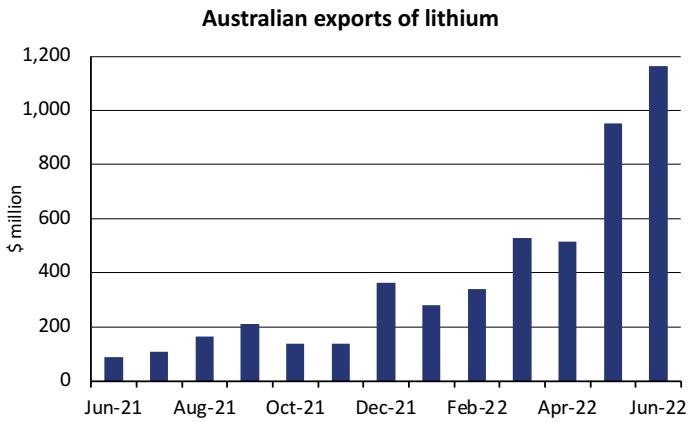
Article for analysis

Australia's becomes the world's largest exporter of lithium

Global demand for lithium has grown significantly in recent years. Lithium is a key component in the production of rechargeable batteries used in electric vehicles, renewable energy storage, and consumer devices such as mobile phones, laptops, and cameras. Australia is the world's biggest exporter of lithium and exports of lithium are expected to contribute around $10 billion to the Australian economy by 2023-24. Export values started to increase rapidly from late 2021, where it more than doubled from November to December 2021. From April 2022 to May 2022, exports of lithium almost doubled again. Western Australia accounts for over 99% of Australian lithium exports. Most Australian lithium is exported to China. In June 2022, China, accounted for 97% of the total lithium exports for that month.

Questions

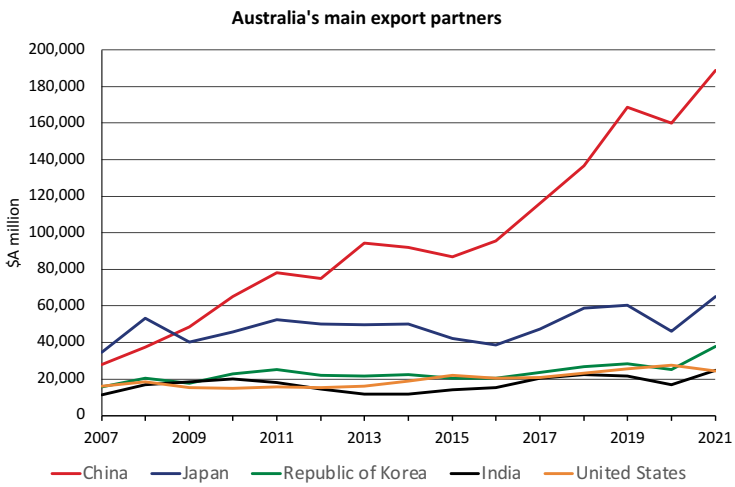
1. Why has global demand for lithium suddenly increased?
2. In which month did lithium exports first exceed $1 billion?
3. Calculate the total value of lithium exports for the 2021-22 financial year.



Data interpretation

Refer to the graph showing Australia's main export partners.

1. Describe the change in Australia's five largest export partners between 2007 and 2021.
2. Explain why there are no European economies represented in the graph.
3. In what year did China overtake Japan to become Australia's largest export market?
4. Given that total exports equalled $520 billion in 2021, calculate the approximate export share of each country in the graph.

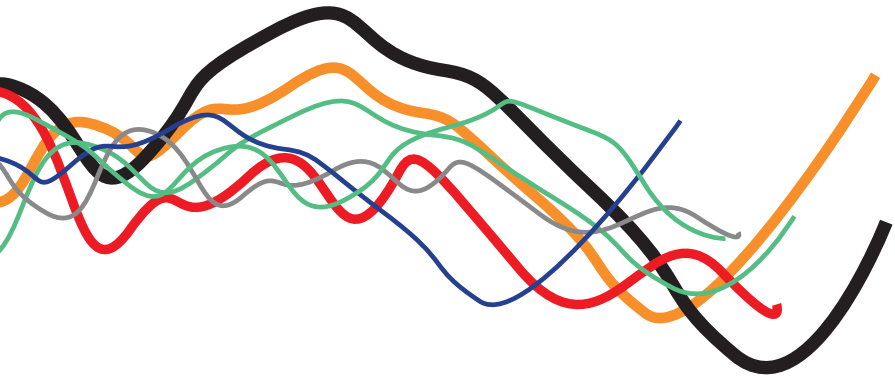


Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Discuss the factors that affect Australia's trade intensity. (10 marks)
   b. Explain the reasons for the emergence of China as Australia's main trading partner. (10 marks)

2. Describe the composition of Australia's trade (both exports and imports) and explain the importance of trade to the Australian economy. (20 marks)

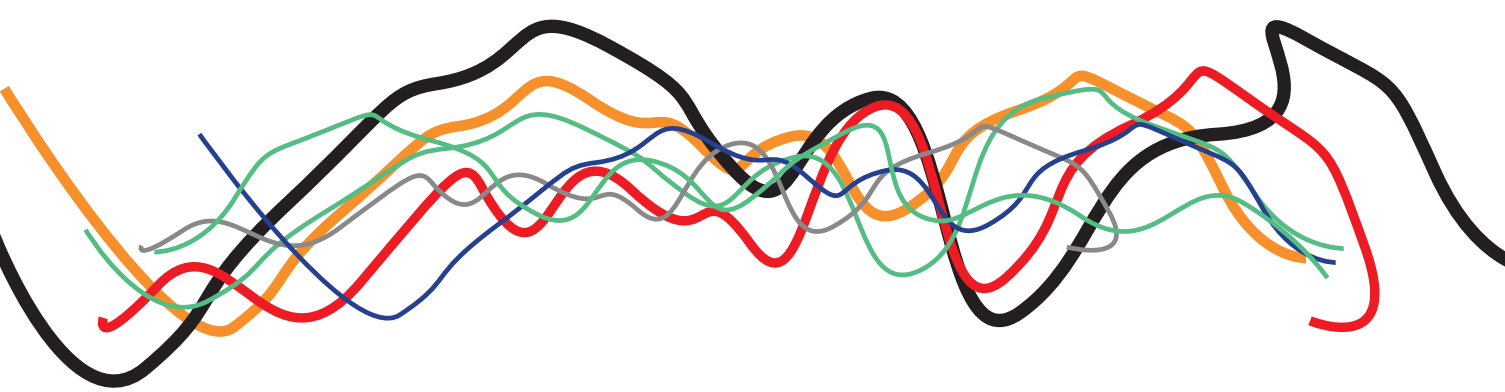


4

The Balance of Payments

Chapter concepts

- *the structure of Australia's balance of payments*
- *the concept of the current account balance*
- *recent trends in Australia's current account*
- *structural and cyclical reasons for Australia's current account balance*
- *the significance of Australia's current account balance*



Introduction

The balance of payments is a systematic record of all economic transactions between the residents of Australia and the residents of the rest of the world. The residents of a country include individuals, firms and the government. The balance of payments is in fact not concerned with just international payments but with all international transactions. An economic transaction occurs when something of value is provided by one party to another. Most transactions involve an exchange, for example, a good or service is traded for foreign exchange (money). Economic transactions include:

- exports and imports of goods, such as iron ore, coal, gold, wheat, wool, computers, motor vehicles, machinery and clothing;
- exports and imports of services such as shipping, freight, insurance, expenditure by tourists and overseas students;
- income flows, such as dividend and interest payments associated with foreign investment;
- transfers, such as foreign aid and funds brought by migrants; and
- financial flows, such as investment in shares and securities and loans.

Whenever a transaction occurs involving any one of these categories between a resident of Australia and a non–resident, then it will be recorded in the balance of payments. Australia's balance of payments is divided into two broad accounts – the current account and the capital and financial account. Figure 4.1 shows the structure of the two accounts. The two most important parts of the balance of payments are the current account and the financial account. The current account is concerned with transactions involving trade in goods and services as well as income flows. The financial account includes transactions concerned with foreign investment and international lending. The capital account is rather small and insignificant and records capital transfers and the acquisition/disposal of non–produced, non–financial assets, for example, copyrights.

The Australian Bureau of Statistics (ABS) records transactions in the balance of payments by using the internationally accepted convention of the double entry recording system. Each transaction in the balance of payments is recorded as consisting of two equal and opposite entries, reflecting the inflow and outflow element to each exchange. For each transaction, there is a matching credit and debit entry:

- credit (positive entry) – exports of goods and services, income receivable, increase in foreign liabilities, export of currency
- debit (negative entry) – imports of goods and services, income payable, increase in foreign assets, import of currency

Since for each transaction there is a matching credit and debit entry, the overall record of payments must always balance. This means that the sum of all credit entries will be exactly offset by the sum of all debit entries. But each of the accounts can record

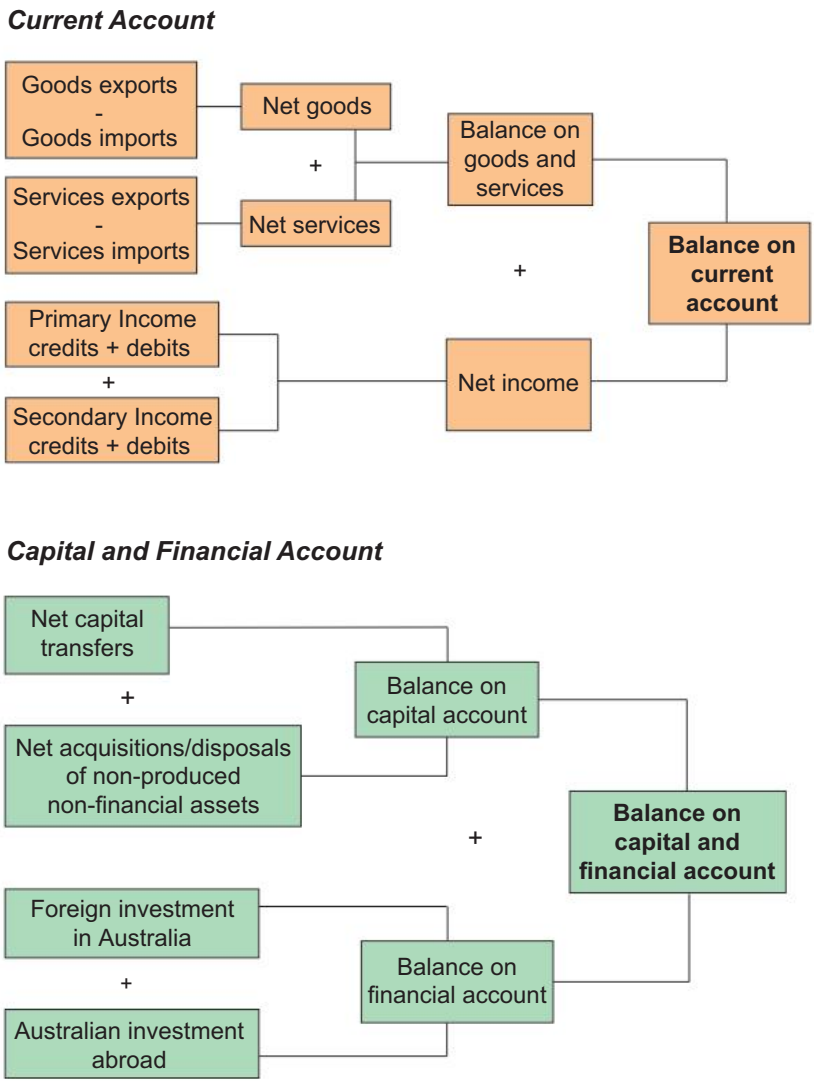


Figure 4.1 The structure of the balance of payments accounts

either a deficit or a surplus. For example, if the current account recorded a deficit of $10 billion, the capital & financial account would show a surplus of $10 billion.

To illustrate, imagine an Australian resident purchasing a TV set from Japan for AUD1,000 and a Japanese resident buying an Australian government bond for AUD5,000. How will these transactions be recorded in Australia's balance of payments? Remember for each transaction there are two offsetting entries. The value of the imported TV will be recorded in the current account as a debit of $1,000, while in the financial account it will be recorded as a $1,000 credit, because $1,000 of Australian currency is exported to Japan. When the Japanese resident purchases the

Australian government bond, it will be recorded in the financial account as a credit entry of $5,000 representing the bond which is exported and a debit entry of $5,000 of Australian currency which is imported.

The following table shows the entries for each transaction in Australia's balance of payments. Notice that the sum of debit entries ($6,000) is offset by the sum of the credit entries ($6,000). The current account shows a deficit of $1,000, while the financial account shows a surplus of $1,000.

	Credit	Debit	Balance
Current Account		-$1,000 (TV)	**$1,000 Deficit**
Capital/Financial Account	+$1,000 (currency) +$5,000 (bond)	-$5,000 (currency)	**$1,000 Surplus**
Total	+$6,000	-$6,000	**0**

Now suppose an Australian firm sells $10 million of iron ore to China and a US firm purchases $5 million of Australian shares. The table below shows how each transaction will be recorded in the balance of payments.

	Credit	Debit	Balance
Current Account	+$10 million (iron ore)		**$10 million Surplus**
Capital/Financial Account	+$5 million (shares)	-$10 million (currency) -$5 million (currency	**$10 million Deficit**
Total	+$15 million	-$15 million	**0**

The value of the exported iron ore will be recorded in the current account as a credit of $10 million, while in the financial account it will be recorded as a $10 million debit, because $10 million of currency is imported. The sale of $5 million of shares to a US firm will be recorded as a credit in the financial account because the shares are exported while there will be a matching debit entry of $5 million representing the import of currency. Notice that total credits ($15 million) are offset by total debits ($15 million) so that the balance of payments balances. But in this example, the current account records a surplus of $10 million, while the capital/financial account records a deficit of $10 million. It is important to note that the offsetting transaction – the movement of currency – is always recorded in the financial account.

The structure of the balance of payments

Figure 4.2 provides a breakdown of the components in the balance of payments for Australia – note that the data refers to the June quarter of each year. For each year, the balance on current account is equal and opposite in value to the balance on the capital and financial account plus the net errors and omissions item. This means that if the current account balance was +$10 billion, then the capital/financial balance would equal -$10 billion (assuming that the net errors figure was zero). Normally Australia records a current account deficit and a capital/financial account surplus. This has been the case for most of Australia's history.

			$ million (June quarter, original)		
CURRENT ACCOUNT			**2020**	**2021**	**2022**
	Goods		19777	33037	53658
		Credits	91662	115505	158934
		Debits	-71885	-82468	-105276
	Services		4321	1838	-6067
		Credits	15757	14673	16471
		Debits	-11436	-12835	-22538
Balance on goods and services			**24098**	**34875**	**47591**
	Primary Income		-4827	-7023	-23119
		Credits	14198	15788	21446
		Debits	-19026	-22810	-44565
	Secondary Income		-871	-1711	-1308
		Credits	2313	2342	2861
		Debits	-3184	-4053	-4169
Net Income			**-5698**	**-8734**	**-24427**
BALANCE ON CURRENT ACCOUNT			**18400**	**26141**	**23164**

CAPITAL AND FINANCIAL ACCOUNT		**2020**	**2021**	**2022**
Capital Account	Net Capital transfers	-218	-218	-267
	Net acquisition/disposal of non-produced, non-financial assets	0	-42	56
Balance on capital account		**-218**	**-260**	**-211**
Financial Account	Direct investment	7725	5752	-6956
	Portfolio investment	1929	-29047	42449
	Financial derivatives	-450	2471	-1726
	Other investment	-49747	-1539	-51977
	Reserve assets	23063	754	-462
Balance on financial account		**-17481**	**-21610**	**-18672**
BALANCE ON CAPITAL & FINANCIAL ACCOUNT		**-17699**	**-21870**	**-18883**
Net errors and admissions		-701	-4271	-4281

Figure 4.2 Australia's balance of payments

Source: ABS 5302.0

However, since June 2019 , Australia has recorded successive quarterly current account surpluses, mainly due to very large trade surpluses.

The current account

The current account records transactions between Australian residents and non-residents in three categories:

Goods June 2022	$ million
Exports (credits)	
Rural	18505
Mining	120585
Manufacturing	18799
Other	1045
Total	158934
Imports (debits)	
Consumer goods	-30622
Capital goods	-23559
Intermediate	-49109
Other	-1986
Total	-105276

Services June 2022 $ million		
	Exports	**Imports**
Transport	1432	-8155
Travel	6588	-5085
Tourism expenditure	7029	-6581
Other	1422	-2717
Total	16471	-22538

- goods
- services
- income (primary & secondary)

Trade in goods includes exports and imports of raw materials, manufactures, minerals and fuels, food and rural products. Australian exports are concentrated in the agricultural and mining sectors, while imports consist mainly of intermediate and capital goods used by industry and consumer goods.

In terms of absolute size, trade in goods is the largest item in the current account. Goods exports in the June quarter of 2022 (see sidebar) amounted to $159 billion. The dominance of mining exports is clearly evident - accounting for 76 per cent of total goods exports. Australia's largest mining exports are iron ore, coal, natural gas and gold. Goods imports totaled $105 billion of which 69 per cent comprised capital & intermediate goods with consumer goods comprising 29 per cent. The merchandise trade account recorded a record surplus of $54 billion for June 2022.

Trade in services consist of transactions in the transport of goods (freight/shipping), transactions involving travel by students and tourists, tourism related services, and other business services such as ICT (information, computer and telecommunications) and financial services. Australia's service exports are around one tenth the size of goods exports and is dominated by education and tourism. In June 2022, services exports amounted to $16.5 billion. The export of education has become an important industry for Australia and is now Australia's fourth largest export. Australia's services imports are relatively larger and are around one fifth the size of goods imports. Australia normally records a net services deficit due to freight costs and Australian tourists travelling overseas. In June 2022, services imports amounted to $22.5 billion - $6 billion more than service exports. In 2020 and 2021, Australia actually recorded a surplus in net services due to the impact of the Covid pandemic on overseas travel.

The income category of the current account is divided into primary and secondary income. Primary income is the largest and most important of the two and is mainly associated with foreign investment flows into and out of Australia. Primary income consists of two categories: compensation of employees (for the use of labour) and investment income (for the use of capital). Compensation of employees is simply the payment of wages and salaries to workers and is relatively small compared with the flow of investment income. Investment income accounts for more than 95 per cent of all income transactions.

Primary Income June 2022 $ million		
	Credits	Debits
Compensation of employees	425	-1567
Investment income - Equity - Interest	21021 18623 1503	-42997 -35961 -5349
Total	21446	-44565
Primary Income balance	-23119	

Australian residents receive income payments from overseas investments (credits) and income payments are made to foreign investors (debits). There are two main types of investment income – dividend payments associated with equity investment and interest income associated with loans. An example of an investment income credit would be if an Australian resident received a dividend payment from an overseas company. An example of an investment income debit would be the payment of interest by an Australian firm to an overseas bank. In the June quarter of 2022, Australia received $21 billion of investment income from overseas countries, but paid out $43 billion to overseas residents. The main reason for the difference is that total foreign investment in Australia exceeds Australian investment abroad, resulting in a net outflow of investment income in the current account.

The net balance in primary income for the June quarter 2022 was a deficit of $23 billion. This net outflow was much larger than previous years because the Australian economy had recovered from the recession in 2020. A stronger economy meant that outflows of profits and dividends to overseas investors increased. Notice in the sidebar that most of the income payments in 2022 were associated with equity investment rather than debt.

The secondary income category involves transactions where real or financial resources are provided (goods, services or financial assets) but nothing of economic value is received in return. Secondary income includes transactions in foreign aid, gifts, donations and pensions. An example of a debit transaction would be foreign aid given by Australia to Indonesia, while an example of a credit transaction would be gifts received by Australian residents from residents in a foreign country. The size of secondary income transactions is relatively small and insignificant - the secondary income balance for the June quarter 2022 was a deficit of around $1.3 billion and is always much smaller than the primary income deficit.

To obtain the overall balance on current account, the balance on goods and services is added to the income balance (primary plus secondary). For the June quarter 2022, the goods and services balance was a record surplus of $47.6 billion while the income balance was a deficit of $24.4 billion. This meant that the balance on current account was equal to a record surplus of $23.2 billion.

The Current Account	
	Balance on Goods and Services
+	Net Income
=	Balance on Current Account

The capital and financial account

Capital Account June 2022	$ million
Net Capital transfers	-267
Net acquisition/ disposal of non-produced, non-financial assets	56
Total	**-211**

Financial Account June 2022	$ million
Direct investment	-6956
Portfolio investment	42449
Financial derivatives	-1726
Other investment	-51977
Reserve assets	-462
Total	**-18672**

The capital account comprises capital transfers and the acquisition and disposal of non-produced, non-financial assets. Capital transfers include migrants' funds and types of aid funds related to fixed capital formation. Non-produced, non-financial assets refer to intangible assets such as patents, copyrights and trademarks. The size of transactions in the capital account are small and insignificant and the balance is always less than $1 billion. The much larger financial account comprises transactions associated with changes in the ownership of Australia's foreign assets and liabilities – in other words net foreign investment. Australia normally records a large financial account surplus because it offsets the usually large current account deficit. The financial account records the export and import of currency associated with transactions involving both trade and foreign investment.

When foreign residents are purchasing more Australian assets than Australian residents are purchasing of foreign assets, the financial account will record a surplus. A financial account surplus means that a country draws on the savings (foreign investment) from the rest of the world. A financial account deficit means that a country lends its excess savings to the rest of the world (capital outflow). In the June quarter 2022, Australia actually recorded a financial account deficit of over $18 billion.

Transactions in the financial account are classified by type of investment:

- direct investment;
- portfolio investment;
- other investment; and
- reserve assets.

The main forms of foreign investment that are of interest to economists are direct and portfolio investment. Direct investment is undertaken with the objective of obtaining a lasting interest in a foreign enterprise and exercising a significant degree of influence in its management. If a resident investor obtains 10 per cent or more of the equity of a foreign enterprise, then this is deemed to be direct investment. Direct investment enterprises include branches, subsidiaries and other businesses where the foreign resident has significant shareholding. In 2022, there was a net outflow of direct investment of $7 billion.

Portfolio investment consists of international equity and debt securities (mainly bonds and notes) not classified as direct investment. Portfolio investment is more short term in nature and speculative – the investor is not assumed to have any

influence in the operation or decision-making of the enterprise (less than 10 per cent equity). In 2022, there was a net inflow of portfolio investment of $42 billion. This is fairly typical and reflects the recovery of the Australian economy after the pandemic years. Other types of foreign investment include financial derivatives and reserve assets which are financial assets controlled by the Reserve Bank of Australia. Reserve assets include monetary gold and foreign exchange.

The overall balance of payments must always sum to zero. This means that if the current account is in surplus, then the capital and financial account will be in deficit and equal to the current account in absolute value (plus any net errors & omissions). In the June quarter 2022, Australia's current account surplus was $23.2 billion, the capital and financial account deficit was -$18.9 billion, which meant that net errors and missions was $4.3 billion.

Balance of Payments	
	Balance on Current Account
+	Balance on Capital and Financial Account
+	Net errors and omissions
=	0

The balance of payments is an important set of accounts that summarise a country's transactions with the rest of the world. Changes in the balance of payments reflect changes in both the world economy and the Australian economy. The balance of payments is an important economic indicator providing information on a nation's trade account and its financial position with the rest of the world. Both the government and the financial markets use the balance of payments as a guide to analyse the relative performance of the economy. Changes in economic growth, inflation, the terms of trade and exchange rates will all have an impact on a nation's balance of payments. Traditionally the focus of analysis has been on the current account in the balance of payments. This reflects the nation's trading performance which directly impacts on GDP (remember the equation: $GDP = C + I + G + X - M$).

But equally changes in consumption, investment and government spending will also have an impact on the current account. For example, an increase in consumption and/or investment will increase imports which, ceteris paribus, will decrease the current account balance. An increase in foreign investment into Australia will result in an increase in income payments which will decrease the current account balance.

Trends in the current account

Figure 4.3 shows the trends in the various categories of the current account since 2012. The figures represent annual data. Notice that the current account balance has fluctuated from a deficit of $77 billion in 2016 to a surplus of $64 billion in 2021. The net goods balance in the current account can fluctuate considerably from year to year. For example in 2016 it recorded a large deficit of $27.5 billion, whereas in 2022, Australia's goods balance was a record $147 billion surplus. The goods balance is mainly driven by changes in commodity prices and changes in domestic economic activity. Australia mainly exports commodities, such as iron ore; coal; LNG; gold; wheat; and wool. Commodities account for around 85 per cent of Australia's goods

Year	Goods	Services	Trade balance	Primary income	Secondary income	Net Income	Balance on current account
2012	9077	-11598	-2521	-45604	-3015	-48619	-51140
2013	-2447	-17581	-20028	-38210	-3302	-41512	-61540
2014	10035	-14495	-4460	-41730	-3225	-44955	-49415
2015	-13507	-10631	-24138	-32981	-2846	-35827	-59965
2016	-27534	-10230	-37764	-39000	-613	-39613	-77377
2017	13584	-4596	8988	-47740	-1372	-49112	-40124
2018	12665	-6082	6583	-57666	-784	-58450	-51867
2019	53501	-4954	48547	-65028	-733	-65761	-17214
2020	72256	5556	77812	-44508	-1225	-45733	32079
2021	76371	13674	90045	-23060	-3034	-26094	63951
2022	147447	-11505	135942	-83187	-3049	-86236	49707

Source: ABS 5302.0 All figures in $million (original)

Figure 4.3 The current account (annual)

exports. Commodity prices have a positive relationship with global economic growth - if world growth increases, then commodity prices will increase. This increases the value of Australia's exports and Australia's trade balance.

The rate of economic growth in Australia also has a significant impact on the trade balance. When domestic economic activity in Australia increases, the demand for imports increases. Why? Because both investment and consumption increase. An increase in investment requires imported capital goods such as machinery, transport equipment and computers. High levels of economic activity increases national income which increases household consumption. A rise in consumption will increase the demand for imported consumer goods. When economic activity contracts, the reverse happens – net exports increase because imports fall. This was especially evident in the COVID affected years of 2019-21 when the Australia economy contracted and experienced a recession.

The services balance normally records a deficit due to Australia's large imports of travel and transport services. Australia is relatively isolated from the rest of the world which results in transport services, such as freight, being a relatively large debit item. Outbound tourism is also normally Australia's largest import. Australia recorded a deficit in net services between 2012 and 2019. Between 2020-2021, net services relatively large surpluses. This was due to the travel restrictions imposed by the Australian government during the COVID pandemic. Travel services are also becoming an important export earner for Australia. In 2021, education was Australia's fifth most important export (behind iron ore, coal,LNG and gold), earning $22 billion.

The last important item in the current account is income. Primary income is by far the larger and more important of the two. The main components of the primary income deficit have been interest payments on foreign debt and the payment of dividends to overseas investors. The primary income deficit normally results in Australia recording a current account deficit – every year in the table except for the

period 2020-2022. The growth in the primary income deficit over time has paralleled the build–up in Australia's foreign liabilities or the stock of foreign investment. An increase in foreign investment into Australia will increase the income payments to foreign investors. Many people don't realise that whenever the Australian economy is growing strongly, company profits and dividends will also increase, contributing to the increase in the primary income deficit. During 2020–21, the Australian economy contracted and there was a large decrease in foreign investment into Australia. This resulted in a large fall in the income deficit and helped to contribute to Australia's large current account surplus.

The balance on current account is derived by summing the balance on goods and services with net income. Notice that Australia recorded a current account deficit for eight of the 11 years shown in figure 4.3. This was because in each of those years, the income deficit exceeded the trade balance resulting in a current account deficit. Up until 2020, Australia had only recorded a current account surplus once in the past 50 years! So that makes the period 2020-22 quite unique. Of course 2020 was the year of the COVID pandemic which caused the Australian economy to experience its first recession since 1991. With both investment and consumption spending falling, there was a large decrease in imports which was a major reason for the large trade surplus. Combined with the significant fall in the income deficit, it resulted in record current account surpluses.

Figure 4.4 shows changes in the current account on a quarterly basis, rather than annual. The graph reveals a number of important characteristics:

- the trade balance is more volatile than the income balance;
- the trade balance fluctuates from deficit to surplus responding to changes in domestic and global economic activity;
- the income balance is normally in deficit due to Australia's reliance on foreign investment;
- the trade and current account balance have a strong positive relationship;
- in 2020, Australia records its first current account surplus in over 50 years.

Explaining the current account balance

What causes the current account balance to change over time? There are both cyclical and structural reasons for Australia's current account balance. Cyclical factors are temporary and subject to frequent change. A structural factor on the other hand is more permanent and only changes gradually. Cyclical factors help explain the fluctuations in the trade balance while structural factors are associated with the primary income balance. By examining figure 4.4 it is evident that the trade balance and the current account balance exhibit a positive relationship. Whenever there has been a decrease in the goods and services balance (e.g. between 2014 and 2015) the current account balance has also decreased. Likewise, whenever there has been an increase in the goods and services balance (e.g. between 2018 and 2021) the current account balance has also increased.

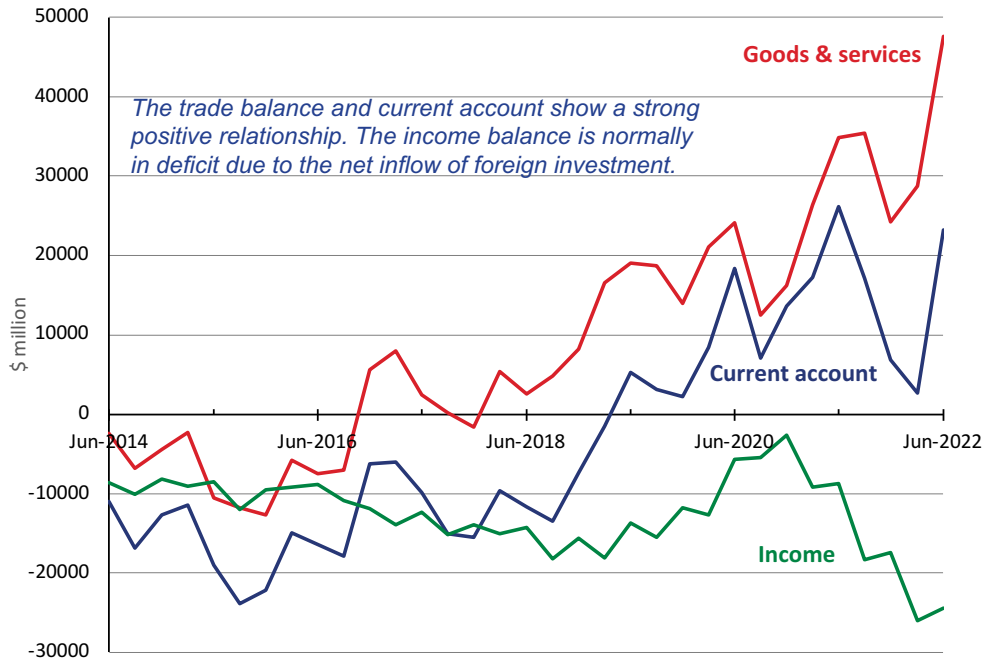


Figure 4.4 The current account (quarterly)

The trade balance is relatively volatile and is very much influenced by both Australia's business cycle and the world business cycle. Notice how the trade balance has fluctuated between –$12 billion and +$48 billion during the period shown in the graph. Whenever the economy expands at a rapid rate, the current account balance will decrease due to increased spending on imports - both consumption and investment goods. When the economy slows or contracts, the current account balance will increase because spending on imports will fall relative to exports.

Influences on the current account balance
Cyclical Factors – temporary factors that mainly affect the trade balance: • domestic business cycle • world business cycle • exchange rate • commodity prices/terms of trade • relative inflation
Structural Factors – fundamental factors that mainly affect the income balance: • investment–savings gap • foreign investment • foreign liabilities

Business cycle trends in Australia's main trading partners also have a major impact on Australia's trade and current account balance. If the Chinese economy expands, world commodity prices rise, boosting Australia's export income and increasing the trade and current account balance. Changes in Australia's export and import prices are measured by the terms of trade (see chapter 5) which has a direct influence on the trade balance. Factors that affect Australia's level of international competitiveness such as relative wage levels and inflation rates are also important in causing cyclical changes in the current account balance.

Movements in the exchange rate (see chapter 6) can also affect the demand for exports and imports. A fall in the value of the Australian dollar (depreciation), for example, will decrease the price of Australia's exports and increase the price of imports. This will lead to an increase in exports and a decrease in imports, increasing the trade balance.

The income balance in the current account has been far more stable, compared to the trade balance, fluctuating between –$3 billion and –$26 billion. While the trade balance can fluctuate between deficit and surplus, the income balance is always in deficit. This is because Australia traditionally relies on foreign investment (net capital inflow) to fund Australia's investment–savings gap. Australia has throughout its history been an importer of financial capital to develop its economy. Without foreign investment, Australia would not have a mining sector. Foreign investment is recorded in the financial account. The trade–off for this use of other countries savings is the payments of interest and dividends to foreign investors which is recorded in the primary income account. The result is that the income balance will record a deficit, and is the structural cause of the current account balance.

The savings – investment gap

There are several different ways of viewing a current account balance. Firstly, the current account balance is equal to the trade balance of goods and services and the income balance between Australia and the rest of the world. Basically a current account surplus will occur if a nation's exports and income received from overseas residents exceeds the value of its imports plus income paid to overseas. Analysing the current account balance in terms of international trade focuses on the factors that affect a nation's exports and imports. This includes factors that affect a country's international competitiveness. For example, an increase in a country's inflation rate (ceteris paribus) will decrease net exports and decrease the current account balance. A rise in commodity prices will (ceteris paribus) increase a country's net exports and lead to a rise in the current account balance.

Analysing the current account balance from just a trade perspective only provides a micro viewpoint. To get a more complete understanding of what the current account balance means, we have to explore the link between the balance of payments and the national accounts. This is set out in figure 4.5. Remember the current account balance is equal to the difference between exports and imports plus net income. Gross Domestic Product (GDP) is the total value of a country's production and is equal to the sum of consumption, investment, government spending and net exports (C + I + G + X - M). By adding net income from overseas to GDP we get gross national income (GNI). Notice from equation 4, that GNI also equals the sum of consumption, investment, government spending and the current account balance. To obtain a nation's level of saving, we subtract consumption and government spending from income (equation 5). This reveals that a country's savings is equal to its investment plus the current account balance (equation 6). This is very important, because we can now show that the current account balance is equal to the difference between a country's total savings and its total investment: CAB = S – I (equation 7).

(1)	CAB = X - M + NI
	The current account balance equals exports of goods and services (X) minus imports of goods and services (M) plus net income from foreign residents (NI) .
(2)	GDP = C + I + G + X - M
	Gross domestic product (Y) equals the sum of consumption expenditure, investment, government spending and net exports.
(3)	GNI = C + I + G + X - M + NI
	Gross national income equals GDP plus net income from foreign residents
(4)	GNI = C + I + G + CAB
	Gross national income equals the sum of consumption, investment, government spending plus the current account balance
(5)	S = GNI - C - G
	Gross savings (S) equals gross national income minus consumption minus government spending
(6)	S = I + CAB
	Gross savings equals investment plus the current account balance
(7)	**CAB = S – I**
	This shows that the current account balance is equal to the difference between a country's saving and investment. A current account surplus (or financial account deficit) will occur when total saving (S) > total investment (I). A current account deficit (financial account surplus) will occur when I > S.

Figure 4.5 The savings investment gap

This is referred to as the country's 'saving – investment gap'. What this means is that if a country's saving exceeds its investment (S > I), then it will have a current account surplus. If a country's investment is greater than its savings (I > S), then it will have a current account deficit. Up until 2019, Australia's investment had exceeded its savings resulting in a current account deficit. But in 2019, there was a rise in savings and a fall in investment which created a positive S – I gap. This resulted in Australia recording its first current account surplus in over 50 years. Figure 4.6 shows Australia's annual saving, investment and current account balance as a proportion of GDP since 2012. Notice that between 2012 and 2019, Australia's investment exceeded its savings – in other words a negative savings-investment gap which resulted in a current account deficit. For 2020-22, saving exceeded investment and this resulted in a current account surplus.

The current account balance is equal to the difference between a country's saving and its investment (S - I gap).

We now have a very useful and simple framework to understand the factors that drive the current account balance. All we need to do is to analyse what is happening to a country's saving and investment. Normally Australia's investment is greater than its saving and is the reason why Australia usually records a current account deficit. Does this mean that Australia is a 'low saving' country? The answer is no! Australia's saving rate is actually similar to other OECD countries. Australia, being a small economy in terms of population (26 million), is usually not able to generate

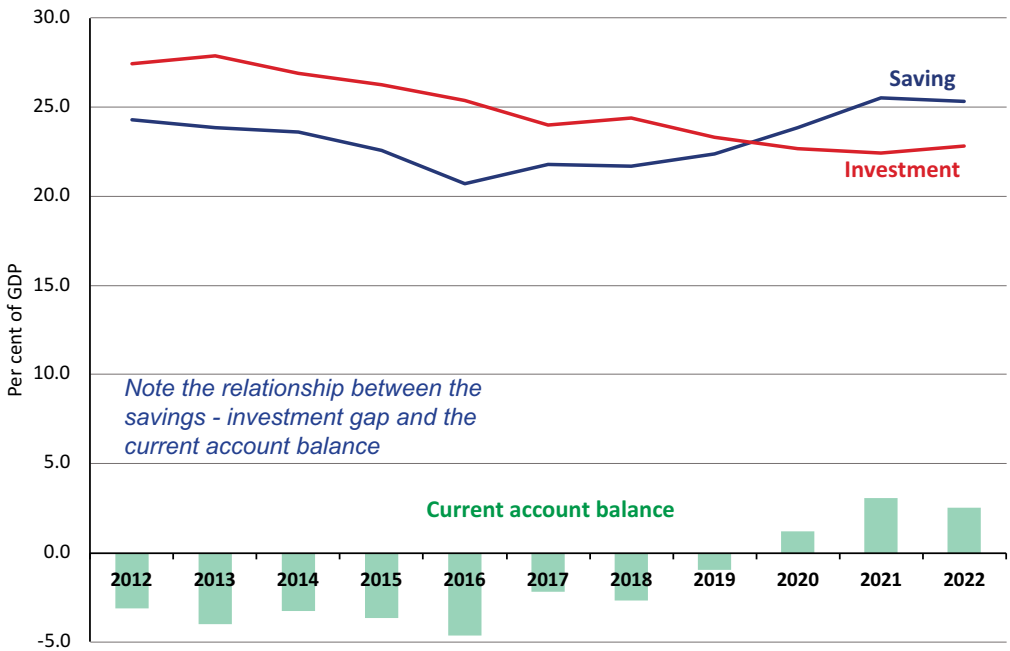


Figure 4.6 Australia's savings-investment gap

enough savings to finance the investment needed to develop its growing economy. Remember that Australia is a large country in terms of geographical area – it is similar in size to the United States. Australia is also endowed with vast natural resource wealth. Developing these resources requires large amounts of capital investment. Drawing on foreign savings enables Australia to achieve a higher rate of investment and economic growth than would otherwise be possible. A current account deficit should not be construed as being inferior to a current account surplus. It simply means that the economy's investment exceeds its savings and therefore it must borrow from other countries to make up the 'gap'.

A current account deficit will occur when a country's investment is greater than its saving (I > S).

One often hears the statement that Australia is a low savings nation and that this is the main cause of the current account deficit. But this is actually a myth! Figure 4.7 compares Australia's saving and investment against other economies (measured as a per cent of GDP) over the past decade. Australia's gross national saving has averaged around 23 per cent of GDP. Notice that Australia's savings rate is very similar to the average of the OECD economies and is considerably higher compared to the United States and the United Kingdom.

What makes Australia different to other economies is its very high investment rate – averaging 25 per cent of GDP. This is much higher than the average across all OECD economies (22%). When a country has a higher rate of investment relative to saving, then it will record a current account deficit. Notice that the current account balance equals the difference between each countries savings and investment.

Is Australia a low saving nation? Absolutely not – Australia's saving rate is similar to the average of the OECD economies.
Is Australia a high investing nation? Yes - Australia's investment rate is well above the average. Australia usually records a current account deficit because its investment exceeds its savings.

Country	National Savings	National Investment	Current Account Balance
Australia	23.2	25.2	-2.0
Canada	20.5	23.7	-3.2
Germany	28.3	20.9	7.4
Japan	27.4	24.9	2.5
United Kingdom	13.5	17.2	-3.7
United States	19.1	20.6	-1.5
Average OECD	22.1	22.0	0.1

Figures are % of GDP 2011-21 Source: World Bank

Figure 4.7 National savings and investment comparison

The significance of the current account deficit

There is no optimal or correct size for a current account balance. Over the past twenty years, Australia's current account balance has averaged –3.2 per cent of GDP. This means that the capital and financial account balance must have averaged +3.2 per cent of GDP. In June 2022, Australia recorded a current account surplus equal to +3.2 per cent of GDP. Is it better to have a current account surplus or a current account deficit? Is it better to have a financial account surplus or a financial account deficit? The simple answer is neither – whether the current (or financial) account is in surplus or deficit depends on whether it has a positive or a negative savings investment gap. And this gap is determined by both structural and cyclical factors. A fast growing economy is likely to experience a current account deficit since its investment will exceed its savings. This is what occurs when the Australian economy is in the expansion phase of the business cycle. When the economy contracts or experiences a recession, then investment will fall and savings will rise which will cause the current account balance to increase.

If a country's current account balance decreases, this does not necessarily mean that it represents a weakness in the economy – it could be a response to changes in the world economy, to changes in domestic economic activity or to changes in national savings and investment. For example, Australia's current account balance will decrease if one or more of the following events occurs:

- a fall in the terms of trade – if export prices fall relative to import prices, then ceteris paribus, export receipts will fall and import payments will increase, decreasing the trade balance;
- a decline in international competitiveness – if productivity levels decline or if real wages rise more than productivity then a country's exports will be less competitive in overseas markets. A rise in inflation will also reduce a nation's competitiveness by increasing the prices of domestic goods relative to foreign goods;

- a higher rate of economic growth – this will lead to an increase in national income and an increase in both consumption and investment spending boosting the demand for imports and decreasing the trade balance;
- an increase in foreign investment will increase the financial account balance. If the rate of return on investment is higher in Australia than the rest of the world, then there will be a large capital inflow into Australia. This will increase the primary income deficit due to the outflow of investment income (dividends and the interest payments);
- a decline in national savings – if savings by either households, firms or the government fall, then, ceteris paribus, the current account balance will decrease. When national saving is less than investment, the current account will record a deficit;
- an increase in investment – if investment increases by either the private or public sector, the current account balance will decrease. Stronger economic growth will increase investment and result in a decrease in the current account balance.

The above factors illustrate the many different ways the current account balance can decrease. It is important to understand that a decrease in the current account balance should not necessarily be labeled as a deterioration - which is the fault of many media commentators. How often have you heard comments such as: *"Australia's trade and current account balance deteriorated in the past quarter".* This shows a lack of understanding of basic economics. Rather, the comment should be: *"Australia's trade and current account balance decreased"*. If a strong economy and increased investment contribute to a lower current account balance, then this is a positive change. If the current account balance decreases because of a decline in competitiveness, then this may be a cause for concern. The current account balance is an indicator of changes in the economy – it reflects changes in spending, savings, investment, productivity and external shocks.

Multiple choice 1

Choose the best alternative in the following questions.

1. Which of the following would be a credit item in the current account?
   a. an Australian tourist's spending while on holiday in Singapore.
   b. an Australian firm hires a non-resident Indonesian citizen.
   c. an Australian firm invests overseas.
   d. an Australian firm sells computer software overseas.

2. If a country records a current account deficit, it must be because
   a. exports exceed imports.
   b. imports exceed exports.
   c. foreign currency received from exports and income receipts is more than the foreign currency needed to pay for imports plus income payments.
   d. foreign currency received from exports and income receipts is less than the foreign currency needed to pay for imports plus income payments.

3. The financial account of the balance of payments shows the
   a. value of net foreign investment.
   b. interest repayments on borrowing from overseas.
   c. inflow of pensions and migrant funds.
   d. net trade in capital goods.

4. In the balance of payments
   a. exports of capital goods are recorded in the current account.
   b. imports of capital goods are recorded as a credit item.
   c. the value of exports less the value of imports must always equal the value of net services.
   d. the balance of merchandise trade plus net services equals the balance on current account.

5. Of the following, which is the largest item by value in Australia's current account?
   a. the value of goods imported.
   b. the value of services exported.
   c. the interest payments associated with foreign debt.
   d. the value of direct foreign investment in Australia.

6. Which of the following is included in the financial account of the Australian balance of payments?
   a. dividends paid to foreign investors.
   b. expenditure by Australian tourists overseas.
   c. expenditure by Japanese tourists in Australia.
   d. purchases of shares in Australian companies by foreign residents.

7. If the balance on merchandise trade is $600m, net services are -$350m, income credits are $150m, income debits are $800m and foreign investment into Australia is $450m, then the balance on current account is:
   a. $250m.
   b. -$350m.
   c. $100m.
   d. -$400m.

8. Usually, the largest component of Australia's current account deficit is the:
   a. trade deficit.
   b. goods and services deficit.
   c. net income deficit.
   d. financial account deficit.

9. Which item is not included in the current account of a country's balance of payments?
   a. Exports of services.
   b. Interest on foreign loans.
   c. The inflow of foreign capital.
   d. Profits from foreign investments.

10. If Australia's saving-investment (S – I) gap is positive, then:
    a. the Australian economy will contract.
    b. the Australian dollar will depreciate.
    c. Australia's net foreign investment will be positive
    d. Australia's current account balance will be positive.

11. In a country's accounts with the rest of the world, a surplus on the current account must be offset by
    a. a deficit on the capital and financial account.
    b. a surplus on the current account.
    c. increased borrowing on the capital and financial account.
    d. an appreciation of the domestic currency.

12. When the level of economic activity _____ there will be a tendency for the trade balance to increase as imports _____.
    a. increases, increase..
    b. falls, increase.
    c. increases, fall.
    d. falls, fall.

13. Refer to the table of data:

    Which of the following statements is correct?
    a. The capital and financial account has a deficit of $70 billion.
    b. The current account has a surplus of $70 billion.
    c. The trade balance is a deficit of $30 billion.
    d. The capital and financial account has a surplus of $70 billion.

Balance of payments items	$ billion
Exports	400
Imports	430
Net services	–20
Net income	–20

14. When a Swiss company purchases an Australian company for $50 million, the value of that transaction is recorded in the:
    a. income account.
    b. current account.
    c. financial account.
    d. investment account.

15. If a global contraction resulted in fewer tourists from other countries visiting Australia, how would this be recorded in Australia's current account of the balance of payments?
    a. A decrease in services exported.
    b. A decrease in services imported.
    c. An increase in services exported.
    d. An increase in services imported.

Worksheet 1

1. What is recorded in a nation's balance of payments.
2. List the different types of economic transactions.
3. Distinguish between credit and debit entries in the balance of payments.
4. Explain why the balance of payments balances.
5. What are the different categories that comprise the current account?
6. The table records transactions between the country of Ecoland and the rest of the world. Record each transaction using the double entry recording system. Note for each transaction there will be a credit and a debit entry.
7. Calculate the following balances for the economy of Ecoland: merchandise trade; goods and services; current account; financial account.
8. Explain why Australia normally records a current account deficit.
9. Fill in the missing values for the table

Ecoland Transactions	$ m
foreign investment to overseas countries	200
coal exports	260
wheat exports	140
spending by overseas tourists in Ecoland	10
interest payments on Ecoland's's foreign debt	40
dividend payments to overseas residents	20
foreign investment in Ecoland	140
computer imports	90
machinery imports	100
car imports	150
wine exports	50
profits received from overseas	10
education exports	30
borrowing from overseas residents	60
loans to overseas residents	100

opposite showing hypothetical balance of payments data (assuming balancing item is zero).

10. What types of transactions are recorded in the financial account?
11. Why does Australia normally record a capital and financial account surplus?

Category	Year 1	Year 2	Year 3
Merchandise exports	3000	1000	....
Merchandise imports	1500	....	1000
Net goods	....	-1000	3000
Net services	-500	....	-400
Trade balance	....	-1300	....
Primary income	-500	-1500	....
Secondary income	250	....	100
Current account balance	....	-2600	....
Balance on capital and financial account	....	....	-1300

Articles for analysis

Read the two articles and answer the questions below.

Australia's current account balance (1)

For most of its history Australia has recorded a current account deficit (CAD). This reflects high levels of investment that have consistently exceeded national saving (I > S), even though Australia's saving rate has been around the OECD average. During the mining boom, increased profits in the resources sector led to a surge in mining-related investment. As the current account balance (CAB) is the difference between a country's total saving and total investment, this large increase in investment would have resulted in a large current account deficit in the absence of a matching increase in saving. Indeed, this is what happened in the initial phase of the mining boom.

Period	CAB (% 0f GDP)
Mining boom (2002–2012)	-5.0
End mining boom (2013–2018)	-3.2
Current - including Covid (2019–22)	+2.2

The mining boom in Australia ended in 2012. Since then, Australia's current account balance has averaged -1.3 per cent of GDP. Why did the current account deficit narrow? Investment, especially in the mining sector, fell relative to savings and this reduced the gap between Australia's investment and savings. During 2019-22, Australia recorded successive current account surpluses - the first time in 50 years. During this period, Australia's saving rate increased to exceed its investment rate (S > I). The economy was weak with continued falls in investment. At the same time the Covid pandemic caused an increase in household saving. The combination of falling investment and rising saving resulted in a current account surplus.

Article 1 questions

1. What was Australia's average current account balance during and after the mining boom?
2. Why did the mining boom increase national investment?
3. What effect did the end of the mining boom have on Australia's current account balance?
4. What impact did the Covid pandemic have on Australia's current account balance?
5. Explain the link between Australia's current account balance and its S - I gap.

Australia's current account balance (2)

The current account of the balance of payments comprises the 'trade balance' (exports less imports) and the 'net income balance' (interest, dividends and transfers received by Australians less interest, dividends and transfers paid to foreigners). Australia has experienced a deficit on the current account for nine years in every ten since European settlement, and for all but three of the last 50 years. By definition, it has also run a surplus on the capital & financial account in all these years, attracting net capital inflow which indicates investment opportunities in Australia continue to be attractive to overseas investors. Over the past twenty years, the current account balance (CAB) has fluctuated between +4 and -7 per cent of GDP. Most of the fluctuation has been a reflection of changes in the trade balance, since the net income deficit has been relatively stable.

The trade balance tends to move with the business cycle. When domestic demand grows faster in Australia than in the rest of the world, import volumes tend to rise more than export volumes and so the trade balance falls. During the Covid pandemic in 2020, import volumes were hit hard and the trade balance was correspondingly larger. Fluctuations in the current account balance are not a bad thing. They are a means by which Australia 'smoothes' consumption in the face of income shocks.

That is, the CAB, like the exchange rate, acts as a buffer or shock absorber between domestic demand and global developments. The deficit on the net income balance largely reflects past current account deficits. These have been funded by borrowing from the rest of the world. As a result, Australia's foreign liabilities exceed its foreign assets. The interest and dividend flows on these net foreign liabilities generally lead to an income deficit.

Article 2 questions

1. Distinguish between the 'trade balance' & the net income balance'.
2. Why does Australia have a large income deficit in the current account?
3. Explain why the trade balance tends to move with the business cycle.
4. 'Fluctuations in the current account balance are not a bad thing'. Explain this statement.
5. How does a strong world economy impact on Australia's current account?

Worksheet 2

1. Why does Australia's trade balance fluctuate?
2. What is the main component of the primary income deficit?
3. Why is Australia's primary income balance always negative?
4. Explain how events in the world economy can affect Australia's current account balance.
5. How is the current account balance affected by Australia's rate of economic growth?
6. Explain why the current account balance follows a cyclical pattern.
7. Explain which category in the current account is more volatile - the trade balance or the primary income balance.
8. What factors can lead to a fall in the current account balance?
9. What are the structural reasons for Australia's recording a current account deficit?
10. Explain how the financial account is linked to the current account.
11. Show that the current account balance is equal to the difference between a country's saving and its investment.
12. Explain what would happen to Australia's current account balance for each of the following:
    - a mining boom
    - an increase in savings
    - a decrease in investment
    - a global recession.

Multiple choice 2

1. When an Australian purchases a New Zealand financial asset
   a. Australia's balance of goods and services deteriorates.
   b. Australia's capital and financial account surplus is reduced.
   c. Australia's current account deficit increases.
   d. Australia's capital and financial account surplus is increased.

2. A decrease in the current account balance
   a. can be directly caused by an increase in the country's GDP.
   b. is likely to appreciate the country's currency.
   c. will be offset by a deficit on the capital and financial account.
   d. will lead to a fall in the terms of trade.

3. An increase in the trade surplus in Australia is most likely to result from
   a. higher economic growth in China.
   b. an appreciation of the $A.
   c. an increase in Australia's inflation rate.
   d. a decrease in domestic interest rates.

4. If the rate of economic growth in Australia decreased while for China it increased, then
   a. both Australia's exports and imports would increase.
   b. both Australia's exports and imports would decrease.
   c. Australia's exports would increase and imports would decrease.
   d. Australia's exports would decrease and imports would increase.

5. Which of the following usually contributes most to Australia's CAD?
   a. Net primary income.
   b. Net services.
   c. Net secondary income.
   d. Net goods.

6. A positive balance of trade in a country's balance of payments necessarily implies that
   a. the volume of imports is less than the volume of exports.
   b. an improvement has occurred in the terms of trade.
   c. the value of imports is less than the value of exports.
   d. the balance on the current account will also be positive.

7. A current account deficit could be reduced by
   a. increasing aggregate demand.
   b. increasing the flow of foreign investment.
   c. increasing domestic savings.
   d. decreasing unemployment.

8. An increase in a country's current account deficit in the balance of payments
   a. can be caused by an increase in the country's economic growth.
   b. must be accompanied by an equivalent deficit in the capital and financial account.
   c. must eventually lead to a decline in the country's terms of trade.
   d. can be caused by an increase in the country's aggregate saving.

9. An increase in the current account deficit is most likely to be a result of
   a. a decrease in economic growth.
   b. a fall in the exchange rate.
   c. domestic investment being greater than domestic saving.
   d. an increase in exports.

10. An increase in the current account deficit is most likely to be a result of
    a. a decrease in economic growth.
    b. an increase in investment in domestic manufacturing plants.
    c. a positive gap between domestic savings and domestic investment.
    d. an increase in exports.

11. All other things being equal, which of the following is most likely to cause an increase in Australia's current account deficit?
    a. A decrease in national savings
    b. A decrease in Australian overseas aid
    c. An increase in the Federal Government's budget surplus
    d. An increase in the number of overseas students studying in Australia

12. Which of the following statements is correct?
    a. A country will have a current account surplus if it imports more than it exports.
    b. A country will have a capital and financial account deficit if it imports more than it exports.
    c. A country that has a current account surplus will lend savings to the rest of the world.
    d. A current account deficit is an indication that a country has an excessively high level of imports.

13. Refer to the data table opposite.
    The balance on current account is
    a. $400 million.
    b. -$400 million.
    c. $0 million.
    d. $1,100 million.

Balance of Payments	$ million
Goods Exports	6600
Goods Imports	5500
Net Services	–200
Net Income	–500

14. In 2020, Australia recorded a financial account deficit. The reason for this was
    a. foreign investment into Australia was less than Australian investment abroad.
    b. Australia's exports of goods and services exceeded its imports.
    c. Australia recorded a net income deficit.
    d. Australia's net foreign debt decreased.

15. An increase in the current account deficit would most likely be of concern if it was due to
    a. rising investment in an economy undergoing structural change.
    b. rising inflation levels affecting international competitiveness.
    c. higher rate of economic growth boosting demand for imports.
    d. an increase in savings relative to investment.

Article for analysis

Read the articles on page 92 and answer the questions below.

Article 1 questions

1. What was the current account balance for June 2020?
2. Explain why net exports increased when actual exports decreased?
3. Explain why the net income deficit decreased.
4. What effect does a recession have on the current account balance?
5. How does a recession affect the savings-investment gap?

Article 2 questions

1. What was the main reason for the record trade balance in June 2022?
2. What was the main reason for the record primary income deficit in June 2022?
3. For June 2022 determine the value of the trade balance, the income balance and the current account balance.

1. Australia records current account surplus during the COVID recession!

Australia's fifth consecutive record current account surplus in June 2020 was driven by a further increase in net exports. But was it due to rising exports? The answer might surprise you – it was due to rapidly falling imports. Exports actually fell, but imports fell even more! While exports of services fell by 18 per cent in the June quarter 2020, services imports collapsed by 49 per cent. This increased the services balance by a record $7 billion, helping drive a record $18 billion current account surplus. The overall current account surplus was also helped along by the net income deficit falling by $4 billion due to less income being paid to offshore investors due to a collapse in dividend payments.

Why did we suddenly get a record current surplus in the middle of a recession? With high unemployment and falling GDP, both consumption and investment spending fell. This meant that spending on imports collapsed and this helped create a massive trade surplus. Remember that a country will have a current account surplus if national saving is greater than national investment (S > I). What happens to S and I during a recession? Investment falls and savings rise – hence the reason for the increase in the current account surplus. So simple even my pet dog 'Bella' understands it!

2. Australia recorded its 13th consecutive current account surplus in 2022

Australia's current account surplus increased by $16 billion in the June quarter 2022. The balance on goods and services increased to reach the highest balance on record of $43.1 billion, driven by strong export prices. The ABS, said: "The increase in the current account surplus was driven by higher commodity prices. Exports of goods and services increased 14.7 per cent, as global supply constraints increased demand for Australian commodities. Travel services also contributed to the rise in exports as education related and personal travel continued to recover following the reopening of Australia's international borders. The net primary income deficit reached a record level of $24 billion due to increased dividend payments to non-residents as profits remained strong on the back of higher commodity prices. (Source: ABS 5302)

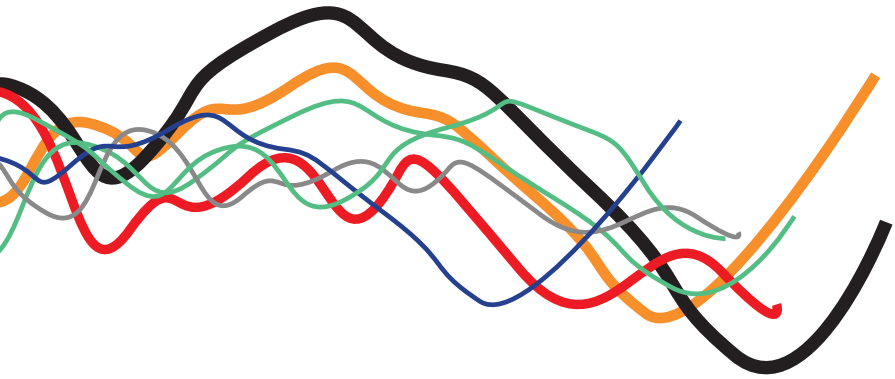
Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks..

1. a. Describe the structure of Australia's balance of payments accounts. Distinguish between transactions in goods, services, income and financial assets. [10 marks]
   b. Explain the importance of the savings – investment gap in understanding Australia's current account balance. [10 marks]

2. a. Distinguish between the two accounts in the balance of payments and explain how the two accounts are linked. [10 marks]
   b. Explain both the structural and cyclical factors affecting Australia's current account balance. [10 marks]

3. a. Distinguish between the trade balance and the income balance. [8 marks]
   b. Explain how each of the following events would impact on Australia's current account balance:
      - a decline in foreign investment
      - Australia's rate of economic growth increases
      - a rise in the terms of trade. [12 marks]

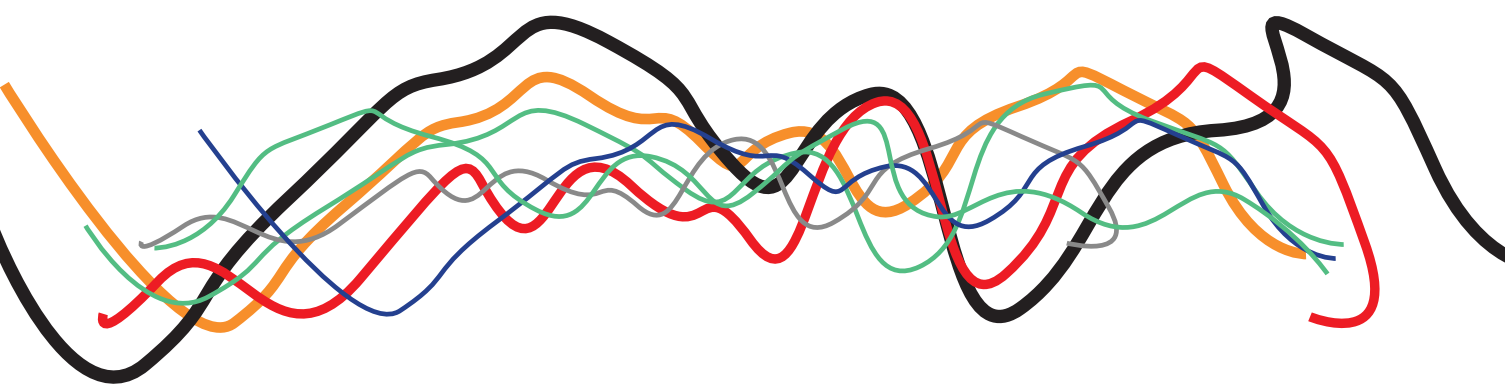


5

The Terms of Trade

Chapter concepts

- *the terms of trade*
- *the terms of trade index*
- *the factors influencing the terms of trade*
- *recent trends in the terms of trade*
- *the significance of changes in the terms of trade*



Introduction

The terms of trade has always played an important role in Australia's economic history and are an important determinant of the nation's economic prosperity. Changes in the terms of trade have a significant effect on Australia's business cycle – affecting key economic indicators such as GDP, national income and the exchange rate. The terms of trade is an index which measures the relative movements in the prices of exports and imports. Why is this important? Because changes in the prices of exports and imports will affect the value of exports and imports. In this way, movements in the terms of trade can have a significant influence on the trade and current account balance, the exchange rate and national income.

Let's use a simple example to illustrate. Assume BHP is receiving $60 per tonne of iron ore and is exporting 1 billion tonnes. This means that the value of their exports equals $60 billion. If the world price of iron ore rises to $80 per tonne, the value of their ore exports is now $80 billion. BHP is very happy! Australia's export price index has risen – this will increase the trade balance and result in an increase in Australia's national income. What about import prices? One of Australia's main imports is petroleum refined from oil. If oil prices increase from $50 per barrel to $60 per barrel, then the value of oil imports will increase by 20 per cent. So a rise in oil prices, ceteris paribus, will increase the import price index. This will mean that Australian households and firms face a higher petrol bill.

The terms of trade provides a measure of the quantity of imports a country can obtain in exchange for a given volume of exports.

The importance of the terms of trade index is that it provides a measure of the quantity of imports a country can obtain in exchange for a given volume of exports. If the terms of trade rise, (that is, if export prices rise relative to import prices) then to purchase a given quantity of imports will require a smaller quantity of exports. In other words, a rise in the terms of trade would be synonymous with an increase in a country's standard of living since more goods and services could be imported for a given amount of exports. This is why an increase in the terms of trade is referred to as a 'favourable movement'.

The terms of trade index

The terms of trade index is measured as a ratio of export prices to import prices:

$$\text{Terms of trade} = \frac{\text{Export Price Index}}{\text{Import Price Index}} \times \frac{100}{1}$$

Note that the terms of trade could rise (fall) if either

- export prices rise (fall), or
- import prices fall (rise)

An index number is a statistical device used to express price changes as a percentage of prices in a base year. The method for calculating the terms of trade from a sample of export and import prices is shown in figure 5.1. A base year is selected and assigned

	Price ($ per unit)			
Exports	Year 1	Year 2	Year 3	Year 4
Good A	170	170	165	170
Good B	130	140	150	160
Good C	100	110	125	130
Total	400	420	440	460
XPI	**100**	**105**	**110**	**115**
Imports	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Good D	300	310	320	310
Good E	80	85	95	95
Good F	120	155	145	155
Total	500	550	560	560
MPI	**100**	**110**	**112**	**112**
TOT	**100**	**95.5**	**98.2**	**102.7**

The export price index (XPI) for year 2 is

$$XPI\ (2): \frac{420}{400} \times \frac{100}{1} = 105$$

This means that export prices increased on average by 5 per cent over the course of the year. Between year 2 and year 3, export prices increased by 4.8 per cent (110 - 105 divided by 105).

The same procedure can be used to derive the import price index. In year 2, the MPI is

$$MPI\ (2): \frac{550}{500} \times \frac{100}{1} = 110$$

This means that import prices increased on average by 10 per cent during year 2.

The ToT calculation for year 2 is:

$$\textbf{ToT (2): } \frac{105}{110} \times \frac{100}{1} = 95.5$$

Figure 5.1 Constructing a terms of trade index

an index value of 100. This is to simplify the task of comparison. Year 1 is chosen as the base year. The index for each year is calculated by dividing the total price for each year by the total price of the base year and then multiplying by 100. In year 2, the export price index equals 105 (420/400). The import price index for year 2 is 110 (550/500). This means that export prices increased by 5 per cent in year 2 and import prices increased by 10 per cent. To calculate the terms of trade for year 2 we divide the export price index (105) by the import price index (110) and multiply by 100. The terms of trade index for year 2 is 95.5. This means that between year 1 and year 2 the terms of trade declined by 4.5 per cent. In year 3 and 4, the terms of trade increased because export prices increased by more than import prices.

The absolute value of the terms of trade index is relatively unimportant – it is the movement in the index which is relevant. If the terms of trade falls, then this is referred to as an unfavourable movement. Between years 1 and 2, while both export and import prices were rising, the terms of trade fell because import prices rose at a faster rate than exports. The situation changed between years 2 and 3 where export prices increased more quickly than import prices so that the terms of trade increased. If the terms of trade rises, then this is referred to as a favourable movement. In Year 4 the export price index continued to rise while the import price index did not change. This resulted in a further rise in the terms of trade. The following table shows the movement in the terms of trade for the four years.

Year	Terms of Trade	Movement
1	100.0	-
2	95.5	Unfavourable
3	98.2	Favourable
4	102.7	Favourable

Australia's terms of trade

A knowledge of the composition and direction of Australia's trade is useful in understanding the trends in Australia's terms of trade. Australia's exports consist mainly of primary commodities (especially resources), while imports are dominated by manufactured goods. Commodity exports account for around three quarters (75%) of Australia's exports. Commodities include rural goods (wool, wheat, beef), bulk commodities (iron ore and coal) as well as other resources such as liquefied natural gas (LNG), gold and alumina. This means that the most important determinant of Australia's export price index are commodity prices. If Australia's commodity price index rises, Australia's export price index and its terms of trade will increase.

The prices of commodities can be subject to wide fluctuations. Small shifts in demand or supply will cause large price swings. This means that if the Chinese (or world) economy expands, the demand for resources, such as iron ore, coal and LNG, will increase which will boost world commodity prices and increase Australia's export price index. This would be an advantage to Australia's exporters such as BHP and Rio Tinto – they would sell their output for higher prices increasing their export revenue. An increase in Australia's export price index (ceteris paribus) will increase Australia's terms of trade. Conversely, if world economic growth contracts then the demand for commodities will fall, reducing commodity prices and Australia's export price index.

The import price index is also important is determining the terms of trade. The bulk of Australia's imports are manufactured goods and intermediate goods. The prices for these goods do not change as much as the prices of resources or commodities. The supply of manufactured goods is relatively more elastic so changes in demand do not cause large price swings. Australia has very little direct influence on its export and import price indices. This is because Australia's export and import prices are set in the world market. For this reason, Australia is said to be a 'price taker' with respect to the prices of traded goods . The table below and figure 5.2 show the movements in Australia's export and import price indices and the terms of trade. It is evident that the export price index is much more volatile than the import price index.

Year (as at June)	Export Price Index	Import Price Index	Terms of Trade
2014	86.8	89.9	96.5
2015	79.3	92.6	85.6
2016	73.7	90.9	81.1
2017	84.9	91.3	93.0
2018	89.9	95.2	94.4
2019	100.5	98.6	101.1
2020	97.0	98.5	98.5
2021	117.7	96.8	121.6
2022	153.2	117.2	130.7

Source: ABS

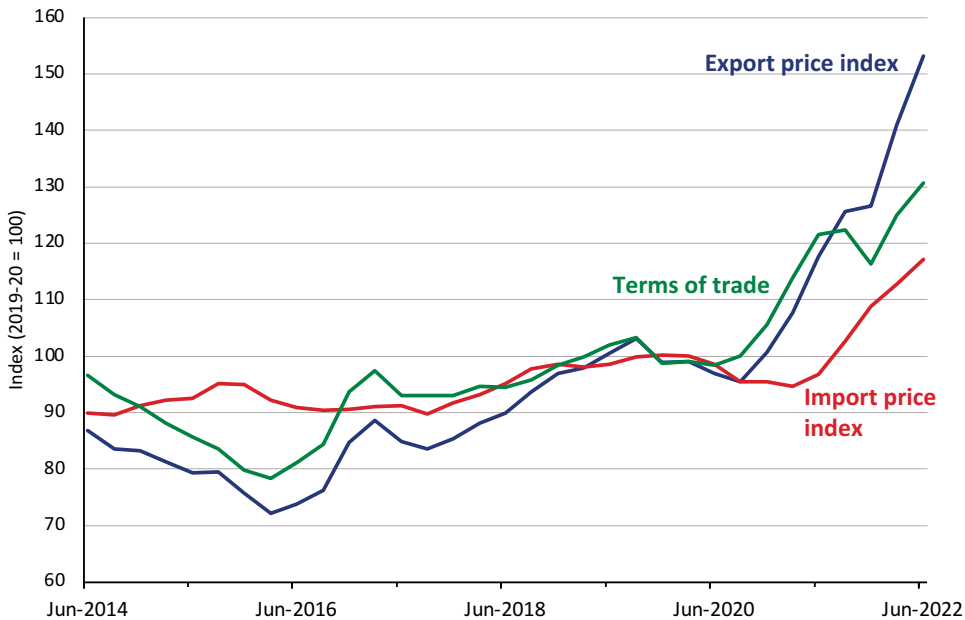


Figure 5.2 Australia's terms of trade

An important point to note from figure 5.2 is how the terms of trade is more closely correlated to the export price index than the import price index. The import price index is normally less volatile compared to the export price index – this is evident in the graph, especially for the period 2014 - 2021. During 2022, the import price index increased significantly due to world oil prices increasing.

From 2016 to 2019 global economic growth increased causing commodity prices to rise. Australia's export price index surged during this period by over 40 per cent – rising from 72 to 103. The COVID pandemic of 2020 caused a global recession and Australia's export price index fell by around 8 per cent. In 2021, the world economy recovered and commodity prices began rising. In 2022 the war in Europe caused energy prices to spike. The combined effect saw Australia's export price index increase by over 50 percent and resulted in Australia's terms of trade reaching its highest level in recorded history in June 2022.

Effects of changes in the terms of trade

Changes in the terms of trade have important effects on:

- the business cycle;
- output and employment;
- the trade and current account balance in the balance of payments;
- the exchange rate;
- national income;
- government tax revenue
- the standard of living.

An increase in the terms of trade due to higher commodity prices will lead to an expansion in economic activity – it represents a positive shock to the economy. Resources will flow into the mining sector – both capital and labour. Production and employment will increase helping to boost the economy's growth rate. When commodity prices fall, on the other hand, the terms of trade will decline resulting in a negative shock to the economy. Economic activity will contract, especially in the mining sector, and this will impact on the wider economy reducing the growth rate of real GDP.

The Australian Bureau of Statistics recognises the importance of the terms of trade on the level of economic prosperity by calculating Gross Domestic Product adjusted for the terms of trade. GDP usually provides an accurate measure of the volume of the goods and services produced in the economy. But if the terms of trade change over the same period, then GDP will not provide an accurate measure of the real purchasing power of the income generated by domestic production. In other words, GDP adjusted for the terms of trade – called real gross domestic income (real GDI) – is a better measure of a country's real purchasing power than simply using the normal GDP figure. The substantial rise in Australia's terms of trade during 2020-22 meant that the purchasing power of Australia's exports increased, thereby increasing real national income. This higher level of income increased domestic economic activity and employment with Australia's unemployment rate falling to its lowest level in over 40 years. In this way a rise in the terms of trade is seen as providing a positive boost to economic growth and living standards.

GDP adjusted for the terms of trade is known as gross domestic income (GDI).

Theoretically there should be a close link between the terms of trade and the trade balance in the balance of payments. The terms of trade measures changes in the prices of exports and imports while the trade balance measures changes in the value of exports and imports. In other words, the trade balance takes into account not only the prices of traded goods but their quantities as well. This is an important distinction. Generally the terms of trade and the balance of goods and services will show a positive relationship. For example, a rise in the terms of trade would normally cause an increase in the trade balance (a larger surplus or a smaller deficit). This is because a rise in export prices will increase the value of exports. It is not surprising that during 2022 Australia recorded its highest trade surplus as a result of a record high terms of trade.

A rise in the terms of trade will normally increase both the trade and current account balance.

Figure 5.3 shows both Australia's trade balance and the terms of trade. It does indeed show a very strong positive correlation. Rises in the terms of trade do coincide with a rise in the trade balance and vice versa. But it is important to remember that the terms of trade is one of many factors that will affect the trade balance. Movements in the terms of trade also have a direct impact on the exchange rate. A strong terms of trade will lead to an appreciation of the exchange rate. The Australian dollar is often referred to as a commodity currency, reflecting Australia's dependence on commodity exports. High export prices increase the demand for the Australian dollar boosting its value. While a higher Australian dollar is good for consumers it

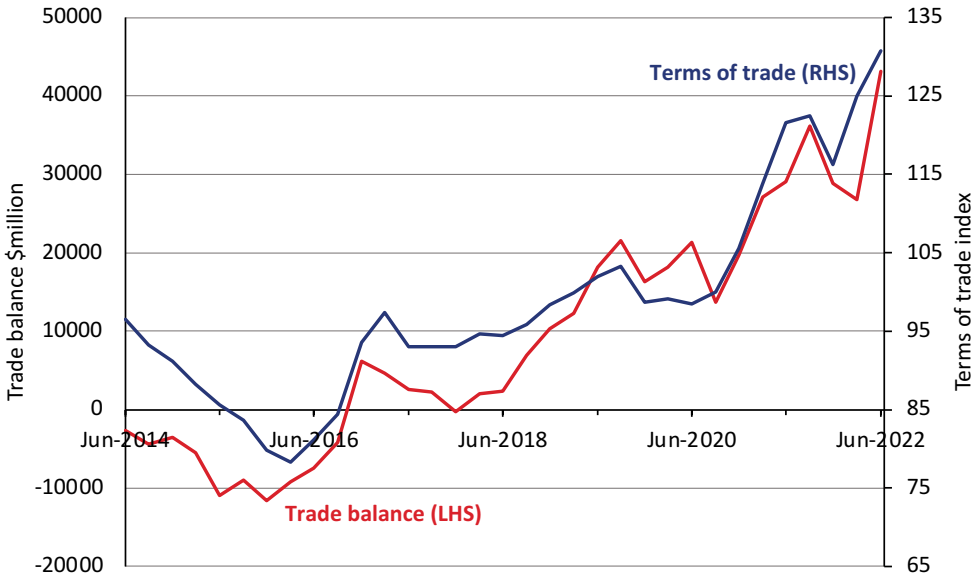


Figure 5.3 The terms of trade and the trade balance

is a disadvantage for domestic producers and exporters not in the mining sector because it reduces their competitiveness. One potential problem of a very high exchange rate is known as 'Dutch disease' (see next page). A mining boom caused by high commodity prices will often result in a 'two speed' economy. The mining sector will grow at a fast pace, but other domestic industries, adversely affected by a high exchange rate, will grow at a much slower speed and may even contract. The terms of trade do have significant effects on the Australian economy.

	Favourable Movement	Unfavourable Movement
Cause	The XPI rises relative to the MPI e.g an increase in iron ore prices	The MPI rises relative to the XPI e.g. an increase in oil prices
Meaning	*More imports can be purchased from a given volume of exports*	*Less imports can be purchased with a given volume of exports*
Effects	1. Increase in the trade balance	1. Decrease in the trade balance
	2. Increase in national income	2. Decrease in national income
	3. Aggregate demand increases	3. Aggregate demand decreases
	4. Increase in government tax revenue	4. Decrease in government tax revenue
	5. Rise in living standards	5. Fall in living standards
	6. Investment & employment rises in the resources sector	6. Investment & employment falls in the resources sector
	7. AUD appreciates	7. AUD depreciates
	8. CPI (inflation) rises	8. CPI (inflation) falls

Australia's terms of trade boom & the 'Dutch disease'

With Australia's terms of trade reaching record levels in 2022, there is a fear that the Australian economy could suffer from the much-hyped Dutch disease (or the 'two–speed' economy effect). Dutch disease refers to the potential negative effects on the economy caused by an appreciation in the exchange rate arising from high iron ore, coal and natural gas prices. (It is named after the negative impact of an oil & gas boom on Dutch manufacturing industry in the 1970s).

In Australia's case it is seen when the terms of trade boom sucking investment and resources into the mining sector and away from manufacturing and other sectors of the economy. A resources or mining boom normally puts the Australian dollar on steroids which can have a negative impact on non-mining exporters as well as the tourism sector. A high Australian dollar makes it difficult for agricultural and service exporters to compete on the global market and it also makes it difficult for domestic producers to compete against cheaper imports. At the same time, labour is attracted into the mining sector because of the lure of higher wages which imposes cost pressures on other sectors of the economy.

What are the benefits? While a high exchange rate imposes costs on some groups it does bring benefits to others - namely consumers. High commodity prices boost export and national income which results in higher spending to all sectors of the economy. The government gains because taxation revenue increases with more employment, increased mining royalties and higher company profits. So while a terms of trade boom can result in an appreciation in the exchange rate, it also provides a significant boost to the nation's purchasing power and can have a positive effect on economic growth.

Factors affecting Australia's terms of trade

Changes in both the export and import price index will affect the terms of trade. Australia is a price taker for both exports and imports - this means that prices are set in the world market. The export price index is dominated by commodity prices - mineral, energy and agricultural commodity prices. Increased demand for commodities will increase their price and increase Australia's export price index. But decreases in supply due to supply chain bottlenecks and global drought in the case of rural goods will also increase export prices. During 2022, Australia's export price index increased due to both demand and supply factors.

The import price index is dominated by manufactured goods such as motor vehicles, electrical and technology goods, machinery and capital goods and oil. Increases in the cost of producing these goods will increase the import price index and reduce Australia's terms of trade. During 2022, for example, oil prices spiked due to the Ukraine-Russia war, which increased petrol prices. Improvements in technology tend to reduce production costs for many manufactured goods, especially technology goods, which should cause the import price index to fall.

Will a change in the AUD exchange rate affect Australia's terms of trade? Let's use a depreciation in the AUD as an example. A depreciation will raise the price of imports in Australian dollars which will increase Australia's import price index. For example an imported car costing $US30,000 is equal to $AUD40,000. If the AUD falls to $0.70, then the car will now cost $AUD42,857. But at the same time a depreciation will also raise the price of Australia's exports in AUD. If 1 tonne

of iron ore sells for $US100, then at an exchange rate of $US0.75, the AUD price is $133. If the AUD falls to $US0.70, then the iron price in AUD rises to $143. So a depreciation of the AUD will increase both import and export prices in AUD terms and therefore have minimal impact on Australia's terms of trade. Similarly an appreciation of the AUD will decrease both import and export prices in AUD and have minimal impact on the terms of trade.

Worksheet

1. Define the terms of trade.
2. Explain how the terms of trade could fall even if the export price index increases.
3. Construct an export price index and an import price index for year 3 in the table opposite.
4. Calculate the terms of trade for years 2 and 3.
5. Which export showed the greatest % increase in price over the three years?
6. Which import showed the greatest % increase in price over the three years?
7. Describe the movement in the terms of trade for years 2 and 3.
8. Explain the link between Australia's commodity price index and the export price index.
9. Explain why Australia's terms of trade increased during 2022.
10. Explain how changes in the terms of trade affect the trade balance.
11. How does a rise in the terms of trade affect the exchange rate?
12. What effect has China had on Australia's export price index and import price index?
13. Explain the problem of 'Dutch disease'.

	Prices		
Exports	Year 1	Year 2	Year 3
Wheat	75	70	65
Coal	85	90	110
Iron Ore	90	120	135
Total	250	280	....
Imports			
Machinery	70	75	80
Car parts	65	70	75
Computers	85	80	80
Total	220	225	....
Export Price Index (XPI)	100	112	....
Import Price Index (MPI)	100	102	....
Terms of Trade	100		....

Article

Changes in the terms of trade 'drive' Australia's business cycle

The terms of trade is more important for the Australian economy than most people think. The terms of trade - the ratio of export prices to import prices - reflects the capacity of any given amount of exports to pay for a quantity of imports. If the rest of the world pays more for what Australia exports, then our terms of trade rises. This is equivalent to Australia receiving a 'pay rise'! The same improvement comes if the rest of the world charges less for what it sells us. Expressed as an index, Australia's terms of trade virtually doubled between 2016 and 2022. In June 2022, they reached their highest level in over 150 years on the back of substantial price rises for coal, iron ore and natural gas. This resulted in Australia's largest ever trade surplus and largest current account surplus in the nation's history. They also delivered substantial tax and royalty revenue for the Australian government.

But boom periods are likely to be followed by 'bust' periods! By late 2022, commodity prices had abruptly fallen by 20 per cent from the record high of June, taking billions of dollars out of the economy. The world was poised to enter a recession phase which would see the mining sector contract with a decline in mining investment and employment and a fall in national income.

Questions

1. Explain how the terms of trade 'drives' the Australian economy.
2. What are commodity exports? Explain their importance for the terms of trade.
3. Explain how an increase in the terms of trade provides a stimulus to the economy.
4. Explain why Australia's terms of trade increased during 2021-22?
5. Explain the effect of a rise in the terms of trade on the trade balance.

Multiple choice

1. A terms of trade index can be calculated as
   a. exports - imports x 100
   b. import price index/export price index x 100
   c. value of exports/value of imports x 100
   d. export price index/import price index x 100

2. A favourable movement in the terms of trade means that
   a. the terms of trade index must be greater than 100.
   b. a country can import more with the same quantity of exports.
   c. a country can export more goods for the same quantity of imports.
   d. the current account deficit must improve.

3. If import prices rise relative to export prices, then the terms of trade will
   a. improve.
   b. decrease.
   c. remain unchanged.
   d. fall, but only if the exchange rate falls as well.

4. An unfavourable movement in the terms of trade can occur if
   a. import prices rise less rapidly than export prices.
   b. import prices rise more than export prices.
   c. import prices fall while export prices rise.
   d. import prices fall while export prices remain constant.

5. A favourable movement in the terms of trade tends to raise the country's standard of living by
   a. creating a balance of trade surplus and stimulating export industries.
   b. increasing the value of the currency and thereby stimulating exports.
   c. increasing real GDP through an improved export performance.
   d. increasing the volume of imports obtained from the sale of a given volume of exports.

6. An important distinction between the terms of trade and the trade account is
   a. the terms of trade measure volumes whereas the trade account measures values.
   b. the terms of trade measure prices whereas the trade account measures volumes.
   c. the terms of trade measure prices whereas the trade account measures values.
   d. the terms of trade measure values whereas the trade account measures prices.

7. If the export price index rises faster than the import price index this means
   a. the country is less competitive on world markets.
   b. the country is more competitive on world markets.
   c. the country must use a greater quantity of exports to obtain a given quantity of imports.
   d. the country is able to obtain a greater quantity of imports with a given quantity of exports.

8. From the table it can be concluded that, over the period shown:
   a. export prices were rising but by less than import prices.
   b. less imports could be purchased with the same quantity of exports.
   c. import prices were rising but by less than export prices.
   d. there was a deterioration in the terms of trade.

Year	XPI	MPI
1	100	100
2	110	105
3	120	110

9. An unfavourable movement in the terms of trade will be the result of
   a. export prices remaining stable and import prices falling.
   b. import prices rising faster than export prices.
   c. import prices remaining stable and export prices rising.
   d. export prices and import prices rising by the same proportion.

10. What is the likely impact If China's demand for minerals and energy increases?
   a. the terms of trade will deteriorate, but the balance of trade will improve.
   b. the terms of trade and the balance of trade will both increase.
   c. the terms of trade will improve, but the balance of trade will fall.
   d. the terms of trade and the balance of trade will both decrease.

11. During the mining boom Australia's terms of trade increased due to
   a. rises in commodity prices.
   b. an increase in the value of the Australian dollar.
   c. rises in the prices of imported manufactured goods.
   d. an increase in Australia's interest rates.

12. A rise in Australia's terms of trade will
   a. cause the Australian dollar to appreciate.
   b. cause a decrease in Australia's export income.
   c. result in a decrease in the trade balance.
   d. lead to an increase in Australia's unemployment rate.

13. If import prices rise while export prices either stay the same, fall or rise by less than import prices, what will have happened to the terms of trade?
   a. They improve.
   b. They deteriorate.
   c. They remain unchanged.
   d. It is impossible to say.

14. If Australia experienced a significant fall in its terms of trade, which of the following (other things being equal) would be most likely to occur?
   a. A fall in the financial account surplus.
   b. A rise in the goods and services balance.
   c. An appreciation of the Australian dollar.
   d. A decline in Australian living standards.

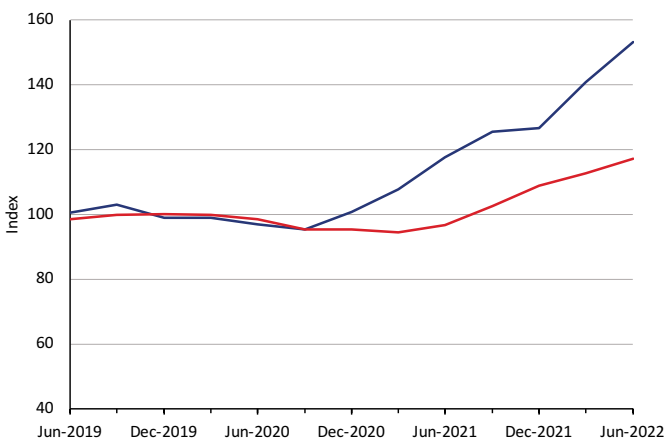
15. Which of the following could cause the terms of trade to increase from 100 to 120?
   a. Export prices increase by 10% and import prices decrease by 10%.
   b. Export prices do not change and and import prices decrease by 20%.
   c. Export prices increase by 20% and import prices do not change.
   d. Export prices decrease by 10% and import prices increase by 10%.

16. A possible disadvantage of a strong rise in the terms of trade is
   a. an increase in the current account deficit.
   b. an increase in export prices which reduces demand for exports.
   c. a rise in the exchange rate which reduces the competitiveness of domestic industries.
   d. an increase in the trade surplus.

17. The main reason for recent changes in Australia's terms of trade is
    a. volatility in the price paid for merchandise imports from Asian manufacturers.
    b. the changing supply and demand for agricultural exports.
    c. variation in the value of the Australian dollar.
    d. changes in the level of demand for the commodities that Australia exports.

Data Interpretation

Refer to the graph showing Australia's export and import price indices.



1. On the graph, label the 'export price index' and the 'import price index'.
2. In which period was Australia's ToT equal to 100?
3. Use the graph to calculate the terms of trade for 2022.
4. Explain why Australia's export price index fluctuates more than the import price index.
5. Describe the changes to the export price index between Sept 2020 and June 2022. Provide two reasons for this change.
6. Describe four effects of a rise in the terms of trade.

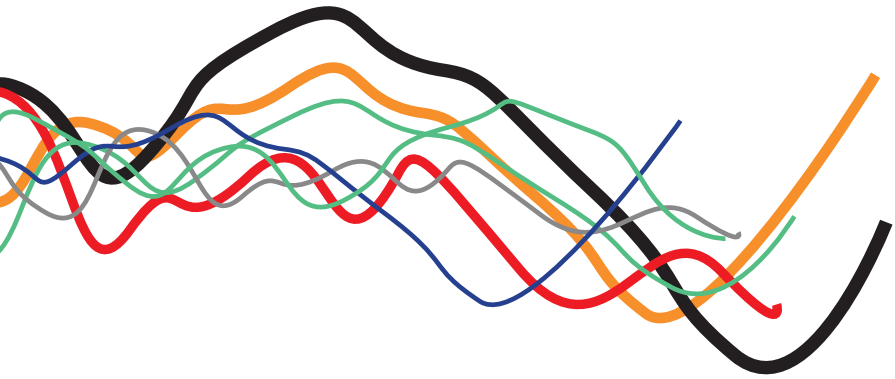
Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Explain what the terms of trade index measures and distinguish between a favourable and an unfavourable movement in the terms of trade. [8 marks]
   b. Explain the effect of each of the following on the terms of trade:
      i. an increase in iron ore and coal prices.
      ii. an increase in oil prices.
      iii. a fall in ICT prices. [12 marks]

2. The terms of trade index in Australia increased from 98 in June 2020 to 131 in June 2022.
   a. Explain what the terms of trade measures, and suggest why it may have risen over this two-year period. [10 marks]
   b. Explain the likely economic effects of this movement in the terms of trade on consumers, businesses and the macro economy. [10 marks]

3. Describe the recent trend in Australia's terms of trade and discuss the likely causes and implications of this trend. [20 marks]

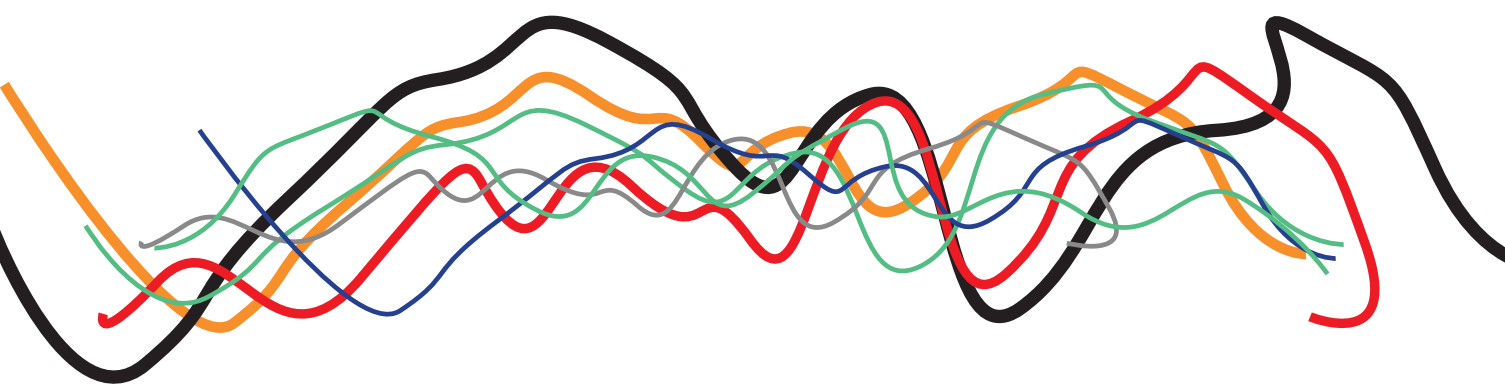


6

Exchange rates

Chapter concepts

- *the concept of an exchange rate*
- *the determination of, and movements in, the exchange rate*
- *appreciation depreciation of the exchange rate under a freely floating system*
- *the factors influencing exchange rates in a freely floating system*
- *the concept of a 'trade weighted index'*
- *the relationship between exchange rates and the balance of payments*
- *the effects of exchange rate movements on economic activity*
- *recent trends in Australia's exchange rate movements*



Introduction

If all countries of the world used the same currency, international transactions would be very simple. As we know, every country has their own currency, meaning that a rate of exchange has to be established in order for trade to take place. The sidebar shows the rates of exchange between the Australian dollar and some of Australia's main trading partners, and the movement in those rates between November, 2021 and November, 2022. The last item, the trade–weighted index, is a 'basket' of currencies weighted according to their importance in trade flows with Australia. While the US dollar is the most frequently cited exchange rate for the Australian dollar, it is the trade–weighted index which more accurately reflects changes in the value of the currency. In the table, the Australian dollar appreciated against most of the currencies listed, except for the Chinese Renminbi and the NZ dollar.

Value of AUD1			
Currency name and code		*7 Nov 2021*	*7 Nov 2022*
US dollar	USD	0.74	0.64
Chinese renminbi	CNY	4.73	4.64
Japanese yen	JPY	84.1	94.6
European euro	EUR	0.64	0.65
Korean won	KRW	876	902
Singapore dollar	SGD	1.00	0.90
New Zealand dollar	NZD	1.04	1.09
Indian rupee	INR	55.1	52.8
UK pound	GBP	0.55	0.57
Trade Weighted Index (TWI)		**62.1**	**61.2**

An exchange rate is simply the price of one country's currency in terms of another country's currency. From the data, one Australian dollar was equal to USD0.64 on November, 2022. This means that if a good in Australia costs AUD100, then an American buyer would need to pay USD64 to purchase the Australian good. If an Australian wanted to purchase a good in the United States costing USD 100, then they would have to pay AUD156.

That is, if AUD1 = USD0.64
then USD1 = AUD1.56

Notice that the Australian dollar decreased in value against the US dollar by 13.5 per cent over the year, which can make a difference to international purchases. For example an iPhone 14 Pro in the US costs $US999. At the current exchange rate (1AUD = US0.64) it would cost $A1560. But if the exchange rate was 1AUD = US0.74, then the iPhone would be $210 dollars cheaper!

The foreign exchange market is the market in which the currencies of different countries are bought and sold. Foreign exchange is the currency of another country that is needed to carry out international transactions. The foreign exchange market between Australian dollars and United States dollars consists of two groups of people: those demanding US dollars – an Australian importer of US goods; and those demanding Australian dollars – an American buyer of Australian goods. A demand for US dollars is matched by a supply of Australian dollars, while a demand for Australian dollars is matched by a supply of US dollars. An Australian farmer

selling wheat wants to be paid in Australian dollars, while an American computer manufacturer prefers to receive United States dollars. The currencies being traded can be thought of as goods, with the price of those goods being determined by the forces of supply and demand.

In our example of just two countries, the foreign exchange market consists of two sub-markets – the market for Australian dollars and the market for United States dollars. We can represent these foreign exchange flows by using a demand-supply diagram for each currency – the AUD and the USD. This is shown in figure 6.1. The price of the currency is shown on the vertical axis in terms of another currency. For example, the price of AUD1 in terms of US dollars or the price of USD1 in terms of Australian dollars. The horizontal axis shows the quantity of the currency being traded. In Figure 6.1 the supply of Australian dollars is equivalent to the demand for American dollars, while the demand for Australian dollars is equivalent to the supply of American dollars. Whatever happens in one market will be mirrored in the other market.

Assume that initially the rate of exchange between the two currencies is:

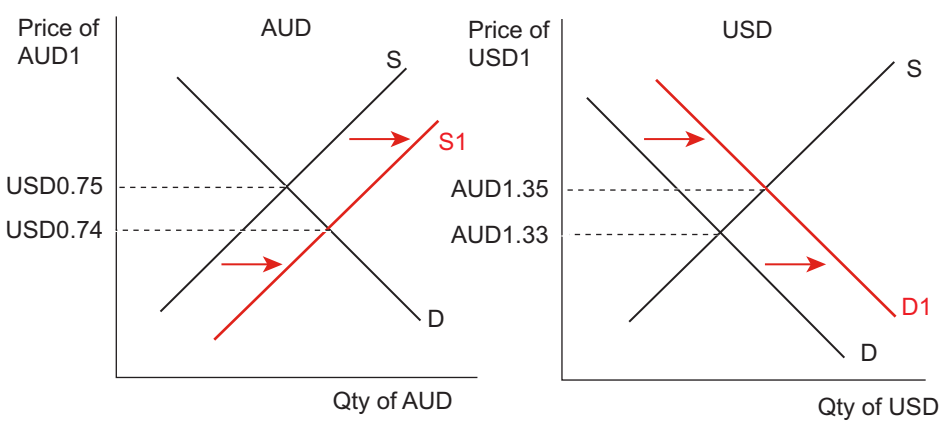
AUD1 = USD0.75
or USD1 = AUD1.33

If Australians were to increase their imports from the United States, then they will supply more Australian dollars and demand more American dollars. The supply curve of AUD will increase (shift to the right), while the demand curve for USD will also shift to the right. In our example, the AUD has decreased while the USD has increased:

AUD1 = USD0.74

Figure 6.1 Changes in the exchange rate

If Australia increases its imports from the US, there will be an increase in the supply of AUD, and an increase in demand for USD. The AUD will depreciate; the USD will appreciate.



Learning activity

Economic research - exchange rates

Exchange rates are often quoted in the news media. You can keep up-to-date with exchange rate movements (as you can with many economic items) using an app on your smart phone. Download the app and choose the currencies in which you are interested. Include the trade-weighted index (TWI). Most apps offer exchange quotes in direct or indirect formats. In the direct quote, the domestic currency is the base currency - e.g. AUD/USD is a direct quote that expresses the number of units of the US currency that can be exchanged for one unit of the base currency (AUD). Practice changing between the direct and indirect quotes. Currency pair quotes are usually expressed to four decimal points, meaning the smallest unit for which a currency can be traded is one hundredth of a cent - a 'pip'. Note there is usually a difference between the bid and the ask price quoted by foreign exchange dealers acting as intermediaries, as they earn a commission for the service they offer.

or USD1 = AUD1.35

The Australian dollar is said to have depreciated - it is worth less in terms of US currency, while the American dollar has appreciated. It is important to realise that a country's exchange rate is closely related to its balance of payments. The balance of payments records all international transactions in goods, services, income and financial assets and liabilities. The exchange rate is the means by which these transactions are facilitated. In other words, the fundamental factors underlying the value of a country's exchange rate are determined by the transactions in the balance of payments.

There are two basic methods for determining the price of a country's currency – by allowing the market forces of supply and demand to freely set the value, or by artificially setting the price at a fixed rate. Exchange rates therefore can be either fixed or floating. Most countries have used both methods at different times but most economists believe that a free exchange rate is a 'no–brainer'. Australia adopted a freely floating exchange rate in December, 1983. Prior to that it used an administered or 'crawling peg' system where the value of the currency was tied to a specific group or 'basket' of currencies. A fixed exchange rate system implies that the value of the currency is maintained at the same rate for long periods of time. Most countries now use a floating exchange rate system with differing degrees of intervention by their central bank.

International transactions

The demand for, and the supply of, a currency are determined by the international transactions that are recorded in the balance of payments. All transactions that result in an inflow of money into the Australian economy, in both the current account and the capital and financial account, represent a demand for a country's currency. Transactions that result in an outflow of money, on the other hand, represent the supply of a country's currency. We will use the Australian dollar as an example. Assume an Australian mining company is exporting iron ore to the United States. The

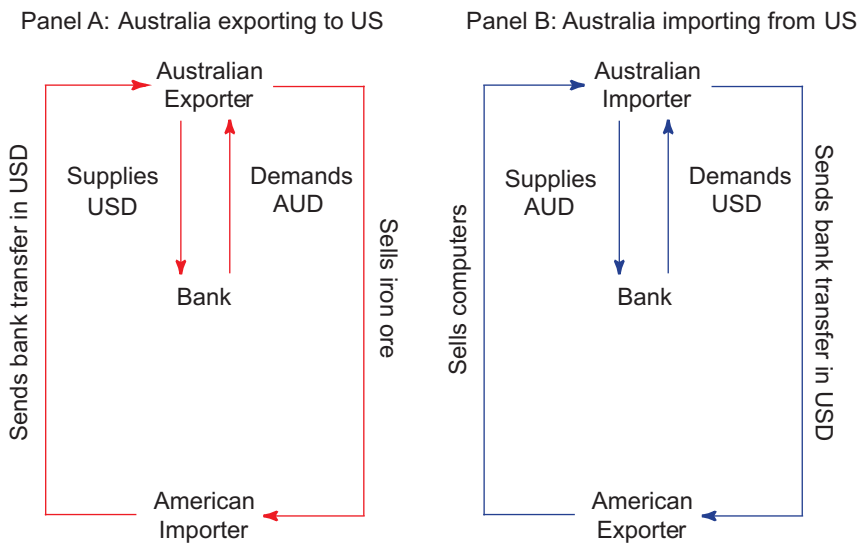


Figure 6.2 The foreign exchange market

contract is likely to be priced in US dollars (USD). Most international transactions are contracted in one of the key world currencies, for example, USD, Japanese Yen (JPY), Pounds Sterling (GBP) or the Euro (EUR). In terms of Australia's trade, around two thirds of exports and one half of imports are contracted in USD. The remainder of Australia's trade is contracted in AUD.

When the Australian exporter sells iron ore, he will receive a bank transfer in US dollars. He then must convert this into Australian dollars. The US buyer has supplied American dollars, while the Australian exporter will demand Australian dollars from the foreign exchange market. This example is shown in Figure 6.2 in Panel A. Panel B shows the opposite transaction where an Australian importer purchases a computer from an American firm. If the contract is written in US dollars, then the Australian buyer will first convert Australian dollars at his bank to obtain US currency to send to the seller in the United States as payment for the computers he is importing.

Essentially, the demand for Australian dollars will be determined by:

- Australian exports of goods and services;
- receipts of income from overseas residents; and
- capital inflow (foreign investment into Australia)

The supply of Australian dollars will be determined by:

- Australian imports of goods and services;
- payment of income to overseas residents; and
- capital outflow (Australian investment abroad).

Changes in balance of payments transactions involving goods, services, income or financial capital, will affect either the demand and/or the supply of the currency and thus affect its value.

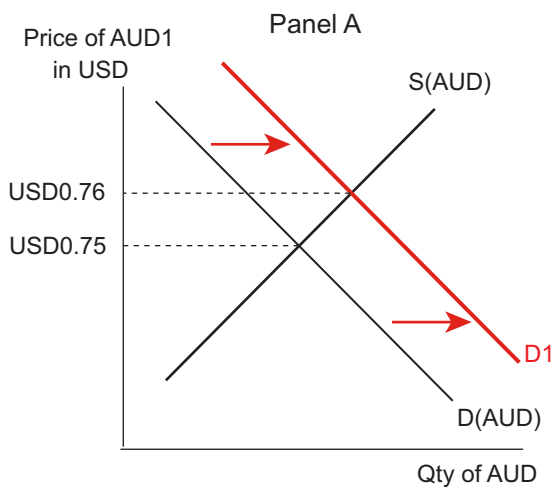
A freely floating exchange rate

A floating or free exchange rate is one whose value is determined by the market forces of supply and demand. Its value can change daily and even by the minute as it reflects changes in the demand and the supply of its currency. The demand and supply of Australian dollars is shown in Figure 6.3. The price axis measures the value of one Australian dollar in US currency while the quantity axis measures the volume of Australian currency. The equilibrium value in terms of US dollars in this example is AUD1 = USD 0.75. A floating exchange rate simply means that the equilibrium price will change whenever the demand or the supply curves shift. If the demand for Australian dollars increases because there is an increase in the demand

Figure 6.3 A floating exchange rate

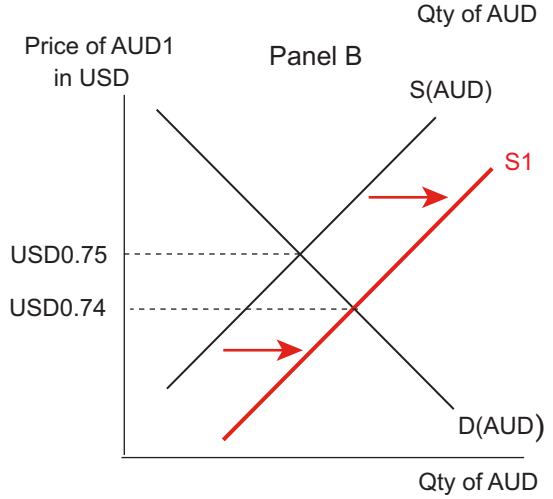
If the demand for AUD increases then the demand curve shifts to the right, resulting in an appreciation of the currency. The AUD increases in value from USD0.75 to USD0.76. An increase in D(AUD) could occur if there was an

- *increase in demand for Australia's exports;*
- *increase in foreign investment into Australia; and /or*
- *increase in income receipts from overseas residents.*



If the supply of AUD increases then the supply curve shifts to the right, resulting in a depreciation of the currency. The AUD decreases in value from USD0.75 to USD0.74. An increase in S(AUD) could occur if there was an

- *increase in spending on imports;*
- *increase in foreign investment to foreign countries; and / or*
- *increase in income payments to overseas residents.*



for Australian exports or there was an increase of foreign investment into Australia, then the value of the Australian dollar will rise. This means that the Australian dollar will appreciate against the US dollar. Panel A in Figure 6.3 shows the effect of the increase in demand for $A with the exchange rate appreciating to USD0.76. If there was an increase in the supply of Australian dollars, due to an increase in imports or increased Australian investment to overseas countries, then the value of the Australian dollar would decrease - it would depreciate against the US dollar. Panel B in figure 6.3 shows the value of the Australian dollar has decreased to USD0.74.

As long as the value of the Australian dollar is allowed to move in accordance with shifts in demand and supply, then it is a free or floating exchange rate. When the currency is allowed to float free from the interference of the central bank (in Australia, the Reserve Bank) then it is referred to as a 'clean float'. A managed exchange rate exists whenever there is official intervention in the foreign exchange market by the Reserve Bank. The Reserve Bank can act as either a buyer or a seller of the currency, indirectly influencing its rate through the market system. If, for example, the Reserve Bank wanted to prevent the exchange rate from falling to too low a level, it would enter the market as a buyer of Australian dollars and use its reserves of foreign exchange to bid up the price. Conversely if the Bank wished to stop the currency from appreciating, it would sell Australian dollars, increasing the supply and hence reducing any upward pressure on the exchange rate.

A second and more indirect method the Reserve Bank could use to affect the value of the exchange rate is through monetary policy. Monetary policy is used to set short term interest rates. If interest rates are increased, then foreign investment will be attracted to the Australian economy increasing the demand for Australian dollars and appreciating the currency. When the economy is in a contraction or a recession, then the Reserve Bank would prefer a lower currency than a higher one. This is because a lower AUD will have an expansionary effect on the economy by increasing net exports. How could the Reserve Bank indirectly lower the exchange rate? By simply reducing interest rates, which would reduce the demand for the currency. Whenever the central bank intervenes in the foreign exchange market to influence the movement of the currency, or to set its value in a particular 'range', then it is referred to as a 'dirty float'. The Reserve Bank of Australia claims that it only enters the foreign exchange market occasionally with a view to 'testing and smoothing' the underlying trend in the exchange rate. This is sometimes referred to as a 'lightly managed float'.

The free exchange rate and the balance of payments

Economists favour free markets so that changes in demand and supply will be reflected by changes in prices. For this reason, economists also favour free exchange rates rather than attempting to fix or peg their values to another currency. It would be similar to trying to fix the price of bread or petrol. By leaving markets to adjust to changes in market conditions, shortages and/or surpluses are avoided. A freely floating exchange rate is a perfect example of a competitive market where the price fluctuates in response to changes in the demand and supply of the currency.

A floating exchange rate regime has the advantage of providing automatic adjustment in the balance of payments. The exchange rate varies to change the prices of traded goods, services and assets. If for example, there is an excess supply of AUD, then a depreciation will raise the prices of imported goods and services in domestic currency and lower the prices of exported goods and services in foreign currencies. This will automatically help remove the excess supply. Under a floating exchange rate, the balance of payments does not affect the domestic money supply and this means that monetary policy is far more effective.

A free exchange rate helps to reduce swings in the current account balance. Usually a fall in the trade balance will lead to an exchange rate depreciation. This increases the price of imported goods and services and decreases the price of Australian exports. Demand for imports should fall (after a lag) while demand for exports will be increased, thus reducing a trade deficit. But this assumes that the demand for both imports and exports is responsive or elastic to the change in price. If demand is relatively inelastic, then higher import prices may actually lead to an increase in import payments. Similarly, if exports are relatively inelastic, then lower prices may initially lead to lower export receipts. The result is that a depreciation may actually decrease the trade balance in the short term. This is known as the 'J–Curve' effect. It all depends on elasticity – how responsive quantity is to a change in price. If the demand for exports and imports were price inelastic, then a price change would have little effect on the quantities traded. It is important to remember that the 'J curve' effect is a short term effect. Eventually the change in the exchange rate will have the expected effects on trade volumes.

A free exchange rate is also advantageous because it can help to insulate the domestic economy from external shocks. A currency appreciation for example, can help to shield the economy from a positive external shock. Australia's mining boom during 2001–2011 occurred as a result of increased economic growth in China which boosted world commodity prices (especially iron ore and coal). This caused both Australia's terms of trade and exchange rate to more than double – rising from around USD0.50 in early 2001 to USD1.10 in July 2011. The mining boom increased mining investment and raised national income and wages. This would normally bring inflationary pressure, but the high Australian dollar helped to slow the economy by increasing export prices and reducing import prices. The non-mining sector of the economy was weakened by the high dollar, and this reduced inflationary pressures in the economy.

A currency depreciation, on the other hand, can help to shield the economy from a negative external shock. This occurred in Australia after 2012 when the exchange rate depreciated as a result of the end of the mining boom. The AUD fell from USD1.05 in July 2012 to USD0.70 by September 2015. This represented a 33 per cent depreciation. A depreciation reduces the prices of Australia's exports and provides Australian exporters with a competitive advantage in overseas markets. Services exports such as tourism and education are the big winners from a falling Australian dollar. A depreciation will have an expansionary effect on the economy which can help to re-balance the economy after a negative shock.

The major disadvantage of free exchange rates is that they increase the degree of uncertainty for buyers and sellers and uncertainty effectively increases the cost of international transactions. Exporters of goods and services may be unsure of how much money they will receive when they sell abroad or what their price will be. In a similar way importers will not be certain how much it is going to cost them to import a given amount of foreign goods. For example, if you ordered some champagne from France and agreed to pay EUR1000 in two months' time, you will not be sure of what the dollar price of EUR will be in two months' time.

The AUD is the fifth most traded currency in the world.

To overcome this problem it is relatively easy to use a foreign exchange hedging strategy to avoid any exchange rate fluctuation. This is like insuring against an adverse movement in the exchange rate over the period between the contract and delivery. Rather than buying currencies for immediate use in the 'spot' market, you can buy currencies in the 'forward' or futures market at a set price. Forward contracts are a risk management tool that allows you to agree an exchange rate today to buy or sell currency at a date in the future. This means that a future payment or receivable can be priced in your currency with certainty, avoiding a possible loss if the exchange rate changes value. Has the uncertainty of flexible exchange rates decreased international trade? The evidence shows that international trade has actually grown more quickly as the world has shifted to free exchange rates.

Recent trends in the AUD exchange rate

The exchange rate changes whenever demand or supply conditions change. An exchange rate appreciation will occur if either the demand for the currency increases or the supply of the currency decreases. For example, if Australia's exports and capital inflow increase then the demand for Australian dollars will increase. The D(AUD) curve will shift to the right, appreciating the currency. Alternatively, if there is a decrease in Australia's imports and capital outflow then the supply of Australian dollars will decrease. The S(AUD) curve will shift to the left, also resulting in an appreciation of the currency. A depreciation is the exact opposite to an appreciation – the value of the exchange rate falls due to either a decrease in the demand for the currency or an increase in the supply of the currency.

Figure 6.4 illustrates the volatility of the AUD exchange rate since 2012. The graph records movements in the Australian dollar against the US dollar and the trade weighted index (TWI). The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country. The most important currencies in Australia's TWI are the Chinese renminbi, the Euro, the US dollar and the Japanese yen. These four currencies make up 64 per cent of the index. The TWI is considered a better indicator of general movements in the value of the Australian dollar than any single exchange rate. Between 2012 and 2022, the Australian dollar fluctuated between USD0.62 and USD1.04 and between 55 and 79 on the trade weighted index. During the period shown in the graph, the average value for the Australian dollar was USD0.78 – close to its long term average of USD0.76. Notice how closely the

The TWI is less volatile than a single exchange rate such as the USD

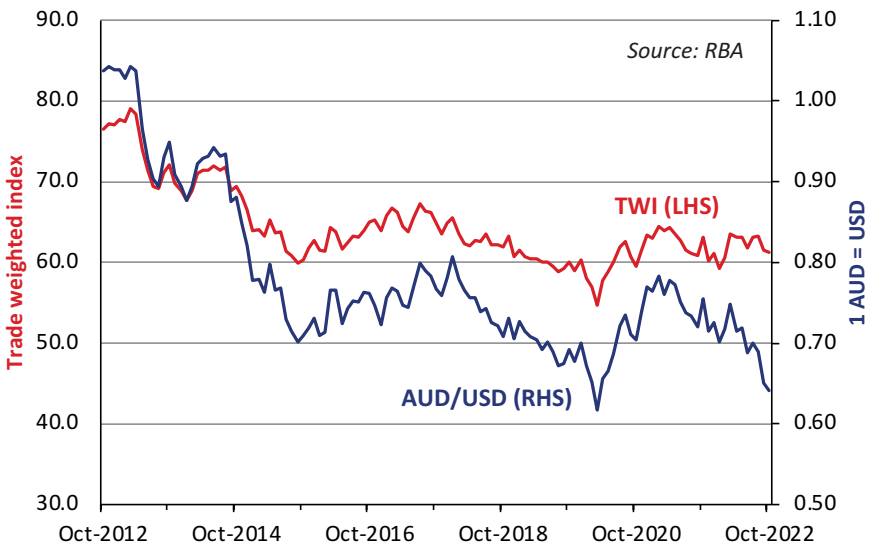


Figure 6.4 The AUD exchange rate

two exchange rates track one another. It is important to remember though, that the TWI does not fluctuate as much (it is less volatile) since it is an average of Australia's major trading currencies.

In July 20111, the AUD reached its highest value since the dollar was floated in 1983 of USD1.10. This was the peak of Australia's mining boom - fueled by strong demand by China for Australia's mining resources. Between 2012 and 2015 the Australian dollar depreciated against both the USD and the TWI as commodity prices fell and the mining boom ended. The AUD fell to USD0.70 by September 2015. Between 2016 and 2017, the AUD began appreciating again as commodity prices rose and Australian mining exports increased. By January 2018, the AUD had risen to USD0.81. During 2018 and 2019 the AUD depreciated significantly as the world economy slowed. The COVID pandemic of 2020 caused a global recession and the AUD fell to USD0.62 - its lowest level in over a decade. After recovering during 2021, the AUD depreciated against the USD in 2022 as world inflation increased.

Factors affecting the exchange rate

There are many factors that affect the value of a country's currency. Anything that affects the demand for a country's goods and services by overseas buyers or affects the flows of international capital funds (foreign investment) will be reflected in the exchange rate. The main factors which affect whether an exchange rate is likely to appreciate or depreciate in the medium term are:

- movements in the terms of trade (and commodity prices) – this has a major influence on Australia's exchange rate. The AUD is known as a commodity currency because Australia's exports are dominated by commodities such as iron ore, coal and natural gas. When commodity prices increase, the D(AUD) increases and the currency appreciates;

The trade weighted index (TWI)

The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country. The weights are based on the composition of Australia's goods and services trade for the latest year. For example, China accounted for 36.7% of Australia's trade in 2021 and so its weight in the TWI = 36.7%. Currently there are 17 currencies that make up the TWI.

The TWI provides a measure of whether the Australian dollar is rising or falling on average against the currencies of Australia's trading partners. This is often a better measure of general trends in the exchange rate than any one single exchange rate, such as the US dollar. Why? Because the Australian dollar could be rising against the US dollar but falling against other currencies. Also, if the AUD appreciates against the USD, that might be due to the US dollars weakness. But, if Australia's TWI increases, this shows the AUD is getting stronger against its main trading partners. The TWI is also subject to less pronounced swings in value compared with a single bilateral exchange rate.

The weights for the TWI are changed every 12 months based on changes in the direction of Australia's trade. The weights for the top 10 currencies are shown below. Note that the top four currencies comprise 65 per cent of the TWI.

Chinese renminbi	36.7%	UK pound	4.0%
European euro	9.3%	Singapore dollar	3.9%
United States dollar	9.3%	Indian rupee	3.7%
Japanese yen	9.1%	New Zealand dollar	3.2%
South Korean won	5.3%	Malaysian ringgit	2.9%

Source: RBA

- relative interest rates (the interest rate differential) – if interest rates in the United States rise relative to Australia, then there will be a decrease in capital inflow to Australia and an increase in capital outflow. This means that the D(AUD) will decrease and at the same time the S(AUD) will increase causing a strong currency depreciation.
- relative inflation rates – inflation reduces the competitiveness of industries in the traded goods sector. A high inflation rate relative to other countries is likely to decrease the exchange rate – the D(AUD) will decrease while the S(AUD) will increase;
- international capital flows – if investors believe Australia to be a relatively more attractive destination for their funds compared to other economies then D(AUD) will increase and the Australian dollar would appreciate;
- domestic economic growth – strong economic growth in Australia will lead to an increase in demand for imports, which will increase the S(AUD) causing a currency depreciation; but at the same time, a stronger economy will attract foreign investment which will increase the D(AUD) increasing the exchange rate; and
- world economic growth – an increase in global GDP (esp. China), increases world commodity prices which increases the D(AUD) and appreciates the currency; and

There have been many studies examining the key factors affecting the Australian dollar. This research has highlighted two significant factors which appear to drive Australia's exchange rate. The first factor is commodity prices. The Australian dollar

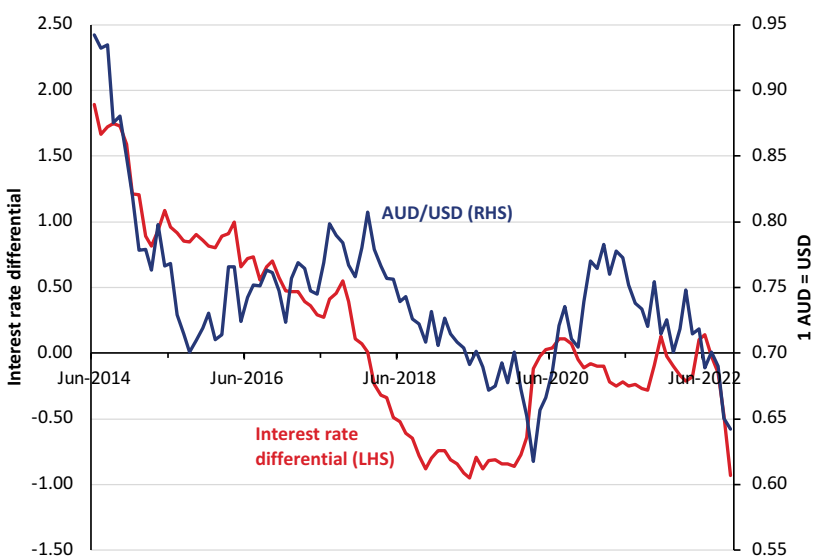
is often referred to as a 'commodity currency'. Around 70 per cent of Australia's exports are made up of primary commodities - rural goods and resources. These commodities include iron ore, coal, natural gas, gold, wheat, beef and wool. Changes in the prices of these commodities have a significant effect on export values and ultimately on Australia's national income. Remember that exports of goods and services contribute around 25 per cent of Australia's GDP. There is a very strong positive correlation between movements in commodity prices and the Australian dollar. The Reserve Bank of Australia compiles an index of commodity prices weighted according to the importance of the commodity in Australia's trade. A general increase in commodity prices, ceteris paribus, will result in an appreciation of the Australian dollar.

The Australian dollar is known as a 'commodity' currency since most of our exports are resources.

The second key factor affecting the Australian dollar is Australia's interest rate differential with the United States. This is usually measured by the difference in 3 year government bond rates between the two countries. For example in June 2016, the 3 year bond rate in Australia was 1.58 per cent while in the United States, the equivalent rate was 0.86 per cent. So the interest rate differential was 0.72 per cent. Note that if the Australian bond rate was lower than the US bond rate, then the interest rate differential would be negative. For example in June 2022, the 3 year bond rate in Australia was 3.45 per cent while in the United States, the equivalent rate was 4.38 per cent. So the interest rate differential was -0.93 per cent. Australia's interest rate differential with the United States is shown below in figure 6.5 along with the value of the AUD/USD exchange rate. The graph shows a very strong positive relationship.

This means that a fall in Australia's interest rate differential with the US should cause the AUD to depreciate. The simple reason is that the interest rate differential affects

Figure 6.5 Australia's interest rate differential



the flow of foreign investment between countries. International investors seek out the highest returns for their funds. Much of the financial capital that flows into Australia is portfolio investment. If interest rates in Australia fall relative to the US, as occurred during 2022, then Australia's interest rate differential decreases which will cause the AUD to depreciate. Less foreign investment will flow into the Australian economy, decreasing the demand for AUD and at the same time increasing the supply of AUD as Australian investors shift funds to the US economy. Notice how a change in relative interest rates causes both the demand and supply curves of the AUD to shift. This is why interest rates have such a powerful effect on the exchange rate. If Australia's interest rate differential were to increase, then the AUD would appreciate because there would be an increase in demand for the AUD and at the same time, a decrease in the supply of the AUD.

Effects of exchange rate movements

Changes in the exchange rate can have important implications for the domestic economy. Is it better for an economy to have a low or a high exchange rate? The answer is neither! Many people associate a high exchange rate with a prosperous economy and think that a rising exchange rate is a sign of economic strength and will be beneficial for the economy. However, there can be both pluses and minuses associated with a strong exchange rate – it all depends on whether you are an importer or an exporter and whether you are a consumer or a producer. A high exchange rate is good for some groups in the economy, but bad for others. Likewise, a low exchange rate can be good news for some but impose costs on others. We will examine the costs and benefits of both a currency depreciation and an appreciation.

Effects on the macroeconomy

First consider a currency depreciation. One advantage to an economy is that a depreciation bestows a competitive advantage through the relative price effects on exports and imports. The prices of Australian goods and services in foreign currency (Australia's exports) fall while the prices of overseas goods and services (Australian imports) in Australian currency rise. The depreciation will encourage resources to flow into the traded goods industries – both export and import competing industries. Domestic producers who compete with imports are now more competitive because import prices have increased. A depreciation will provide a boost for the domestic tourism industry encouraging foreign tourists to visit Australia. A depreciation should increase exports and decrease imports, increasing net exports and aggregate demand in the economy. In this way, a depreciation will have an expansionary effect on economic activity through an increase in real GDP. But a depreciation is likely to result in an increase in the consumer price index because import prices have risen and therefore lead to an increase in cost inflation. Demand inflation may also rise since a depreciation will increase income and spending in the domestic economy.

A depreciation will benefit exporters but hurt importers. A depreciation will boost net exports and increase real GDP.

Causes

A decrease in demand for AUD
- *decrease in exports*
- *decrease in income credits*
- *decreased capital inflow*
- *fall in commodity prices*
- *fall in the interest rate differential*
- *higher relative inflation*

An increase in supply of AUD
- *increase in imports*
- *increase in income debits*
- *increased capital outflow*
- *fall in the interest rate differential*

Effects
- *prices of Australian exports to foreign buyers decrease*
- *prices of imports rise*
- *improvement in international competitiveness*
- *net exports will increase*
- *real GDP increases*
- *boost to economic activity*
- *increase in production costs due to higher import prices*
- *cost inflation increases*

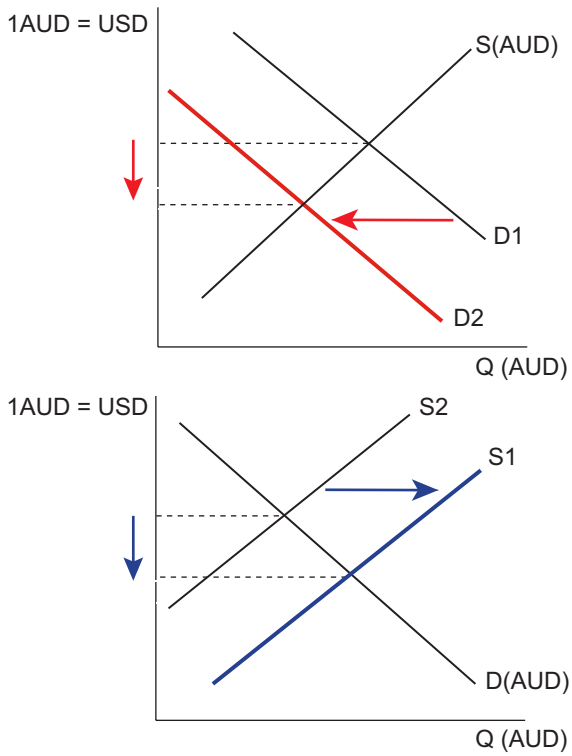


Figure 6.6 A currency depreciation - causes and effects

Effects on consumers and business

A depreciation harms consumers since they must pay higher prices for imported goods such as cars, petrol, household appliances and overseas travel. Domestic businesses that sell imported goods will also be at a disadvantage - they will see a decline in sales. Many domestic firms rely on imported goods and services as inputs for their business. So a depreciation will result in higher costs of production, including freight, petrol, motor vehicles, computers and machinery. Which businesses benefit from a depreciation? Obviously firms that are exporting gain a competitive advantage - overseas demand is likely to increase for their goods and services. Firms that compete with imports will also gain since their competitiveness improves. For example local manufacturing firms will find it easier to compete against .

The effects of an exchange rate appreciation will be the opposite to what we have discussed above:

- Australian exporters lose as exports become more expensive to foreign buyers;
- cost of imported goods falls benefiting both consumers and producers;
- import competing firms lose;
- firms selling imported goods benefit e.g. Harvey Norman, JB Hifi, Bunnings;
- Australian tourists travelling overseas benefit; and
- net exports decrease which has a contractionary effect on the economy.

Worksheet

1. What is an exchange rate and why is it necessary?
2. If AUD1 = USD0.80, how much would an American have to pay for an Australian boomerang costing AUD60?
3. What is the 'trade weighted index' (TWI)?
4. What is the foreign exchange market ? Explain what happens in the foreign exchange market if Australia sells more exports to the U.S.
5. How is the balance of payments and the exchange rate linked?
6. Distinguish between the demand for a currency and its supply.
7. Explain how a freely floating exchange rate is determined.
8. Explain how interest rates can affect the exchange rate?
9. Use separate demand/supply diagrams to show the effect on Australia's exchange rate of each of the following:
   - interest rates in Australia fall.
   - commodity prices rise.
   - inflation in Australia falls.
   - economic growth in China increases.
10. What are the advantages of a freely floating exchange rate?
11. Explain how the uncertainty associated with a floating exchange rate can be reduced.
12. Distinguish between a currency appreciation and a depreciation.
13. What are the two most important factors driving the Australian dollar?
14. Explain the effects of a currency depreciation on the balance of payments, GDP and the price level.

Application

For each of the following events, indicate whether it would affect the demand for AUD or the supply of AUD, the type of movement (increase, decrease) and whether the AUD would appreciate or depreciate - the first event is done as an example.

	Events	Demand for AUD	Supply of AUD	Exchange rate
1	Increased imports	*No change*	*Increase*	*Depreciate*
2	Increased exports	....	....	....
3	Number of outbound tourists (from Australia to overseas) increases	....	....	....
4	Interest rates decrease in Australia relative to the rest of the world	....	....	....
5	World economy grows faster than the Australian economy	....	....	....
6	Mining boom increases investment	....	....	....
7	Inflation in Australia falls relative to our trading partners	....	....	....
8	Australia's terms of trade increase	....	....	....
9	Japanese investors purchase Australian shares	...	...	...
10	China's economy slows	...	...	...

Multiple choice

1. Which of the following would lead to an increase in the value of the AUD?
   a. Rising interest rates in the United States.
   b. An increase in imports into Australia.
   c. A rise in commodity prices, such as iron ore and coal.
   d. Restrictions on the inflow of capital into Australia.

2. Assume the following exchange rate: AUD1 = USD0.92. What will be the cost in AUD of an imported American car valued at USD20 000?
   a. AUD18 400
   b. AUD21 739
   c. AUD21 600
   d. AUD20 000

3. If there is an increase in the Australian demand for Korean motor vehicles then
   a. the supply of AUD in the foreign exchange market will increase and the AUD will appreciate.
   b. the demand for AUD in the foreign exchange market will increase and the AUD will appreciate
   c. the supply of AUD in the foreign exchange market will increase and the AUD will depreciate.
   d. the demand for AUD in the foreign exchange market will decrease and the AUD will depreciate.

4. If an Australian can buy EUR66,666 for AUD100,000, then one Euro will equal
   a. AUD0.67
   b. AUD1.50
   c. AUD6.66
   d. AUD15.00

5. With a free exchange rate, the price of the AUD will tend to rise when
   a. more Australian tourists go abroad.
   b Germans switch from French wine to Australian wine.
   c Australians switch from Holden Commodores to BMWs.
   d Australian aid spending abroad is increased.

6. If there is an increase in the Australian demand for US computers then
   a. the demand for $US shifts to the right and the $US depreciates.
   b. the supply of $US shifts to the right and the $US depreciates.
   c. the demand for $US shifts to the left and the $US depreciates.
   d. the demand for $US shifts to the right and the $US appreciates.

7. A depreciation of the Australian dollar in the foreign exchange market means that
   a. imported goods become cheaper for Australian residents.
   b. Australian exports become less expensive for foreign buyers.
   c. Australian exports become more expensive for foreign buyers.
   d. the Australian dollar can purchase more foreign goods and services.

8. If real interest rates are higher in Australia than overseas, then the demand for the AUD will
   a. increase and the AUD will depreciate.
   b. increase and the AUD will appreciate.
   c. decrease and the AUD will depreciate.
   d. decrease and the AUD will appreciate.

9. If the Australian dollar depreciates it means that
   a. the value of the Australian dollar has increased.
   b. the value of foreign exchange has decreased.
   c. fewer Australian dollars are required to purchase foreign exchange.
   d. more Australian dollars are required to purchase foreign exchange.

10. Which of the following will result in an increase in the supply of Australian dollars in foreign exchange markets?
    a. a reduction in the number of Australians travelling overseas.
    b. an increase in interest rates in the United States.
    c. a reduction in imports into Australia.
    d. a reduction in income payments to foreigners.

11. If Australia's inflation rate rises relative to the inflation rates in its major trading partners then the demand for the Australian dollar will:
    a. rise and the Australian dollar will depreciate.
    b. fall and the Australian dollar will appreciate.
    c. fall and the Australian dollar will depreciate.
    d. rise and the Australian dollar will appreciate.

12. If Australia's interest rates fall by comparison with overseas rates this will cause:
    a. an appreciation of the Australian dollar.
    b. an inflow of foreign investment.
    c. a decrease in the terms of trade.
    d. a depreciation of he Australian dollar.

13. An appreciation of the Australian dollar would tend to make Australian manufactured goods:
    a . less competitive in all markets outside Australia.
    b. more competitive in all markets outside Australia.
    c. less competitive in some markets outside Australia but more competitive in others.
    d . cheaper in Australian markets.

14. If the United States of America experienced a significant depreciation of its currency, what would be the most likely effect in Australia?
    a. imported inflation from the USA would increase.
    b. Australia's competitiveness with the USA would improve.
    c. Australia's terms of trade with the USA would improve.
    d. imports from the USA would be cheaper.

15. Which of the following circumstances would cause an increase in the AUD.
    i Increased demand in China for Australian iron ore.
    ii Increased demand in Australia for imported cars.
    iii Increased inflation in Australia.
    iv Higher interest rates in Australia relative to overseas.
    a. i and iii.
    b. ii and iii.
    c. ii and iv.
    d. i and iv.

Data analysis - exchange rates

Read the data and answer the questions that follow.

	AUD1 = USD	TWI	AUD1 = CNY	AUD1 = JPY	AUD1 - EUR
Jun-2019	0.70	60.1	4.82	75.54	0.62
Jun-2020	0.69	60.0	4.85	73.94	0.61
Jun-2021	0.75	62.7	4.86	83.07	0.63
Jun-2022	0.69	61.8	4.61	93.95	0.66

1. Name the 5 exchange rates in the table.
2. Over the period shown, against which currencies did the Australian dollar appreciate and against which currencies did it depreciate?
3. Calculate the percentage change for each currency between Jun 2021 and Jun 2022. Against which currency did the AUD depreciate the most?
4. What factors might have been responsible for the fall in the AUD/USD during 2021-22?
5. Andrea Fitzpatrick, an international currency speculator, decided to exchange AUD 1 million dollars for USD in June 2021. If she exchanged her quantity of USD back into Australian dollars in June 2022, did she make a profit or loss and how much?
6. What is the TWI? Why it is the best indicator for changes in Australia's exchange rate?
7. What are the four most important currencies in the TWI?
8. Explain who benefits and who loses from an exchange rate depreciation.

AUD in the news

Refer to the separate articles to answer the following questions.

1. Why are we preoccupied with movements in the Australian dollar?

Because it can make travelling more or less expensive, it can turn a business profit into a loss and a weak currency can cushion the blow of a collapsing economy. By far and away the biggest factor affecting the Australian dollar, against the US dollar, is the interest rate differential between the two countries. It's for obvious reasons too. Traders and investors chase "yield" or a "return" on investment.

An interest rate is a return on money held in deposit. So if you're able to borrow money in a low interest rate environment, and invest it in a higher interest rate environment, of course you would. So if Australia's official cash rate is higher than the US Fed Funds rate, then Australian deposits will look more attractive, and foreign investors will buy Australian dollars in order to take advantage of that "yield differential". But if Australia's cash rate falls below its US equivalent, then foreign investors will look elsewhere and the $A will fall. That's why we all go so bananas over an RBA interest rate decision ... because it ultimately has a direct affect on the Australian dollar.

Economic data plays a big role in moving the Australian dollar too. Much of it though is indirect — meaning that better economic news points to the likelihood of a rate rise in the near term, while poor economic news points to a rate cut. For example, a weak jobs report would see the Australian dollar fall while strong employment growth would see it rise.

Another crucial indicator is inflation or the Consumer Price Index (CPI). Central banks around the world, including Australia's Reserve Bank, actually target a level of inflation. In the RBA's case it's for a CPI of between 2 and 3 per cent. That's considered to be a "goldilocks" range for inflation, which keeps the economy humming along nicely.

The Australian dollar is a commodities currency. That means the dollar generally appreciates when commodities prices (such as iron ore and coal) rise in value. Australia is a resource-rich country, so naturally as commodities prices rise and fall, so does Australia's overall 'worth', and the currency responds to that.

Source: www.abc.net/news

Questionsfor article 1

1. What is considered the biggest factor affecting the AUD?
2. Explain why the exchange rate and interest rates are 'best friends'.
3. Explain why ". . . we all go bananas over an RBA interest rate decision . . . "
4. Why would a 'weak jobs report' result in a fall in the AUD?
5. Explain why increased monetary stimulus in the United States would result in a higher AUD.

2. When is a low Aussie dollar – a good thing?

A low dollar can bring happy, smiley faces to our farmers, manufacturers, tourist operators and education providers. These industries are part of the non-mining tradeables sector of the economy. It is important to note that about three-quarters of Australian industry is 'non-tradeable' - it neither exports nor competes against imports. What are some examples? Mainly services such as haircuts, restaurants & cafes and health services. The non-tradeable sector is not directly affected by the exchange rate, except to the extent that it uses imported components and capital equipment.

A lower exchange rate is expansionary and thus does a similar job to a cut in interest rates. It raises the price of imported goods and services and lowers the price of exports, thus increasing net exports. A lower dollar also helps to redirect some domestic demand to domestic firms (for instance, it makes locals more inclined to holiday at home than abroad). So, to some extent, a lower exchange rate is a substitute for cuts in the official interest rate if the economy is subdued.

Australia's terms of trade have fallen from the dizzy heights when the economy was in the peak of the mining boom. The initial effect is a huge decrease in the nation's real income which causes the economy to contract - real GDP falls, unemployment rises, the inflation rate falls and the exchange rate takes a hit. But the big advantage of a floating exchange rate is that by depreciating, it reduces the impact of a terms of trade shock. How does this happen? By increasing the competitiveness of the tradeables sector.

The second element of the end of the resources boom is that it generated a huge decrease in mining investment resulting in a major change in Australia's industry structure. The oil and mining industry, the mining services industry and the engineering construction industry all contracted, releasing resources into other sectors. This means that labour and capital had to move from mining industries to the non-mining sector. This is where the floating dollar helps - it assists the reallocation of resources by causing the non-mining tradeables sector to expand.

Questions for article 2

1. Explain the benefits of a low dollar and the costs of a low dollar.
2. What is the non-mining tradeable sector of the economy? Provide examples of industries in this sector.
3. Why does a low dollar bring gains to the non-mining tradeables sector?
4. Explain how a low exchange rate is expansionary.
5. How does a free exchange rate reduce the impact of a terms of trade shock?
6. How does a floating exchange rate help to reallocate resources in the economy?
7. Why would a low dollar be an advantage if the economy was in a contraction?

Data interpretation

The questions below to the edited extract overleaf, taken from the Reserve Bank's Statement on Monetary Policy (November 2022).

1. By how much did the Australian dollar depreciate against the US dollar during 2022?
2. Explain why the Australian dollar did not fall on a trade weighted basis.
3. Explain two reasons from the extract for the depreciation of the AUD.
4. Choose one of these reasons and using a model of the Australian dollar, illustrate and explain why the Australian dollar depreciated.
5. Explain the effects of a depreciation on the household and business sectors. (4 marks)

The Australian dollar has depreciated

The Australian dollar has depreciated by about 2 per cent on a trade-weighted (TWI) basis since early August, and is around 8 per cent lower against the US dollar over the same period. This is consistent with the decline in yield differentials between Australian Government bonds and those of the major advanced economies. The currency depreciated to a year-to-date low of around US$0.62 in mid-October, amid concerns about the outlook for global growth.

The RBA Index of Commodity Prices has declined over recent months to be around levels seen earlier this year, with higher coal prices partly offsetting declines in the prices of iron ore and base metals. Despite having depreciated by around 12 per cent against the US dollar over the year to date, the Australian dollar is around its levels at the beginning of 2022 on a TWI basis. The difference largely reflects the appreciation against the Japanese yen earlier in the year, although the Australian dollar also remains higher against several other currencies, including the South Korean won the British pound.

Source RBA Statement on Monetary Policy, November 2022

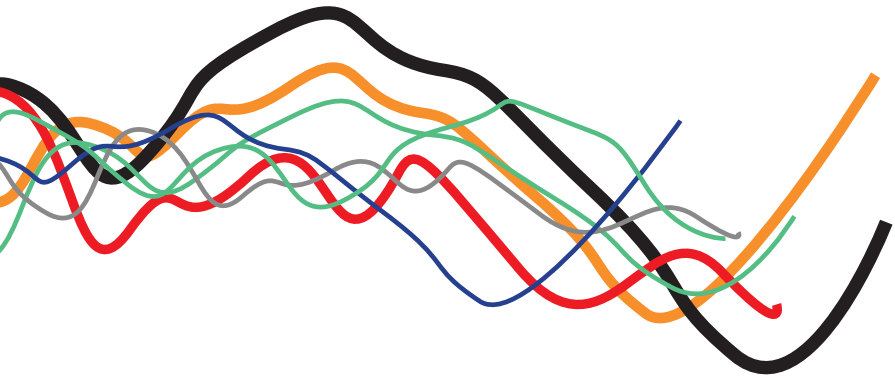
Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Distinguish between factors affecting the demand for a currency and the supply of the currency. [10 marks]
   b. Explain the link between the balance of payments and the exchange rate. [10 marks]

2. The two key determinants of the Australian dollar are commodity prices and relative interest rates. Using appropriate models, explain how these factors influence the value of the Australian dollar. [20 marks]

3. Describe the trend in the Australian dollar during 2022. Identify the factors that have affected this trend, and outline the effects of the change in the Australian dollar on the economy. [20 marks]

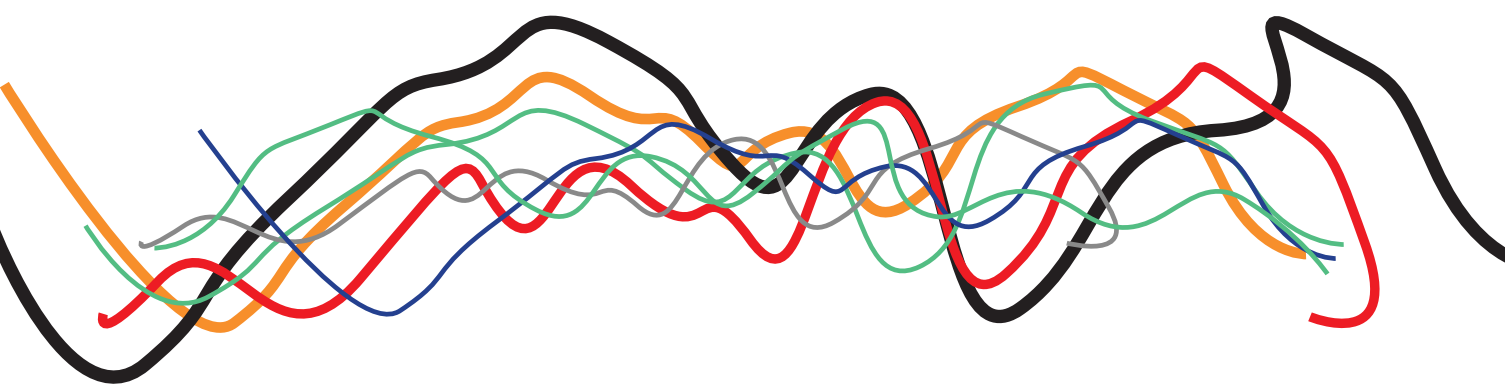


7

Foreign Investment

Chapter concepts

- *the concept of foreign investment in terms of foreign assets and foreign liabilities*
- *the concept of foreign liabilities - foreign debt and foreign equity*
- *the relationship between the current account outcome and foreign liabilities*
- *the extent of, and recent trends in, Australia's foreign direct investment and foreign debt*
- *the benefits and costs of foreign direct investment and foreign debt to Australia*



Introduction

In this chapter we investigate the importance of foreign investment to the Australian economy. It is important not to confuse foreign investment with investment spending. Foreign investment is an inflow of money from overseas investors – some of which may turn into investment spending, but only a small portion (around 10 - 15 per cent). Australia has always relied on a net inflow of foreign investment to develop its economy and to supplement its domestic savings. In chapter 4 we noted that Australia normally records a current account deficit and a financial account surplus. This occurs because Australia's total investment exceeds its savings (a negative S – I gap) and we import foreign savings from the rest of the world. This foreign savings is capital inflow, or foreign investment into the Australian economy.

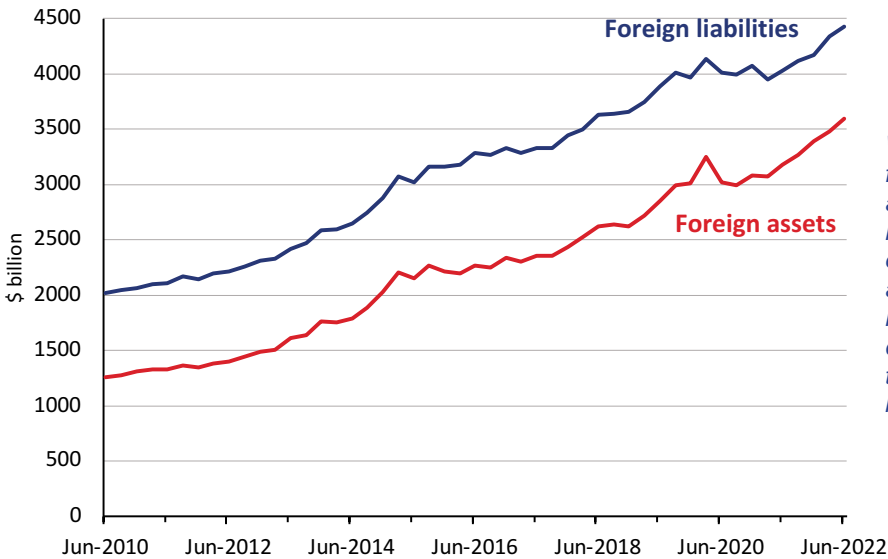
Australia's net international investment position records the stock or level of foreign investment into Australia (FIA) and the level of Australian investment abroad (AIA). The stock of foreign investment into Australia is referred to as foreign liabilities while the stock of Australian investment abroad is known as foreign assets. A liability is something you owe, while an asset is something you own. So if a firm in the United States invests in the Australian share market or invests money into the Australian financial market, this represents an increase in Australia's foreign liabilities – an increase in net capital inflow or inbound foreign investment. If, on the other hand, an Australian firm buys shares in an overseas company or lends money to a foreign bank then this would represent an increase in Australia's foreign assets - an outflow of capital or foreign investment abroad.

In June 2020, the stock of foreign investment in Australia (foreign liabilities) was $4,428 billion. Australia's stock of foreign investment abroad (foreign assets) amounted to $3,594 billion resulting in a net international investment position of $834 billion.

Foreign liabilities and foreign assets

Foreign liabilities are created when Australian residents borrow money from overseas or sell assets such as shares to foreign residents. It is called foreign investment in Australia, and is an inflow of money from overseas. Foreign assets are created when Australian residents lend money to foreign residents or purchase foreign assets. It is called Australian investment abroad, and is an outflow of money. Figure 7.1 shows the growth of Australia's foreign liabilities and foreign assets since 2010. Over this period foreign assets increased from $1,264bn to $3,594bn, while foreign liabilities increased from $2,023bn to just over $4,428bn. It is interesting to note that foreign assets have been increasing at a faster rate than liabilities. Instead of measuring the change in billions of dollars we can compare the growth in assets and liabilities as a per cent of GDP. Since 2010, Australia's foreign liabilities increased from 155 per cent of GDP to 193 per cent. At the same time, Australia's foreign assets have increased at a faster rate from 97 per cent of GDP to 156 per cent.

Foreign investment into Australia increases Australia's foreign liabilities while Australian investment abroad increases Australia's foreign assets



While Australia's foreign liabilities and foreign assets have both increased over time, foreign assets have grown more quickly. The difference between the two is net foreign liabilities.

Figure 7.1 Australia's foreign liabilities and foreign assets

The distance between the two lines in figure 7.1 represents Australia's net foreign liabilities. They have increased from $759 billion in 2010 to $834 billion in 2022 – an increase of 10 per cent. Is this a cause for concern? Not really, because it is important to remember that net foreign liabilities represents net foreign investment into Australia which has enabled the Australia economy to develop and grow over time, increasing our national income and standard of living. Measured as a percentage of GDP, net foreign liabilities have actually decreased significantly – from 58 per cent of GDP in 2010 to 37 per cent in 2022.

Foreign investment can be in the form of borrowing (foreign debt) or in the form of foreign ownership (foreign equity). If Australian residents (households, firms or government) borrow from overseas, then this increases Australia's foreign debt liability. If Australian residents sell assets to overseas residents, then this increases Australia's foreign equity liability. The following table summarises Australia's net international position for 2022.

June 2022	Debt $bn	Equity $bn	Total $bn
Foreign Liabilities	2757	1671	4428
Foreign Assets	1599	1995	3594
Net Foreign Liabilities	1158	-324	834
Per cent of GDP	52	-15	37

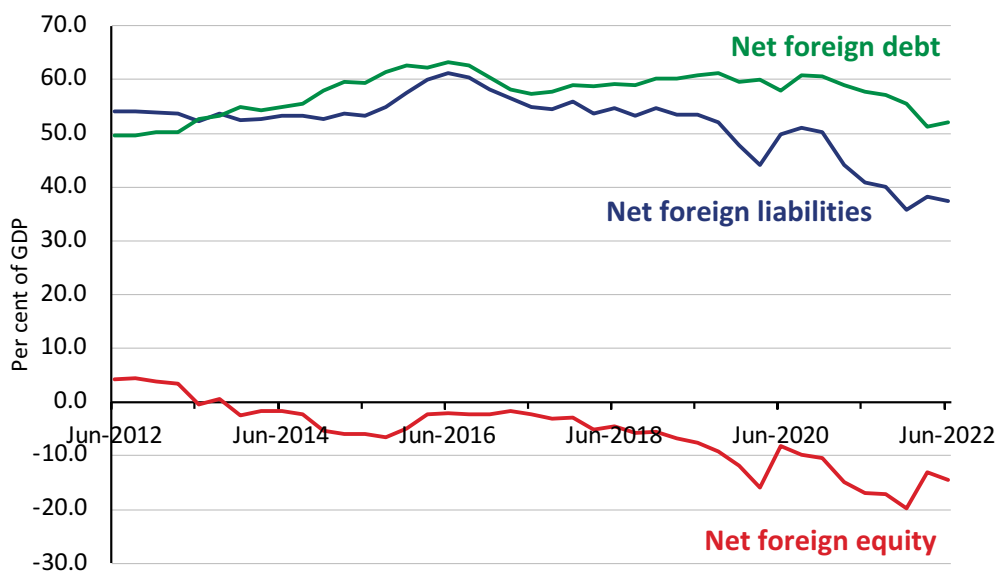
Total foreign investment in Australia (foreign liabilities) amounted to $4,428 billion, comprised of $2,757 billion of foreign debt and $1,671 billion of foreign equity. Australia's foreign assets amounted to $3,594 billion and this comprised $1,599 billion of lending and $1,995 billion of equity. We are interested in the net figures – net foreign debt, net foreign equity and the net international investment position.

Australia's net foreign debt in 2022 was $1,158 billion, while net foreign equity was -$324 billion. Why is the net equity figure negative? This means that Australia now owns more foreign equity than it owes, so in fact net foreign equity is no longer a liability - it is now an asset. Overall, Australia had a net foreign liability of $834 billion. These numbers appear large but it is important to remember that they consist of the accumulation of net capital inflow over many decades. In other words, the stock of foreign liabilities equals the sum of all of Australia's past financial account surpluses (or current account deficits).

Figure 7.2 shows Australia's net international investment position since 2010 measured as a proportion of GDP. Notice that Australia's net foreign liabilities have actually decreased over this time – falling from 58 per cent of GDP in 2010 to 37 per cent in 2022. Australia has always preferred borrowing over selling assets in terms of foreign liabilities. Net foreign debt has risen from 50 per cent of GDP in 2012 to 52 per cent in 2022, while net foreign equity has fallen from 4 per cent of GDP to –15%. This means that now all of Australia's net foreign liabilities are in the form of foreign debt with net foreign equity no longer being a liability. The reason for this change in foreign equity is that the growth in Australia's superannuation funds has enabled Australia to increase its holding of foreign assets. Is Australia's reliance on foreign borrowing a cause for concern? Not really because it fills Australia's investment – savings gap. Borrowing funds is seen as being a more prudent and flexible approach compared with selling assets. Both types of liability involve an income payment to foreign residents. Foreign debt needs to be serviced with interest payments, while foreign equity involves the remittance of profits and dividends.

All of Australia's net foreign liabilities now comprise foreign debt since Australia's net foreign equity is no longer a liability.

Figure 7.2 Australia's net international investment position



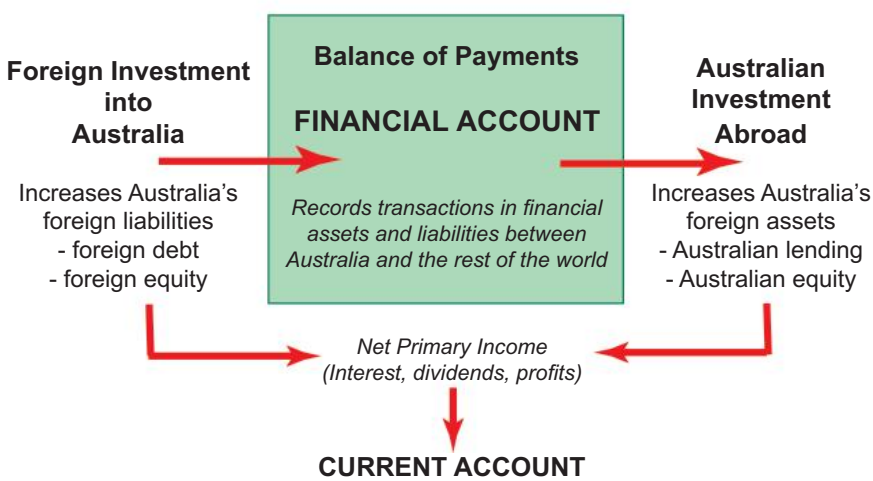
These income payments are recorded in the current account in the balance of payments. Remember that foreign investment flows are recorded in the financial account. Normally Australia would record a financial account surplus each year due to the net inflow of capital, mainly in the form of borrowing. The income payments associated with this foreign investment result in a large net income deficit in the current account.

Foreign liabilities and the current account

Figure 7.3 illustrates the relationship between the financial account and the current account in the balance of payments. The financial account records the flow of foreign investment into and out of Australia. When foreign residents invest in Australia, this increases our foreign liabilities. When Australian residents invest overseas, this increases Australia's foreign assets. Australia's foreign liabilities are greater than its foreign assets, which means that more foreign investment flows into Australia than flows out and most of this capital inflow is in the form of borrowing. A financial account surplus will add to the stock of foreign liabilities.

The income flows associated with foreign liabilities are recorded in the current account. The servicing costs associated with foreign liabilities (interest & dividends) result in a large primary income deficit in Australia's current account. Whether the current account deficit is financed by either equity or debt will result in outflows of income to overseas residents. Some commentators worry that these income payments are a drain on the economy and will cause the current account to record a deficit. But this is incorrect. It is important to remember that the current account balance reflects the gap between national saving and national investment (S – I gap), so a higher level of investment will increase the nation's capital stock. This will expand the economy's productive capacity and provide for future income growth.

Figure 7.3 Foreign investment and the balance of payments



Expressing foreign liabilities as a proportion of an economy's GDP is also not the most relevant measure and in fact, can be quite misleading. Foreign liabilities are a stock variable (accumulated over time) while GDP is a flow variable. Foreign liabilities should be measured relative to the physical capital stock of the country, giving an indication of the proportion of the capital stock being funded by foreign residents. This ratio has been relatively stable in Australia at around 10 per cent. Australia relies on foreign investment not because its national saving ratio is low, but because its investment ratio is high. This creates a savings gap that is filled by foreign liabilities.

Australia's foreign debt

Every time Australia records a current account deficit in the balance of payments, total foreign liabilities increase, either as an increase in foreign debt and/or as an increase in foreign equity. The foreign debt is the amount of money that Australian residents, both public and private, owe to the rest of the world. Foreign equity, on the other hand, represents the extent to which foreign residents own Australian assets. Examples of debt include government securities issued to overseas residents and borrowing by Australian firms from overseas financial institutions. Currently all of Australia's net foreign liabilities are in the form of foreign debt.

An important distinction should be made between gross foreign debt (the total of Australia's overseas borrowing) and net foreign debt (gross debt minus Australian lending to overseas residents). Net foreign debt provides the best view of our debt situation. An example will make this clear. If country A owed country B $100 billion but was owed $60 billion by country C, then country A's gross foreign debt equals $100 billion, but its net foreign debt is $40 billion. In 2022, Australia's gross foreign debt was $2,757 billion but Australia's lending abroad equaled $1,599 billion resulting in a net foreign debt of $1,158 billion.

When people talk of Australia's foreign debt, they think that it is owed by the Australian government – but this is incorrect. Most of Australia's foreign debt is private debt – of a total of $1,158 billion in 2022, private sector debt amounted to $811 billion or 70 per cent. The government's share was $347 billion, or 30 per cent (see figure 7.4). If the government plans for a budget deficit, then it must borrow funds from either domestic residents or foreign residents. If it borrows from overseas, then this will increase Australia's foreign debt. The Australian government has recorded budget deficits since the global financial crisis in 2009. Whenever the economy contracts, the government's budget balance falls due to declining government tax revenue and increased welfare spending. The table shows the government's (public) share of foreign debt between 2013-2019 was relatively stable at 25 per cent. Then in 2019, it jumped significantly to 29 per cent and then to 37 per cent in 2021. This was the impact of the COVID-19 pandemic causing the government to record its largest budget deficits in history - it had to finance this by borrowing both domestically and overseas.

Government debt is not necessarily 'bad'. It depends on how the borrowed funds are used. If they are used to finance government infrastructure, then this will increase future income and will not impose a burden on taxpayers. However, if the funds are

Australia's Net Foreign Debt $billion					
Year	Public $bn	Private $bn	Total $bn	Public %	Private %
2013	205	605	810	25	75
2014	227	652	879	26	74
2015	244	718	962	25	75
2016	252	798	1050	24	76
2017	241	766	1007	24	76
2018	274	818	1092	25	75
2019	300	884	1183	25	75
2020	337	809	1146	29	71
2021	444	751	1195	37	63
2022	347	811	1158	30	70

Most of Australia's net foreign debt is owed by the private sector - however the government's share increased significantly in 2020-21 due to the COVID-19 pandemic.

Figure 7.4 Private and public foreign debt

used for general government spending, then this is a problem. It would be similar to a household taking out a loan to pay for the groceries! This is why private sector debt is usually considered superior to public debt in that it is incurred with the profit motive in mind. Private debt is likely to increase investment which expands the productive capacity of the economy and provides the income stream to service the debt. Many people think that the foreign debt represents a large burden on future generations, but this is also a misconception. It may come as a surprise that a large proportion of Australia's foreign debt is paid within a short period of time. In 2022, one third of the foreign debt had a maturity of less than one year while 62 per cent was to be repaid within five years.

Most of Australia's foreign debt has a relatively short maturity period.

Trends in Australia's net foreign debt are illustrated in figure 7.5. Between 2012 and 2022, net foreign debt increased from 50 per cent of GDP to 52 per cent – a relatively modest increase. It reflects the accumulation of debt over time resulting from continued current account deficits and the fact that Australian firms prefer to borrow funds rather than sell equity. The foreign debt ratio did reach a peak in 2016 of 63 per cent, but has since fallen steadily as Australia's investment-saving gap narrowed.

Part of the issue concerning the size of foreign borrowing is that the interest payments on the debt feed into the current account balance. Figure 7.5 also illustrates the size of Australia's interest payments on its foreign debt measured as a proportion of total export income. The interest payments represent the servicing costs of the foreign debt. One might expect that the growth in interest payments would increase over time, however, this is not the case. In 2012, the interest bill was equivalent to 8 per cent of export income. But notice how the interest burden has fallen dramatically. This is mainly due to world interest rates declining over this period (reducing repayments on loans), and by the fact that Australia's export performance has improved. By 2022, interest payments had fallen to less than 3 per cent of export income.

While net foreign debt has increased as a proportion of GDP, the servicing proportion has fallen. Interest payments as a proportion of GDP have fallen from around 8% in 2012 to 3% in 2022.

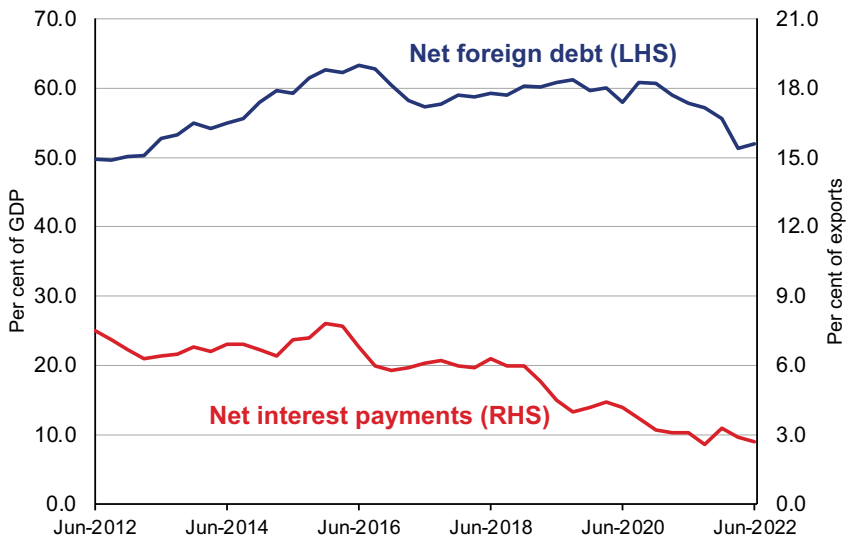


Figure 7.5 Australia's net foreign debt

Is foreign debt a problem?

Borrowing can be of benefit to the individual, the firm and the nation. When borrowing is used for investment, living standards rise. Families borrow for housing, firms borrow for capital equipment and expansion and governments borrow to build infrastructure. The problem is identifying the 'right' amount of borrowing. What is an acceptable level of foreign debt? What should be the size of the current account balance? Many organisations such as the OECD do not even publish figures on foreign debt, believing that it is not that relevant. We know that a current account deficit occurs when a country's total investment exceeds total saving. The difference is equal to net capital inflow. However, there are many journalists in the Australian media who seem to think that a rise in Australia's foreign debt is a national crisis. Perhaps they need to complete a refresher course in basic economics to understand that the buildup in foreign debt mirrors the increase in foreign investment.

An important point to be aware of is that foreign debt is a stock variable – it represents the accumulation of debt over time, whereas GDP is a flow variable – it represents the increase in output from one year to the next. Measuring foreign debt as a proportion to GDP is therefore an inaccurate way to measure its relative importance. Foreign debt should be compared with another stock variable such as Australia's total wealth, rather than GDP. It would be similar to comparing a household's total debt with its annual income instead of comparing it to the household's total assets. The ABS now publishes a 'balance sheet' for Australia which details changes in Australia's assets, liabilities and net worth or wealth. What has happened to Australia's wealth during the time that the amount of foreign debt has increased?

Foreign debt is a stock variable and should be measured as a proportion of a nation's wealth or assets rather than GDP.

Australia's Balance Sheet				
	Assets $billion	Liabilities $billion	Net Worth $billion	Per capita $'000
1990	2211	288	1923	114
2000	3878	783	3095	163
2010	9908	2023	7885	358
2022	21985	4428	17557	675

Source: ABS 5204.0

Australia's national balance sheet shows that while Australia's foreign liabilities have increased over time so has Australia's assets. These are measured in terms such as buildings, machinery and equipment, land, mineral resources, and financial assets with the rest of the world. The important point to note is that Australia's assets have increased at a faster rate than its liabilities, so that Australia's net worth or wealth has been rising over time. Since 2010, Australia's liabilities increased by $2.4 trillion but total assets increased by $12 trillion. This means that Australia's wealth over this time rose by $9.6 trillion. Not only has the total amount of Australia's wealth increased, but per capita wealth in Australia has also risen. Per capita wealth has increased from $358,000 in 2010 to $675,000 in 2022. This proves that the build–up of Australia's foreign liabilities – both foreign debt and foreign equity – has been used to increase Australia's net worth. Rather than a burden, foreign investment has, over time, enabled Australia to increase its level of real income. This is an apt reminder of not just focusing on a country's level of foreign debt and liabilities. A correct judgment can only be made by comparing a nation's total liabilities with its total assets.

What are the potential costs associated with a high level of foreign debt? One of the main arguments is that Australia's credit rating may be downgraded which means that future borrowing will be subject to higher interest rates. But if this were to happen, then the higher rates would reduce the amount of foreign borrowing, which is a normal market reaction. A second argument that is raised is that a depreciation in the Australian dollar will increase the value of Australia's debt. But this is incorrect. Most of Australia's borrowing is now denominated in Australian dollars so a change in the exchange rate has minimal effect on the outstanding debt. Australia's foreign assets on the other hand are held in foreign currency, so a depreciation in the AUD actually increases their value. The interest payments on Australia's foreign debt do contribute to the large income deficit in the current account of the balance of payments. But it is important to remember that this represents the servicing cost of using foreign savings to fill Australia's investment-savings gap. Where would Australia be without the mining sector? A rise in the government's share of foreign debt may cause a problem if the government has borrowed to fund recurrent expenditure rather than government investment.

Foreign investment

The total stock of foreign investment in Australia is equivalent to Australia's gross foreign liabilities. In 2022, this amounted to $4,428 billion. Every year there is a flow of foreign investment into Australia which adds to this stock. This flow is recorded in the financial account of the balance of payments. If the inflow of foreign investment exceeds the outflow, then there is a financial account surplus. If Australian investment

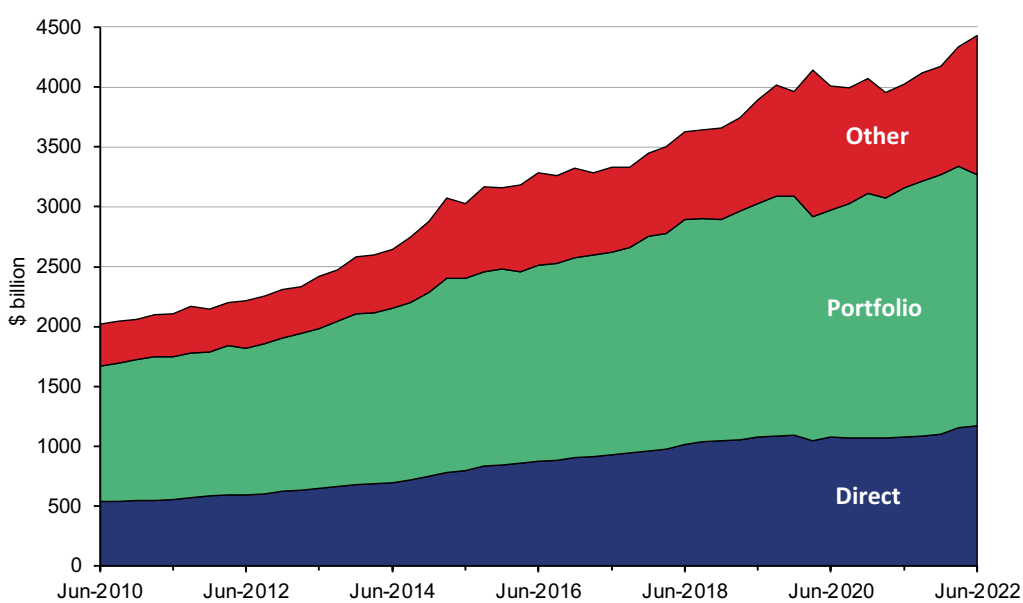
abroad exceeds the inflow, then there is a financial account deficit – this happened in the years 2020 to 2022. In simple terms, foreign investment into Australia occurs when a foreign individual or business decides to establish a new business in Australia or purchases property or shares in an Australian-owned business.

Foreign investment may take the form of borrowing or it may be in the form of equity – the selling of assets (shares of companies, resources) to overseas residents. Australia has, for most of its history, been a financial capital importer. This means that for most of its history, Australia has recorded a financial account surplus. The inflow of foreign capital fills Australia's investment–savings gap. Australia is a small nation in terms of population and it usually does not raise enough savings to fund its investment needs. The inflow of foreign investment has enabled Australia's living standards and rate of economic development to be much higher than they would otherwise have been. Most foreign investment into Australia is in the form of debt securities (62 per cent) with equity comprising the other 38 per cent.

Most foreign investment into Australia is in the form of debt securities (62%) with equity comprising the other 38 per cent.

Figure 7.6 illustrates the growth in the level of foreign investment into Australia, increasing from around $2,000 billion in 2010 to $4,428 billion in 2022. Foreign investment transactions are divided into direct, portfolio, and other (which includes financial derivatives and reserve assets). The two most important categories are direct investment and portfolio investment. Figure 7.6 shows that portfolio investment is the dominant type of foreign investment in Australia, accounting for around one half while direct investment makes up one quarter of the total. Foreign direct investment occurs when a foreign investor establishes a new business or acquires 10 per cent or more of an Australian enterprise.

Figure 7.6 Stock of foreign investment in Australia



Stock of Foreign investment in Australia 2022		
		$billion
Direct investment 26%	Equity securities	894
	Debt instruments	276
	Total direct	1170
Portfolio investment 47%	Equity securities	778
	Debt securities	1321
	Total portfolio	2099
Other foreign investment		1160
All foreign investment		**4428**

The 10 per cent measure provides the foreign investor with a 'significant influence' over that enterprise. Examples of foreign direct investment include the establishment of Australian branches of multinational companies or joint ventures between Australian and foreign companies. Direct investment is thus associated with a degree of ownership and/or influence of Australian enterprises and resources. In this way direct investment is viewed as more long term and stable. While the purchasing of shares is an example of equity investment, other types of direct investment include borrowing and the reinvestment of earnings, although equity securities are the dominant type. The reinvestment of earnings is specific to direct investment and refers to the income retained from after tax profits that would have otherwise left the economy and traveled to the direct investor. Many people are under the impression that all profits and income accruing from foreign investment leave the economy, but this is not the case. A large proportion of this income is retained in the business.

Portfolio investment refers to all other foreign investment that is not direct investment – in other words, when an overseas firm purchases less than ten per cent of the shares of an Australian company. This means that portfolio investment does not result in foreign control of Australian enterprises. Examples of portfolio investment include the purchase of property and/or shares in Australian companies as well as the purchase of government bonds by foreign superannuation or pension funds. Portfolio investment is viewed as being more speculative than direct investment. Portfolio investment comprises both equity securities and debt securities (borrowing) such as the issue of bonds and notes. Debt securities form the most important source of portfolio investment accounting for around 63 per cent. This is the opposite case to direct investment where the dominant type is equity capital.

Figure 7.7 shows the inflow of foreign direct and portfolio investment into the Australian economy for the past decade. This inflow adds to the stock of foreign investment (foreign liabilities) and is recorded in the financial account. Usually the inflow of portfolio investment is greater than direct, and this was true for six of the 10 years shown in the graph. In 2019 and 2020, portfolio investment was actually negative which means that it was withdrawn from the economy. This is unusual, but remember these were the years affected by the COVID pandemic which caused the economy to suffer a recession. An important point to note from the graph is the volatility of portfolio investment compared with direct investment. Between 2013 and 2018, direct investment was relatively stable recording an inflow of around $60 billion each year. Over the same period, portfolio investment fluctuated between $30 and $120 billion. In 2019 and 2020, portfolio investment was withdrawn before increasing significantly in both 2021 and 2022.

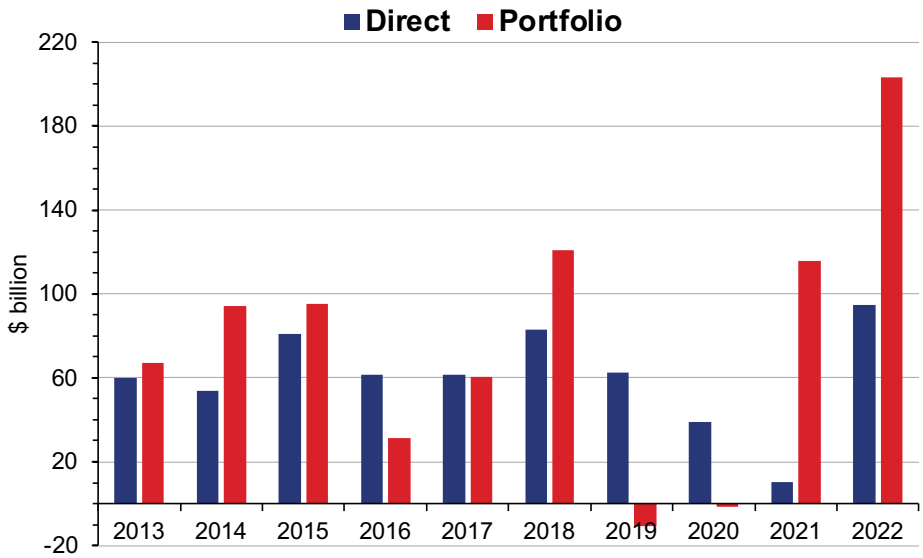
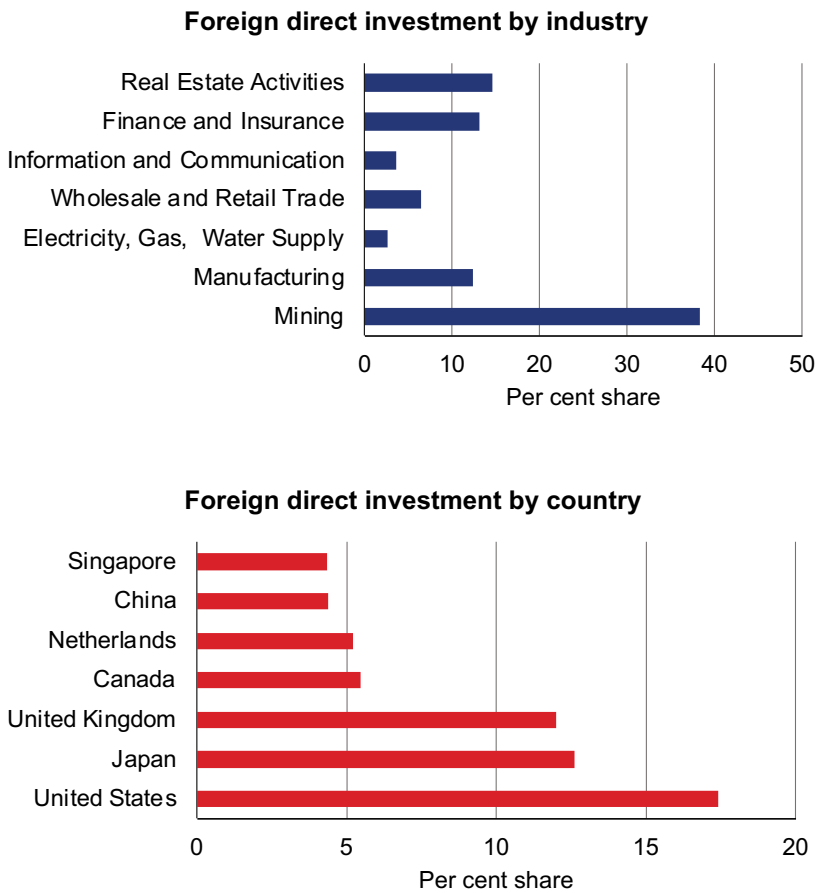


Figure 7.7 Foreign direct and portfolio investment

Foreign investment is influenced by a number of factors. Profit expectations, interest rate differentials and political stability have all been important in attracting foreign investment into the Australian economy. The Australian economy represents a secure and safe haven for financial capital. The Australian economy is also well placed in terms of the fast growing economies of east and south–east Asia. Over the past decade the Australian economy has been outperforming most of the OECD economies which has contributed to the large inflow of foreign investment. Australian interest rates are often relatively higher than most other developed economies which also attracts portfolio investment chasing high returns or yields. Australia has a well developed and regulated financial market which offers investors low risk returns. Australia is a resource rich nation which depends on the inflow of financial capital to supplement its own domestic savings to enable it to develop its vast mineral and energy resources.

Figure 7.8 shows the levels of foreign direct investment in Australia by industry and by source country. The mining industry comprised the largest share of the stock of foreign direct investment (FDI) in Australia in 2022, with 38 per cent of total FDI. Other major industries include real estate activities (15 per cent), finance & insurance (13 per cent) and manufacturing (12 per cent). Most people think that there is a high level of foreign ownership of Australian business firms, but this is incorrect. Australian businesses with foreign ownership greater than 10 per cent accounts for just 3 per cent of all business firms. The industry in which the level of foreign ownership is high is the mining industry, where 28 per cent of mining businesses have foreign ownership of greater than 10 per cent. The three main sources of foreign direct investment are the United States, Japan and the United Kingdom. These three countries account for over 40 per cent of all foreign direct investment in Australia.



The most important industry for foreign direct investment is mining – accounting for 38% of total FDI.

The United States is the major source of foreign direct investment in Australia.

Figure 7.8 Foreign direct investment in Australia

Costs and benefits of foreign investment

It is important to understand that in economics, investment refers to spending on new capital goods such as machinery and construction including new housing. Foreign investment is an inflow of funds into the Australian economy. Most foreign investment is used to purchase Australian assets, such as shares and property. A small percentage of foreign investment does contribute to domestic investment – anywhere from 10-20 per cent. Investment expenditure is a component of GDP and plays an important role in the economy. It increases the level of economic activity, employment and national income. Investment also expands the productive capacity of the economy by increasing the stock of physical capital – in other words it moves the economy's production possibility frontier outwards.

The amount of investment an economy can undertake is determined by the level of savings. If domestic savings are low, then for investment to expand, foreign savings must be used. This has been the situation facing the Australian economy. Australia normally relies on foreign investment because its investment needs exceeds its

level of savings. How much does foreign investment contribute to Australia's total investment? Usually between 10 and 15 per cent. The table below shows Australia's total investment flows between 2018 and 2022. In 2018, domestic savings provided 89 per cent of the economy's investment needs with foreign savings making up the other 11 per cent. In 2019, the share of foreign savings required to fill Australia's I – S gap fell to just 4 per cent.

Australia's investment flows					
	2018	2019	2020	2021	2022
Total investment flows $billion	449	454	449	464	524
Domestic savings $ billion	400	435	472	528	582
Foreign savings $ billion	49	19	-23	-64	-58
Domestic source (% share)	89	96	105	114	111
Foreign source (% share)	11	4	-8	-14	-11

In 2020 the economy experienced a deep recession due to the COVID-19 pandemic. Investment actually fell and domestic savings increased. For the first time in over 50 years, Australia's saving exceeded its investment and didn't require any foreign investment. In other words, Australia had a positive S – I gap. This is why the foreign savings figure is negative. Between 2020 and 2022, Australia had enough savings to fund its investment needs!

Foreign investment has enabled Australia to fund a much higher rate of investment and therefore to enable the economy to grow at a higher rate and to enjoy a higher standard of living. Foreign investment can help to increase the economy's public and private infrastructure, including transport and communications networks. By increasing the capital–labour ratio it can increase labour productivity lading to higher real incomes . The most important benefit of foreign investment for Australia has been the development of our industries and resources. Without the large amount of foreign investment that has flowed to Australia, the mining and manufacturing sectors would have been much smaller. Inflows of foreign investment have also helped to finance the growth of Australia's stock of housing.

The benefits of foreign direct investment
Helps to fund the I – S gap, allowing Australia to have a high rate of investment
Enables Australia to have higher real incomes & higher living standards
increases employment & economic growth
Enabled the development of Australia's mining & energy sector
Increased net exports in the resources sector
Encourages competition and increased innovation through new technologies
Enhances productivity growth through capital deepening
Increased tax revenue for State and Commonwealth governments

If the funds from foreign investment were to fall, then Australia's standard of living would decline since less goods and services (as imports) could be consumed. Australia's economic growth would decline because there would be insufficient savings to finance the economy's capital needs. Direct foreign investment has the advantage that it can bring with it new technology and managerial expertise. Most of the foreign investment into Australia comes from the countries of the US, the UK and Japan. Their technological know–how and managerial skills can help improve the efficiency of Australian industry and aid the long term growth of the economy. Overseas firms establishing new subsidiaries will directly add to employment and contribute to increased taxation revenue for the government. A large percentage of the profits of these firms are also retained and invested back into the enterprise.

Foreign investment in the form of portfolio investment can be short term and speculative, and therefore may be destabilising. While direct investment has the advantage of being fairly long term, portfolio investment could be withdrawn at any time. This was evident in 2019 and 2020 when portfolio investment was negative. The general state of the economy, the level of interest rates, government stability and the performance of the share market are all factors affecting short term capital movements. Portfolio investment is a function of short term profitability and is highly sensitive to relative interest rates. The interest rate differential between Australia and the rest of the world plays an important role in the movement of portfolio investment in and out of the Australian economy. When interest rates in Australia rise relative to the rest of the world, then capital inflow in the form of portfolio investment increases.

The costs of foreign investment are associated with the supposedly twin 'evils' of foreign ownership and foreign debt. When most capital inflow was in the form of equity, the major concern was the 'selling' of Australian assets. Foreign control, it was argued, might conflict with government economic policy, and profits would be siphoned back to the parent company. Foreign equity investment into Australia has declined in recent decades being replaced by borrowing. Foreign debt has now become one of the media's favourite 'scare bears' but remember that it is the twin side of foreign investment. If foreign investment is seen as a benefit to the economy, then so must foreign debt – they are two sides of the same coin. It is a fact that interest payments on foreign debt have become the largest debit item in the income category of the current account. But as long as the foreign investment boosts Australia's future productive capacity, then the servicing of the debt is not a problem.

Worksheet 1 - foreign liabilities

1. Explain the difference between foreign investment and domestic investment.
2. Explain the link between foreign investment and Australia's I - S gap.
3. Distinguish between Australia's foreign liabilities and foreign assets. Which is larger?
4. Explain what is meant by Australia's net international investment position.
5. What was the size of Australia's net foreign liabilities in 2020?
6. Distinguish between the two types of foreign liabilities.
7. What is Australia's largest foreign liability?

8. Explain why Australia's net foreign liabilities have decreased over the past decade.
9. Why is Australia's net foreign equity liability negative?
10. What proportion of Australia's net foreign debt is held by the private sector?
11. Explain the link between the current account and foreign liabilities.
12. Why have the servicing costs of Australia's foreign debt, measured as a per cent of Australia's exports, been falling over time?
13. Why is private debt considered to be superior to public debt?
14. What effect will the COVID-19 pandemic have on the government's share of foreign debt?
15. What has happened to Australia's net worth over time?
16. Discuss three costs associated with incurring foreign debt?
17. Discuss three benefits associated with incurring foreign debt?

Multiple choice 1

Select the best answer to the following questions.

1. In the short term, large amounts of foreign investment into Australia will
   a. increase the current account balance, appreciate the dollar and lower exports.
   b. increase the financial account balance and lower exports.
   c. appreciate the dollar, increase exports and reduce imports.
   d. increase the current account balance by boosting exports.

2. The difference between gross foreign debt and net foreign debt is that
   a. gross foreign debt includes both private and government debt.
   b. gross foreign debt excludes Australian lending to overseas residents.
   c. net foreign debt is the difference between gross debt and gross equity.
   d. net foreign debt excludes government borrowings.

3. One main difference between Australia's level of foreign debt and other countries is
   a. Australia has a higher share of government debt relative to private sector debt.
   b. Australia has a smaller share of government debt relative to private sector debt.
   c. Australia's foreign debt is used to fund government infrastructure.
   d. Australia's foreign debt is used to fund government budget deficits.

4. Most of Australia's foreign debt is owed by
   a. the official sector (government).
   b. private households.
   c. private enterprises.
   d. government enterprises, for example the ABC or Australia Post.

5. The main cause of the surge in Australia's foreign debt can be directly attributed to
   a. the floating of the AUD.
   b. the decline in the terms of trade.
   c. the setting of fiscal and monetary policy by the government.
   d. the increase in the current account deficit.

6. Which one of the following would result from Australian companies increasing their overseas borrowing?
   a both the current account deficit (CAD) and the capital & financial account surplus will fall.
   b both the CAD and the capital & financial account surplus will rise.
   c. the capital & financial account surplus will rise, but the CAD will not be affected.
   d. the CAD will increase, but the capital & financial account surplus will not be affected.

7. To reduce the foreign debt, exports need to increase relative to imports. Which one of the following would not be appropriate?
   a. Increasing the productivity of workers.
   b. Decreasing aggregate demand in the economy.
   c. Increasing government spending in the economy.
   d. Increasing savings in the economy.

8. Which of the following would reduce Australia's foreign debt?
   a. An increase in the Commonwealth budget deficit.
   b. An increase in the level of foreign investment into the Australian economy.
   c. An increase in the current account deficit.
   d. An increase in the rate of domestic saving.

9. The largest component of Australia's foreign debt is
   a. interest payments to overseas lenders.
   b. borrowing by the government sector.
   c. borrowing by the private sector.
   d. borrowing by the household sector.

10. An increase in foreign debt could be viewed as advantageous for an economy if
   a. the borrowing raises the country's level of consumption.
   b. the borrowing is used to retire previous debt.
   c. the borrowing increases a country's productive capacity.
   d. the borrowing is used to pay the welfare costs of a recession.

11. If Australia runs a current account deficit, then this must be financed by
   a an increase in Australia's foreign debt.
   b an increase in Australia's foreign equity liabilities.
   c. either an increase in foreign debt or foreign equity.
   d. an increase in government borrowing.

12. Which of the following will reduce Australia's foreign debt if it is denominated in foreign currency?
   a. An appreciation of the Australian dollar.
   b. A worsening of the terms of trade.
   c. A slowdown in world economic growth.
   d. An increase in Australian interest rates relative to interest rates overseas.

13. Which of the following statements regarding Australia's net foreign liabilities is correct?
   a. Foreign equity is preferred to foreign debt because it is more flexible.
   b. Australia's net foreign liabilities are decreasing over time.
   c. Foreign debt does not require an income payment.
   d. Most of Australia's net foreign liabilities are in the form of net foreign debt.

14. Australia's net foreign debt exceeds its net foreign liabilities because
   a. Australia's net foreign equity has become larger than its net foreign debt.
   b. Australia borrows more funds from overseas than it lends.
   c. Australia records a financial account surplus.
   d. Australia now has a net foreign equity asset position.

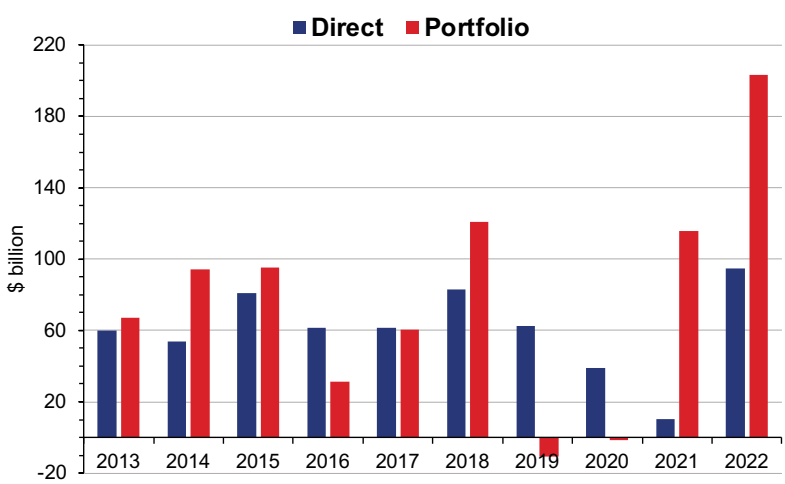
15. Which of the following is likely to decrease the level of Australia's foreign debt?
   a. A cyclical increase in the government's budget deficit.
   b. An increase in the domestic savings rate.
   c. A depreciation of the Australian dollar.
   d. An increase in the level of consumption.

Worksheet 2 - foreign investment

1. Define foreign investment and explain how it is different from domestic investment.
2. What forms can foreign investment take?
3. Why is Australia a net importer of capital?
4. Distinguish between direct and portfolio investment. Give examples of each.
5. What are the benefits of foreign direct investment; of portfolio investment?
6. Explain the link between foreign investment, foreign ownership and foreign debt.
7. Explain the difference between the flow of foreign investment in any one year and the level or stock of foreign investment.
8. What proportion of the total stock of foreign investment is made up of borrowing; of equity?
9. Who are the main source countries of foreign investment into Australia?
10. Which industry attracts most foreign direct investment?
11. What factors attract foreign investment to the Australian economy?
12. Outline the benefits and costs associated with foreign direct investment.

Data interpretation

Refer to the graph below showing the flow of foreign investment into Australia.



Questions

1. Distinguish between foreign direct and foreign portfolio investment.
2. Provide an example of direct investment and portfolio investment.
3. What was the value of direct and portfolio investment in 2022?
4. Which type of foreign investment is usually more volatile? Explain why.
5. Outline two factors that would cause an increase in direct investment?
6. Outline two factors that cause an increase in portfolio investment?
7. In which years did direct investment exceed portfolio investment?
8. Describe and explain the change in foreign investment after 2020.
9. Explain why direct investment is viewed as more beneficial to the economy than portfolio investment.

Economics in the news

Australia 'better off' with large foreign debt

A Queensland economist says Australia's expanding foreign debt is boosting national income. Griffith University economist Tony Makin says the national debt has been put to good use by helping to expand productive capital stock. Professor Makin says foreign investment has generated billions of dollars over the past decade. "The servicing costs on the foreign debt is less than the extra production (GDP) that it generates, so that's making us better off," he said. "The capital inflow over the past 10 years has generated about an extra $100 billion worth of national income." He says Australia's foreign debt has now increased to over $1,100 billion due to the inflow of foreign investment.

Concerns about growing foreign debt

In 2022 Australia recorded a current account surplus with falling net foreign liabilities. Despite this, Australian was still in hock to the world, with the nation's net foreign liabilities equal to 37 per cent of the economy's yearly output. Foreign ownership ... brings in foreign capital, foreign innovation, foreign management techniques, world's best practice, but ... there's also a negative side - the fact that you always have to pay back profits and dividends to overseas owners and that will increase the income deficit.

Foreign debt & the current account

Why do the media get so excited about Australia's foreign debt? If Australia records a trade deficit (where the cost of imports exceeds the receipts from exports), then when added to the interest and dividends paid to foreigners you will get a deficit on the ''current account'' of the balance of payments. Although in recent years, Australia has been recording large trade surpluses which has reduced the current account deficit and for the years 2020-2022 actually pushed it into a surplus. When Australia records a current account deficit it has to be financed either by borrowing from foreigners (foreign debt) or by foreigners investing in the ownership of Australian businesses (foreign equity). Foreign savings flowing into Australia equates to the financial account surplus. Over time, the accumulation of current account deficits increases the stock of foreign liabilities. All of Australia's liabilities are now in the form of debt. Who owes this debt? The Australian economy - some of it is owed by individuals, some by the government, but most of it is owed by the business and financial sector – large companies and banks. Should we be worried? No, Because Australia has always 'imported' foreign savings to supplement our small pool of domestic savings. This means that Australia has always relied on foreign investment to develop our resources and industries.

Questions

1. Why is Australia 'better off' with foreign debt?
2. Explain the link between the current account balance and the level of foreign debt.
3. Why does Australia normally record a current account deficit?
4. Why will a current account surplus result in falling net foreign liabilities?
5. Why does foreign investment increase the income deficit in the balance of payments?
6. How is a current account deficit financed?
7. What are the positives of foreign investment?
8. Why do some analysts see an increase in the foreign debt as a problem but others see it as a benefit?
9. Who owes Australia's foreign debt?
10. Australia's net foreign debt is now over $1,100 billion. Should we be worried?

Foreign direct investment

Australia accesses foreign saving through either borrowing (debt) or greater foreign ownership of Australian business (equity). For official measurement purposes, Foreign direct investment (FDI) is regarded as an equity interest of 10 per cent or more in an enterprise. It is important not to confuse FDI with investment. The latter reflects expenditure associated with the creation of new fixed assets (both related to equipment and machinery and to buildings and infrastructure).

FDI can be directed towards the purchase of existing or new assets and the resultant expansion of the physical capital stock. Total foreign investment usually makes up between 10 and 20 per cent of all investment in Australia. Foreign direct investment is a relatively small source of funds - accounting for around 8 per cent of total fixed capital expenditure. The most important characteristic of FDI — which distinguishes it from foreign portfolio investment — is that it is undertaken with the intention of exercising control over an enterprise in another country.

The key benefits of FDI relate directly to the advantages possessed by the foreign direct investing enterprises. Key benefits associated with FDI, apart from the flow of capital itself and the wealth and jobs it creates, include:

- Improvements in management, product design, adoption of new technologies
- Increased likelihood of re-investment
- Improvements to export propensity

As a large, resource rich country with relatively high demand for capital, Australia has, for over two centuries, relied on foreign investment to meet the shortfall of domestic savings against domestic investment needs. Foreign capital has allowed the Australian people to enjoy higher rates of economic growth, employment and a higher standard of living than could have been achieved from domestic savings alone. Foreign direct investment is normally regarded as amongst the most stable forms of capital inflow because it generally involves a substantial commitment from the investor in acquiring business facilities and hiring staff, whereas debt finance and portfolio investment can be recalled relatively quickly. Also the return to direct investment is dependent on profitability unlike debt finance where the capital and interest must generally be repaid, regardless of performance.

FDI brings with it increased competitiveness, through exposing local management to international standards and best practices, and through technological benefits associated with the establishment of new businesses, or the modernisation of old ones.

Article

The questions refer to the excerpt on foreign direct investment above

1. How does Australia access foreign saving?
2. Clearly explain the difference between FDI and domestic investment.
3. What proportion of total fixed capital expenditure is accounted for by FDI?
4. Why does Australia rely on foreign investment?
5. Why is FDI regarded as one of the more stable forms of capital inflow?
6. Outline some of the benefits of FDI.

Multiple choice 2

1. Foreign investment is considered desirable for the Australian economy because it reduces
   a. Australia's reliance on domestic savings.
   b. the stock of investment funds held overseas.
   c. the competitiveness of overseas based firms.
   d. Australia's budget deficit.

2. If the level of foreign investment in Australia increases relative to Australian investment abroad then
   a. the level of Australia's foreign debt must increase.
   b. Australia must sell assets to foreigners.
   c. the capital and financial account surplus in the balance of payments must increase.
   d. the Australian dollar will depreciate.

3. Foreign investment in Australia covers transactions which
   a. increase or decrease Australia's foreign financial assets.
   b. increase or decrease Australia's foreign liabilities.
   c. increase or decrease Australia's foreign debt.
   d. increase or decrease Australia's level of international reserves.

4. Increased direct foreign investment in the Australian iron ore industry would be recorded initially in Australia's balance of payments as a
   a. debit in the net incomes account.
   b. credit in the current account.
   c. credit in the capital account.
   d. credit in the financial account.

5. Which of the following is most likely to increase the level of Australia's foreign debt in the short term?
   a. an appreciation of the Australian dollar.
   b. a fall in the proportion of income saved by households.
   c. an increase in the Federal Government budget surplus.
   d. a fall in the current account deficit.

6. One major disadvantage of portfolio investment is that it can
   a. lead to a depreciation of the currency.
   b. result in a deficit on the financial account.
   c. be speculative and destabilising.
   d. reduce the level of direct investment.

7. An important difference in meaning between 'foreign investment' and 'investment' is
   a. investment increases the productive capacity of the economy whereas foreign investment is purely speculative.
   b. foreign investment is a flow of funds which may be used to finance investment.
   c. foreign investment is affected more by interest rates than investment.
   d. investment is the purchasing of capital goods whereas foreign investment is the purchasing of assets.

8. In the short term, a rise in real interest rates in Australia could be expected to, ceteris paribus,
   a. cause increased levels of overseas investment in Australia and an appreciation of the AUD.
   b. cause increased levels of overseas investment in Australia and a depreciation of the AUD.
   c. cause decreased levels of overseas investment in Australia and a depreciation of the AUD.
   d. have no effect on the levels of overseas investment in Australia or the exchange rate.

9. Foreign investment differs from foreign debt as
   a. foreign debt involves a foreign entity gaining greater than 10% of the ownership of an Australian firm.
   b. foreign investment is recorded on the capital and financial account whereas foreign debt is recorded on the current account.
   c. foreign investment is more likely to be associated with the transfer of new technology and management practices.
   d. foreign investment is less likely to result in a loss of ownership of Australian resources.

10. The largest type of foreign investment in Australia is _____ while the most beneficial type of foreign investment is _____ .
    a. portfolio; direct.
    b. direct; portfolio.
    c. portfolio; financial derivatives.
    d. direct; reserve assets.

11. Foreign investment is a benefit to the Australian economy because it
    a. increases the level of net foreign liabilities.
    b. allows Australia to make up the shortfall in domestic savings.
    c. reduces interest payments in the income category of the current account.
    d. leads to a depreciation in the currency.

12. _____ investment is the flow of funding provided by an investor to establish or acquire a foreign company or to expand or finance an existing foreign company that the investor owns or controls.
    a. International portfolio.
    b. International capital.
    c. Foreign direct.
    d. Foreign indirect.

Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. What are Australia's foreign liabilities? Explain why they occur and how they are linked to the balance of payments. [20 marks]

2. a. Define the term 'foreign investment'. Explain why foreign investment is important to the Australian economy. [10 marks]

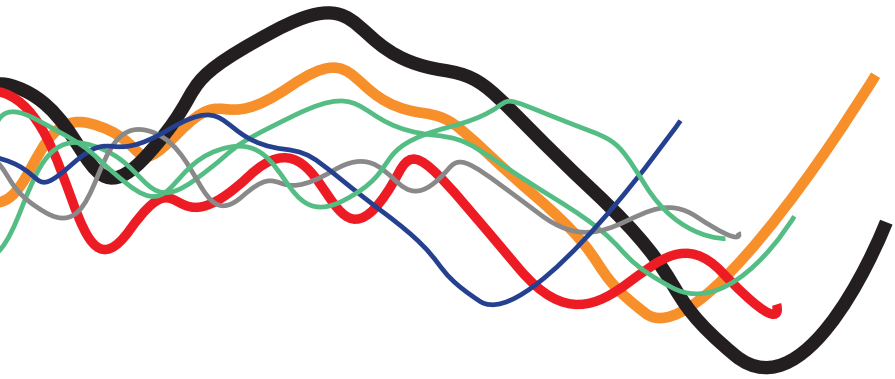
   b. Identify and discuss the factors which influence the level of foreign investment in Australia. [10 marks]

3. a. Describe the extent of, and recent trends in Australia's foreign direct investment and foreign debt. [10 marks]

   b. Discuss the benefits and costs of foreign direct investment and foreign debt to Australia. [10 marks]

4. a. Distinguish between Australia's foreign assets and foreign liabilities and explain why Australia has a relatively high level of net foreign liabilities. (10 marks)

   b. What is foreign direct investment? Evaluate the benefits and costs of foreign direct investment to the Australian economy. (10 marks)

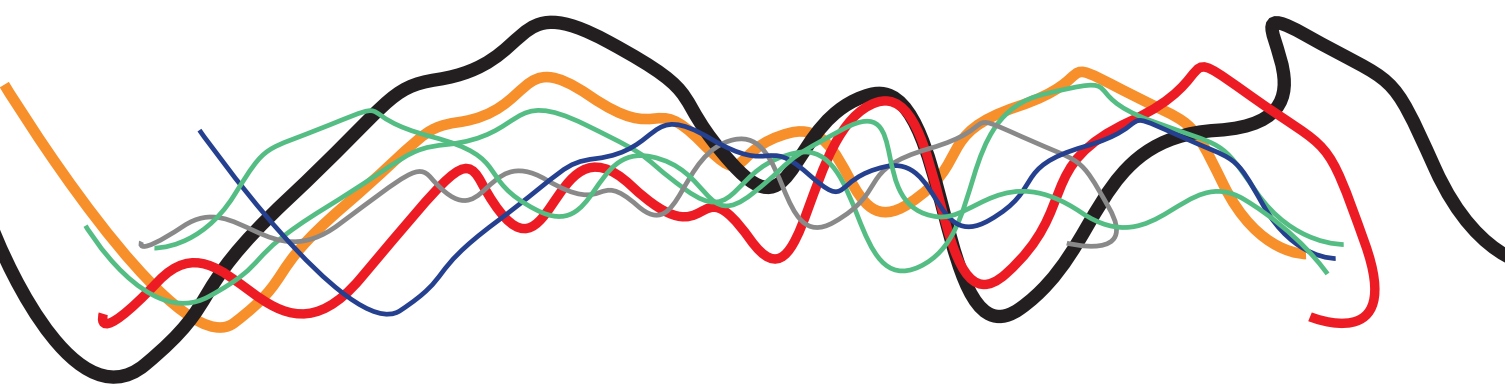


8

The business cycle

Chapter concepts

- *an introduction to macroeconomics*
- *the concept of the business cycle*
- *the business cycle phases and causes*
- *the business cycle and economic indicators*
- *analysing macroeconomic events*



What is macroeconomics?

Macroeconomics is the study of the performance of the economy as a whole, and the policies used to improve that performance. In studying macroeconomics, economists:

- collect a range of data that describe the state of production, expenditure and income in the economy at any point in time;
- use economic concepts to interpret the data to describe and explain trends in economic activity; and
- suggest policy measures to improve economic performance in both the short term and the long term.

Macroeconomics should be distinguished from microeconomics, which studies the behaviour of individual economic agents (households and firms) and sectors of the economy.

The relevance of macroeconomics

Articles about the economy appear daily in the media. They often refer to news about inflation, unemployment, economic growth, monetary policy, interest rates, and the like. The following excerpts are from media releases and commentaries over the last thirty years.

- "The economic climate will remain tough for the first half of 1991, as job losses depress spending. However, some signs of a modest recovery should be present by year's end." *(ANZ Business Indicators, February, 1991).*
- "Continued growth in employment and real wages should underpin further expansion in disposable incomes and consumption, although not at the high rates of 1994–95" *(Reserve Bank Bulletin, January, 1996).*
- "The world economy is now expected to grow by around 2 per cent in 2001, down significantly from 3 per cent expected at Budget, and down sharply from the 4.7 per cent growth recorded in 2000. This would be the lowest global growth rate since the early 1990s. World economic growth is expected to recover during 2002, to be 2 per cent, rising to 3 per cent in 2003". *(Treasury pre-election fiscal outlook, October 2001).*
- Domestic economic data in recent months have signalled a pick-up in the pace of growth in demand and activity. Capacity utilisation is high after a lengthy period of expansion, and unemployment over recent *months has declined. Business and household confidence are strong. (Reserve Bank of Australia, Media Release, 8 August 2007).*
- "There is now a slew of evidence pointing to an economic slowdown. For businesses, the symptoms of weakening growth included falling profitability

Economic skills

Investigation - macroeconomics and your family

Ask older members of your family about their standard of living when they were your age. For example, you could ask questions like 'How many rooms did the house have?; How many TVs were in the house?; Did the car have a sound system?'
Then ask the same people questions about the economy, such as 'What is Australia's GDP?'; 'What is the current inflation rate?', 'What is the current employment rate?' 'Is the state of the economy better this year than last year?' and even 'Do you think government debt is too high?' Record their answers and reflect on them as your course progresses.

and heightened gloom about trading prospects, according to one gauge of sentiment released yesterday." *(Jacob Saulwick, Signs of a slowing economy, Sydney Morning Herald, 13 March 2008)*

- "Real Gross Domestic Product (GDP) declined 1.4 per cent in the first quarter, the largest quarterly decrease since 1991. Both domestic and international demand continued to weaken. Real GDP fell 0.3 per cent in March. The declines in February and March were less pronounced than those in the preceding three months". *(Statistics Canada web site accessed August 2, 2009)*
- "Recent CPI data had confirmed that inflation was likely to remain low for some time. While prospects for growth are positive, there is room for stronger growth, which could be assisted by lower interest rates. (*Reserve Bank Board minutes, 2 August 2016).*
- "We are projecting a modest improvement in global growth to 3.4 percent in 2020, another downward revision of 0.2 per cent from our April projections. However, unlike the synchronized slowdown, this recovery is not broad-based and remains precarious". (*Gita Gopinath, IMF Blog, October 15, 2019*)
- "The coronavirus remains first and foremost a very major public health issue, but it is also having very significant effects on economies and financial systems around the world". (*Statement by Philip Lowe, Reserve Bank Governor: Monetary Policy Decision, 7 April, 2020).*
- "Inflation in Australia is the highest it has been since the early 1990s. In headline terms, inflation was 6.1 per cent over the year to the June quarter; in underlying terms it was 4.9 per cent. Global factors explain much of the increase in inflation, but domestic factors are also playing a role". (*Statement by Philip Lowe, Reserve Bank Governor: Monetary Policy Decision, 2 August, 2022).*

These excerpts show that economic conditions change over time – sometimes rapidly. As we are all participants in the economy (as buyers, sellers, borrowers, savers, employers, employees and taxpayers) it makes sense that we should try to understand these changing conditions.

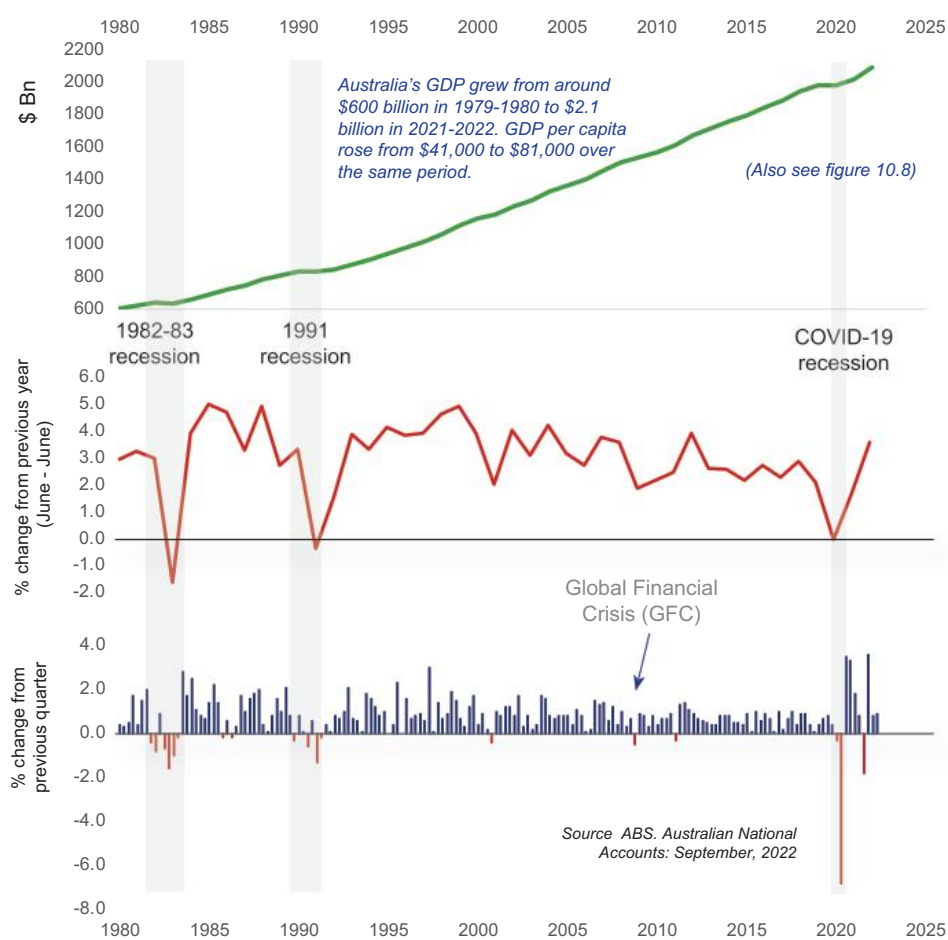
Macroeconomic trends and cycles

In the long term, economic growth is the key objective for the economy, because it enables people to enjoy a higher standard of living. The economy grows when more resources become available, or as available resources are used more efficiently.

Figure 8.1 charts Australia's Real Gross Domestic Product (GDP) between 1980 and 2022. From $605 billion in 1979–80, the size of the economy grew to $2.09 trillion in 2021-2022 (top panel). Over the whole period, the average rate of economic growth was 3 per cent per annum. This panel also reveals a characteristic of developed economies such as Australia – economic growth follows a slow upward path, but does not occur at a constant rate. Sometimes it is faster, sometimes slower.

Figure 8.1 GDP: Australia 1980 – 2022

The green line shows Australia's GDP in constant prices between June 1980 and June 2022. The red line describes the annual rate of growth in real GDP; the blue columns describe quarterly growth. Over the whole period, the average rate of economic growth was 3 per cent per annum. Australia's three recessions are indicated by shaded columns.



The middle panel shows the annual rate of change in real GDP. It provides a more detailed picture of changes in the level of economic activity. In seven of the years in the period 1980 to 2022, real rates of economic growth exceeded 4 per cent. As shown by the shaded areas, there were also years in which real growth was negative. In 1983 and 1991, Australia's GDP fell by 1.6% and 0.3% respectively. In 2020, the annual rate of growth was zero.

The lower panel is a more detailed (quarterly, or three-monthly) view of growth rates over the same period. It reveals 12 quarters in which growth was above 2 per cent, and 18 quarters of negative growth between June 1980 and June 2022.

Between the end of the 1991 recession and December 2021, the Australian economy enjoyed a long period of economic expansion. Annual growth rates were above 3 per cent in 15 of those years, with just three quarters of negative growth. For the latter half of the 2010s, however, economic growth was quite sluggish. Quarterly rates averaged 0.5 per cent, and annual rates just 2 per cent! The onset of the COVID-19 pandemic in early 2020 resulted in the first recession in Australia since 1991.

Taken together, the three panels in figure 8.1 show that (a) the economy grows slowly over time, and (b) the path of growth is not smooth. The concept describing these fluctuations in the level of economic activity and rate of growth is called the 'business cycle'. Chapters 8 – 10 describe the business cycle, explain its causes, and discuss the economic theory that has been developed to analyse it.

The business cycle

The business cycle is the term used to describe the short-run fluctuations in expenditure, output and income that occur around an increase in real GDP over the long run.

Figure 8.2 shows a typical business cycle model. The y-axis represents real GDP. The upward sloping (green) line represents the long-term growth that results from increases in population and the labour force; the stock of capital equipment; technological change and improving productivity.

The red line depicts a regular cycle of contraction and expansion. Typically, the cycle is described as having two phases and two turning points:

- the expansion or upswing phase;
- the upper turning point (the peak of the cycle);
- the contraction or downswing phase; and
- the lower turning point (trough)

The characteristics of each phase of the model are described below.

Expansion

The expansion is a period during which real GDP is increasing. It is associated with an increase in production (output of goods and services), which results in

The model describes the phases of a recurring cycle in economic activity, around a long term growth trend.
Real GDP expands until it reaches a peak (upper turning point) of the cycle. until The contraction is a period of declining GDP.

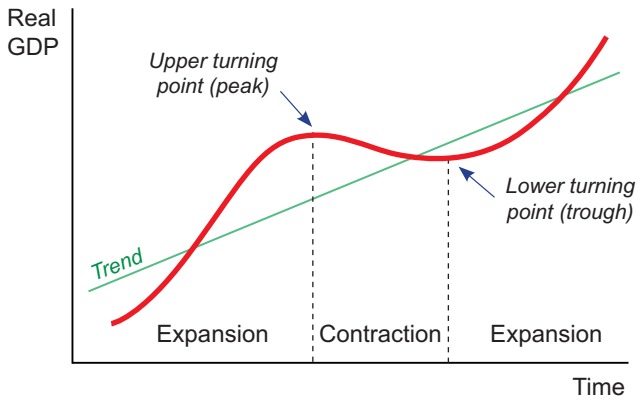


Figure 8.2 The Business Cycle model

greater use of productive factors such as labour; more wages (in aggregate) and higher levels of spending. The expansion phase of the cycle features some typical characteristics:

- rising business investment in the capital equipment needed to produce goods and services;
- rising levels of household consumption spending, particularly on discretionary items;
- confidence in household and business sectors;
- higher business profitability;
- relatively high utilisation of productive capacity;
- increasing labour market participation; and
- falling cyclical unemployment.

The average rate of growth in an expansion in a developed economy is generally about 3 per cent per annum (0.75 per cent each quarter), but this may be faster (in which case it could be called a 'boom') or slower. As long as real GDP is rising, the term expansion is used.

Peak

The expansion phase can't last forever, as economic activity is limited by the economy's productive capacity – how many workers there are to make the products, how many consumers there are to purchase them; how much capital equipment is available for workers to use; and how productive they are. The level of economic activity will reach a peak (upper turning point). As the cycle peaks, the increases of income, output and expenditure that characterised the expansion start to level off. Optimism gives way to uncertainty, and households and firms adjust their expectations about the future and reduce their planned spending. Inventories (stocks of goods that have not sold) rise – a signal that firms should cut production.

Contraction

The contraction is the period during which real GDP is falling. Businesses record a fall in sales, and respond to this reduction in demand by producing fewer goods and services. As a result, the use of productive inputs falls. Unemployment rises, household incomes fall and spending on goods and services declines. The business cycle model also uses the term 'recession' for the period of economic contraction, but, as explained in the sidebar, the term recession is often reserved for times when there has been two successive quarters (three-month periods) of negative real growth.

Downturn, contraction or recession? The 'r' word is meant to convey a serious downturn in the economy, but not a depression! A popular view is that a recession exists when there have been two consecutive quarters of negative economic growth. There are alternative views, one being that a recession is a 1.5 percentage point lift in the unemployment rate within a twelve month period. This could be a more meaningful definition because unemployment figures show the real impact of an economic downturn.

Contractions are characterised by:

- rising levels of cyclical unemployment;
- reduced company profits;
- lower sales of consumer durables;
- lower levels of consumer and business confidence;
- stable, or sometimes lower, prices;
- higher savings rates; and
- lower interest rates.

The trough

Periods of contraction tend to be relatively short and sharp compared to periods of expansion. The lower turning point marks the end of the contraction and the start of a new growth period. This may feature firms replacing or updating worn-out capital equipment, in which case investment spending resumes. Businesses might undertake product and process innovation (new products and more efficient processes) to stay in business, attract buyers and gain a 'competitive advantage' over their rivals. The level of economic activity and confidence gradually rises as the economy starts to expand again. In modern economies, the end of the contraction could also be supported by fiscal and monetary policy (see later chapters).

Real business cycles

The business cycle model depicts a fairly smooth and regular transition from one period of the cycle to another. This is unlikely to be true in the real economy, where fluctuations in economic activity vary both in terms of the length of the phases, and their amplitude (the height of the boom or depth of the trough). This is evident from figure 8.1. The 1982-83 recession had six quarters (out of seven) of negative growth, after which 23 of the next 25 quarters recorded increases in real

GDP. Annual growth was very strong (around 5 per cent in 1985 and 1988) before the economy entered another recession in 1991.

A deep 1991 recession was followed by a very long period of economic growth in Australia. Although there were one-quarter slowdowns in December 2000, December 2008 and March 2011, Australia had 29 years of consecutive growth until the pandemic struck in 2020. To that date, this was the longest uninterrupted run of economic growth in the developed world.

The worldwide pattern was somewhat different, with recessions in many countries in 1990-2000 and again during the Global Financial Crisis (GFC) in 2008-2009. Australia avoided a recession in both periods, although there was a one-quarter slowdown in each. Interestingly, the world growth path conforms quite closely to the regular 7-9 year fluctuations described by the business cycle model.

Explaining the business cycle

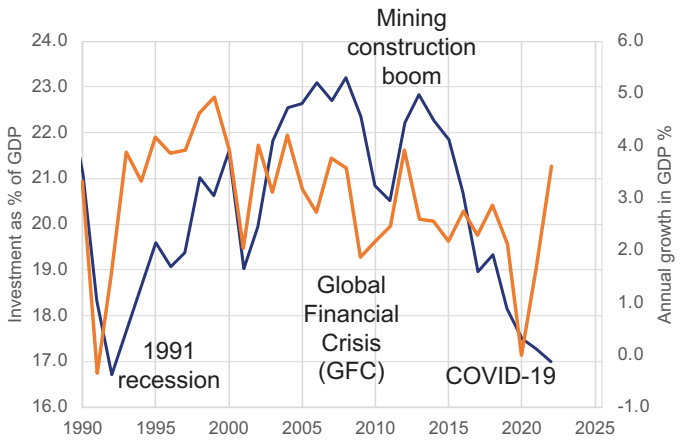
What causes these cyclical fluctuations in economic activity?

One explanation is that cycles are 'endogenous' (they have an internal cause). This means that some types of spending in the economy are likely to rise and fall themselves over time.

An example is business investment. Investment is expenditure on equipment that businesses use to assist labour in production of goods and services (i.e. capital equipment). Investment decisions are essentially driven by two things – current and expected profitability, and the cost and availability of the funds used for capital spending. When household spending is rising, firms invest to take advantage of expected sales and profits. New investment expands the economy through the multiplier effect (see chapter 9). Investment will fall however when businesses have enough equipment to handle anticipated demand in the future. When that point is reached, there are fewer opportunities to profitably employ more capital equipment. Over-investment gives way to under-investment until the capital equipment built in expansion is worn out (depreciated) and requires replacement. Investment fluctuations partly occur because capital equipment lasts for a long period of time.

A link between investment and the business cycle seems to be borne out by figure 8.3, which shows a close relationship between business investment in Australia, shown here as a proportion of GDP (blue line, left scale) and changes in real GDP (orange line, right hand scale).

Another example of an endogenous influence on the business cycle is that households and businesses take on more debt in a period of economic expansion because they expect that the value of assets such as property and shares will rise. Eventually however, the debt burden becomes excessive, so households and businesses cut back their spending and increase savings to reduce debt. Saving more is 'good' for an individual household, but if all households save more, aggregate spending must fall.



Source: ABS Cat 5206 (derived)

This chart describes a close relationship between business investment (blue line, left scale) and changes in real GDP (orange line, right scale).

Figure 8.3 Investment expenditure and GDP

Another explanation for business cycles is the impact of 'exogenous' shocks (outside influences) on the economy. Such shocks could be positive or negative, and are 'random' in nature. Examples of negative shocks include climatic events (good seasons and bad seasons, floods and droughts); geopolitical events; and the epidemics / pandemics that affect community health. These shocks disrupt production, employment, income and prices throughout the economy.

The mining construction boom a decade ago could be regarded as a positive shock because so much capacity was developed in a short period of time to satisfy unexpected overseas demand for iron ore and gas. Perhaps climate change will act as a positive shock in the near future, because huge investment is required to reduce atmospheric warming.

Economic indicators

So what phase of the cycle best describes the economy in at the minute? Is the economy expanding or contracting? Are business conditions good enough for firms to purchase new equipment or take on more employees? Is it a good time for households to borrow money to build an extension, or perhaps build a new house with that all-important home theatre? Information about the current state of the economy is important for many household, business and government decisions. Reflecting that, there is an army of professional economists and statisticians employed in collecting and analysing data about the state of the economy. They maintain large datasets that allow them to discover trends, uncover relationships, and make forecasts about the future. These datasets are often sourced from statistics published by government institutions such as the Treasury; Reserve Bank of Australia; Australian Bureau of Statistics; the Department of Foreign Affairs and Trade (DFAT); and the Productivity Commission. Private organisations also collect economic data to provide advice to their clients. Examples include:

- economics departments in banks, advisory firms and universities;
- industry bodies associated with real estate; construction; mining and automotive sectors; and

Gross Domestic Product (GDP) is the most accurate indicator of the state of the economy, because it is the primary aggregate measure of output. There are many narrower (or partial) indicators of economic activity, examples being:

- the Consumer Price Index (CPI);
- average weekly earnings (AWE);
- business hiring intentions;
- labour force statistics such as participation and unemployment;
- business spending on capital equipment (i.e. investment);
- motor vehicle registrations;
- building approvals;
- industrial and agricultural production;
- interest rates;
- levels of public and private debt;
- tourism data (such as hotel occupancy rates and tourist arrivals);
- exchange rates; and
- stock market indices such as the ASX All-Ordinaries Index.

Some, such as hiring intentions, are based on surveys of firms and households. Questionnaires yield important data, as they may report reasons behind trends.

Most data collection involves time lags. Even GDP data suffers a lag between the collection and publication of data. The GDP/National Accounts data for the June quarter of 2022, for example, was published in the ABS national accounts released on September 7 of that year.

Economic indicators are often classified according to whether they are 'leading', 'coincident', or 'lagging'. These terms refer to the timing of the relationship between changes in the indicator and changes in the overall level of economic activity (see figure 8.4). Thus we expect trends in leading indicators to predict a trend in the business cycle several months down the track.

Coincident indicators appear to move in-line with the level of economic activity, like manufacturing output; production of building materials; sales of consumer durables; retail sales; and the growth of GDP.

Lagging indicators are not expected to show any change until after trends in the rest of the economy have been confirmed. Lagging indicators thus reflect events that occurred some time in the past. Examples are changes in labour markets; savings bank deposit levels and consumer debt levels.

Economic indicators		
Leading indicators	**Coincident indicators**	**Lagging indicators**
Share prices Building approvals Levels of stock (inventory) held by retail firms Manufacturers' new orders Business and consumer confidence Consumer expectations New employment vacancies New business start–ups	GDP Manufacturing output Sales of consumer durables Production of building materials Retail sales Job advertisements Motor vehicle sales Money supply Capacity utilisation	Interest rates Consumer debt Unemployment rate Bankruptcies Inflation rate (CPI)

Figure 8.4 Examples of economic indicators

Recent macroeconomic conditions

In this section, we review Australia's recent growth record, concentrating on the years 2014-2022. The period was characterised by

- sluggish economic growth between 2014 and 2019 (representing a continuing hangover from the GFC in 2008-2009);
- the COVID-19 pandemic and the associated sharp recession and recovery; and
- the economic fallout from geopolitical tension, especially the Russian invasion of Ukraine.

Australian economic growth in the period between 2014 and 2019 averaged just 2.4 percent – weaker than the long term (1980-2022) average of 3.0 per cent. In per capita terms, the economy went backwards in three consecutive quarters in 2018-2019. World economic growth was also sluggish over the 2014-2019 period, although it showed signs of picking up in late 2019. Part of the explanation for sluggish growth over that period is that the global financial crisis (GFC) in 2008 left long-lasting scars on the economy. The GFC could be regarded as an example of the debt cycle we discussed earlier.

The GFC of 2008-09 is regarded as an example of a credit cycle recession (borrowing, exhuberance, debt) brought about by excessive real estate investment and the securitisation of debt, especially in the US, during the 1990s and 2000s.

Business investment was very strong in the mid-2000s (peaking at 22 per cent of GDP). Mining investment reached a high of 8 per cent of nominal GDP in 2013, compared to its long-term average of 3 per cent. But mining investment is 'lumpy'. Large sums can be spent in the project development and construction phase, which may last two to three years. Investment then drops off when construction is complete and projects shift to their operational phase.

Non-mining investment was lower than average, possibly explained by rise in the terms of trade and appreciation of the Australian dollar that were the result of overseas demand for minerals. Currency appreciation reduced the competitiveness of the domestic economy (especially manufacturing and tourism).

Reflecting slow growth, inflation in most of the developed world was low, and there were concerns in some countries about the possibility of deflation late in the decade. Several countries in Europe had negative interest rates over the period 2015-2019, and some applied 'unconventional' monetary policy measures to try to stimulate their economies.

In Australia, private sector growth until the end of 2019 was quite weak, with the annual growth in household consumption well below its 25 year average. Unemployment averaged over 5.5 per cent of the workforce in the later half of the decade, and underemployment reached 9 per cent in 2019.

Figure 8.5 charts Australian growth since 2014. The orange line shows quarterly GDP (in billions of dollars, left hand scale). The red dotted line shows the growth trend over the whole period, based on the quarterly average growth rate of 0.6 per cent. Blue columns show the quarterly change in GDP (in per cent, right hand scale). The graph shows that the onset of the COVID-19 pandemic in January 2020 was a significant negative shock to the economy. GDP fell slightly in the March quarter, and by a massive $34 billion (or 6.9 per cent) in the June quarter – the largest peace-time fall since the Great Depression of the 1930s.

The pandemic had a significant impact on both the supply and demand sides of the economy. Initially, the shutdowns and restrictions on movement necessary to contain the spread of the virus caused significant disruption to supply chains. The pandemic exposed the problems in the 'just-in-time' supply system which has characterised the latest era of globalisation. International air freight continued to operate, but capacity was limited because the passenger aircraft that also carry goods were grounded. The cost of transporting goods in sea containers rose by 50 percent on Australian routes because port activity around the world slowed to reflect COVID-19 protocols, and the manufacture of new containers could not keep up with demand. Agricultural producers relying on overseas workers could not get staff, and tertiary education (Australia's third largest export for most of the 2000s) lost nearly all of its new intake of students from overseas in both 2020 and 2021. Some commodity prices suffered fluctuations due to changes in demand and supply over 2020 and 2021. Oil prices initially crashed, then slowly returned to normal. The petrol price in Australia was below a dollar per litre in June 2020, but back above $1.50 twelve months later.

Two-thirds of Australian businesses reported lower demand for their goods and services in the first half of 2020; and one-third experienced cash flow issues. The burden was particularly high on sectors such as hospitality, travel and tourism. The majority of workers still had jobs, but fewer places to spend as many businesses were operating at reduced capacity, and travel bans were in force.

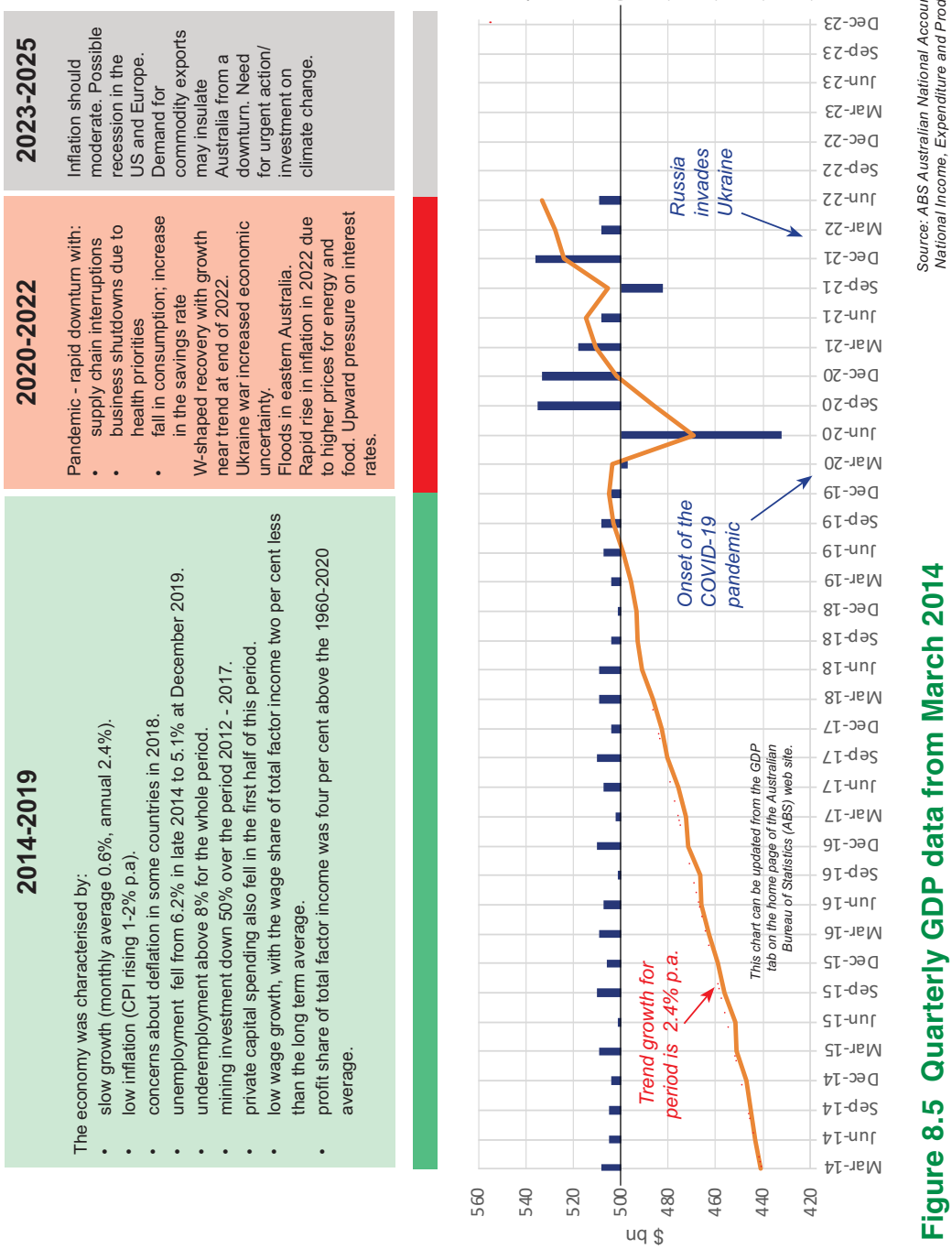


Figure 8.5 Quarterly GDP data from March 2014

Source: ABS Australian National Accounts: National Income, Expenditure and Product

Discretionary consumption fell 7.9 per cent in the first half of 2020, and the household savings ratio jumped from 5.4 per cent in 2018-2019 to 12.3 per cent a year later, and has been higher than that since (ABS, September 2022). In order to stay afloat, many firms 'pivoted' their business practices – restaurants, hotels and cafes survived by offering take-away service; retailers increased their on-line presence; schools switched to remote learning; and many businesses cut face-to-face office time and instead conducted their business through email and 'Zoom' meetings.

Four quarters of recovery followed in late 2020 and early 2021, but the delta variant of the virus caused further shutdowns in NSW and Victoria and another decline in GDP in the September quarter of 2021. The December 2021 quarter saw a very strong result (3.9%), and both the March and June quarters of 2022 were slightly better than trend. Perhaps the hardest outcome to explain in 2022 is the strength of the labour market. The official unemployment rate was just 3.4 per cent in July, and the underutilisation rate was below 10 per cent for the first time in many years. Many businesses complained of a lack of staff.

As figure 8.5 shows, the initial economic shock of the pandemic was followed by a W-shaped recovery to the trend growth path. The pandemic will have further consequences in the medium term. The supply of some types of skilled labour fell when jobs were idle. Zero migration over two years will have a long term impact on growth due to a shortage of skilled workers and lower population growth, leading to lower potential demand for several years.

Four million people received JobKeeper payments between April and July 2020 (RBA, 2020).

Many companies survived the pandemic with government support, but may not do so over the next few years as other pressures have emerged. Other pandemic-related changes such as the decline in office occupancy rates may also have an impact. Transport and hospitality sectors lost skilled and experienced workers and found it difficult to rebuild capacity (as evidenced by the air transport problems that emerged as the demand for travel returned). The economy still suffers some supply chain and illness problems in the workforce related to the Omicron variant of the virus, which is more easily transmissible, but less virulent.

Headline inflation rates - August 2022 (% p.a)	
Japan	2.6
Australia	6.1
Canada	7.6
USA	8.5
Euro area	9.1
UK	10.1
Russia	15.1
Turkey	80.0

Source: Trading Economics

The significant economic shock in 2022 was the Russian invasion of Ukraine in February. The war had a severe impact on production of goods and services in Ukraine, not to mention the dislocation and personal costs to those affected. Ukraine is a significant producer and exporter of wheat, corn, sunflower oil, fertiliser and timber. A range of economic sanctions applied on Russia impacted on the supply of oil and gas, on which much of Europe had been dependent. The resulting shortages and price increases fed inflationary pressure in Europe and around the world, and central banks raised policy interest rates to bring it under control (risking further slowdowns).

In September, the World Bank cut its forecast for world growth from 2.8 per cent to 2.2 per cent (and just 0.3 per cent in the Euro area).

To add to these shocks, Australia's east cost suffered several major flood events in 2021 and 2022. Floods cut production in key agricultural areas, forcing up the prices of food. They also disrupted activity in many key towns and cities, and may mean many residents face resettlement away from flood-prone areas.

Stresses on global supply chains are falling and there is a chance that shipping capacity will exceed global demand in 2023, leading to falling transport prices. Likewise, the supply-demand imbalance in the world semiconductor industry may be resolved in 2023, meaning normal production of all the machines and goods that contain chips will be restored, and prices could fall as sources of supply increase. On the other hand, gas prices have risen on world markets as Russia is a key supplier. Prices tripled in Europe between January and August, 2022 – presenting challenges for manufacturing industry, households and governments (feeling the pressure to cap prices for consumers). Prices are again forecast to rise in the European winter. Gas is an important input in the production of fertiliser, leading to forecasts of short supply and high prices to add further constraints to food supply.

How will international events affect the Australian economy? As figure 8.5 illustrates, the economy bounced back from the impact of the pandemic to be close to the trend rate of growth since 2014. Continuing inflation is a threat to growth because it has pushed up the cost of living for households, and the cost of productive inputs used by business, potentially leading to lower aggregate demand and greater uncertainty. But Australia is expected to benefit because it an exporter of many of the key commodities for which prices have risen, such as grains, gas, and coal. As at October, 2022, the terms of trade is above its levels during the mining boom. This suggests another period of rising national income (increased export revenues, employment and taxes) which might protect the economy from the downturn expected for most of the world economy.

Excerpt: Minutes of RBA Monetary Policy Meeting, October 2022.

Notwithstanding the easing in measures of headline inflation, core inflation remained high and was increasingly being driven by higher prices for services. Higher services inflation was a response to strong domestic demand and growth in labour costs running above rates that would be consistent with inflation returning to central banks' targets. Labour markets remained tight, with very high vacancy rates and unemployment rates back to or a little below their pre-pandemic lows.

Recent indicators continued to point to a further moderate softening in aggregate demand in advanced economies. Household consumption was growing modestly, with some switch back to spending on services and away from goods. Businesses' hiring and investment intentions remained at or above pre-pandemic levels. The recent cost-of-living policies announced by governments in Europe would help support economic activity and reduce some of the downside risks. The housing sector in a number of countries remained an area of weakness, reflecting rising interest rates.

Worksheet

1. Distinguish between the terms 'macroeconomics' and 'microeconomics'.
2. To what extent do you think macroeconomic events are relevant to you over the next few years, your parents; your grandparents? Find an article from Australian media that discusses a recent macroeconomic event that is relevant to your family. Explain its relevance.
3. The three panels in figure 8.1 are based on the same data. Describe the differences between the graphs? Which, in your opinion, gives the best representation of changes in RGDP?
4. Draw the model of the business cycle and describe its phases. What stage of the business cycle is the Australian economy currently going through, in your opinion? Explain your choice. What about the world economy?
5. Explain what leading, coincident and lagging economic indicators are. Provide three examples of each. Why do economists collect such data?
6. List three events that might act as an exogenous cause of an economic contraction.
7. Briefly outline the impact of the pandemic on employment and economic growth.
8. Why is the COVID-19 recession associated with both falls in aggregate demand and aggregate supply ?
9. How does the war in Ukraine affect the Australian economy? Could it create any opportunities for Australian business?

Australian car sales

The following table shows quarterly car sales (by total number of vehicles sold) in Australia for the period between 2018 Q1) and 2022 (Q2).

Year and quarter	Sales (original)	Year and quarter	Sales (original)	Year and quarter	Sales (original)
2018 Q1	291538	2020 Q1	233361	2022 Q1	262436
2018 Q2	313984	2020 Q2	209053	2022 Q2	275422
2018 Q3	275483	2020 Q3	202476		
2018 Q4	272106	2020 Q4	272077		
2019 Q1	265538	2021 Q1	263648		
2019 Q2	285928	2021 Q2	303820		
2019 Q3	256998	2021 Q3	248672		
2019 Q4	254403	2021 Q4	233691		

Source: Federal Chamber of Automotive Industries: Media releases (various issues)

1. Calculate the quarterly percentage change in sales, and graph your results over the period OR convert the sales data into an index number for each quarter (using the March quarter of 2018 [2018 Q1] as the base period). Explain why economists often convert original data to a rate of change, or an index number.
2. Suggest how this information may have been collected. Original data is often modified and shown as 'seasonally adjusted' or 'trend' data. Why would it be modified? Is there any evidence of seasonality in these figures?
3. Would car sales be considered a leading, coincident or lagging indicator of economic activity? Justify your choice.

4. Explain why this data series would be useful information for: a company importing car tyres; a retailer of car accessories; a bank; a transport planner in a state government; economists at the Reserve Bank of Australia (RBA).
5. On a scale of 1-5, with 5 being 'closest', suggest how closely the car sales data would be related to data on: consumer confidence; interest rates; electricity prices; fuel prices; furniture sales; job vacancies; and the rate of unemployment.

Economic indicators

Refer to the Trading Economics website at http://www.tradingeconomics.com. Select Indicators >Countries>Australia.

Select any five datasets from the list of Australian economic indicators. Navigate to the graphical view of each of your chosen indicators and select the '10 year' view. Describe trends in the indicators you have chosen. Cut and paste each of the graphs into a document or presentation. Make sure they cover the same time period. Do you note any similarities between the graphs? Suggest an explanation.

Now compare one or two indicators across a range of developed countries. Describe any similarities. Note that it is difficult to use data for developing countries, even China and India, because consistent high rates of economic growth at this stage of their economic development tend not to exhibit clear cyclical patterns.

Economic sentiment survey

Carry out an economic survey in your local area. Do the survey twice, asking the same people, with the second survey following the first by at least three months.

Stages in your research:

1. Define the purpose of the survey - in this case, you wish to find out whether people you are surveying feel confident about the short to medium term future. Because 'confidence' is very difficult to measure in absolute terms, you could measure 'confidence compared to three months ago'.
2. Write some questions which you believe will measure 'confidence'. You could test these by asking a small group of people and changing the questions which perform poorly. The best questions are unambiguous; invite replies which can be converted to numbers on a scale (e.g. 1 = definitely disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree); and take a short amount of time to administer and record. Perhaps you could include one or two 'open' questions at the end of your survey, to give respondents a chance to explain their expectations in more detail e.g. which type of spending would your be most likely to cut if household income fell by ten per cent?
3. Send your questions to a small sample of people (by email, or using a stamped, self-addressed envelope). Try to ask at least 50 people by allocating everyone in the class two or three surveys each. The sample should contain people or firms of different ages, occupations, backgrounds, places of residence etc. Ensure you follow appropriate ethical requirements, including giving an assurance to your respondents that their answers will remain confidential
4. Carefully collate and record all responses. Compile 'descriptive statistics' which describe the results (e.g. proportions in each of the five categories). Search for any relationships which appear to exist (e.g. 80 per cent of respondents who thought economic conditions would improve also expected lower interest rates).

Multiple choice questions

Choose the best alternative in the following questions.

1. Which of the following alternatives is NOT correct?
   a. Macroeconomics is the study of aggregate (total) levels of production, expenditure and income in the economy.
   b. In studying macroeconomics, economists describe trends in economic indicators, and seek explanations as to why they change from time to time.
   c. Macroeconomics is the study of the individual sectors of the economy.
   d. Macroeconomics includes the study of policy measures which can improve the state of the economy in the short term.

2. A recession is a decline in:
   a. the unemployment rate it it lasts six months or longer.
   b. real GDP that lasts six months or longer.
   c. potential GDP that lasts six months or longer.
   d. the inflation rate that lasts six months or longer.

3. Which of the following would be associated with a peak in the business cycle?
   a. inflationary pressure AND falling real GDP.
   b. rising employment AND business investment.
   c. increasing investment risk AND capacity constraints.
   d. a booming economy AND falling casual employment opportunities.

4. At the start of an upswing of economic activity, which of the following pairs of events would most likely be occurring?
   a. Falling employment AND rising interest rates.
   b. Improving business expectations AND rising private investment.
   c. Inflationary pressure AND excess capacity in manufacturing industry.
   d. A reduction in inventory levels (business stocks) AND high levels of consumption of durable goods (such as electrical goods).

5. Which of the following pairs of events are more likely in the early stages of a downswing in economic activity?
   a. Replacement of worn-out equipment AND inflationary pressure.
   b. Improved economic sentiment AND rising investment.
   c. Firms become uncertain about the future AND retail sales rise.
   d. Investment falls after previous increases in capital stock AND borrowers re-assess their credit limits.

6. Unemployment levels tend to:
   a. change before real GDP because they reflect business hiring plans.
   b. increase when GDP growth is above average.
   c. rise during the recovery phase of the business cycle.
   d. lag changes in the rate of change of GDP.

7. If GDP rose from $250 million to $258 million over a year, the annual rate of growth was:
   a. 0.8%
   b. 1.6%
   c. 3.2%
   d. 8.0%

Data interpretation 1

The questions refer to the chart at right. Source: ABS Building Approvals.

1. From the chart, estimate (a) the number of buildings that received approval (approval for construction) in December 2017, and (b) the percentage change in approvals between June, 2020 and March 2021. [2 marks]
2. Are building approvals a leading, coincident or lagging indicator? Explain [2 marks]
3. Refer to figure 10.6 in the text and comment on the relationship (if any) between private sector building approvals and economic growth. [2 marks]
4. Describe the trend in this data between December 2017 and December 2019, and explain the likely impact of that trend on employment, hours worked, the manufacture of building materials and applications for finance. [4 marks]

Data interpretation 2

The question refers to the economic data for a hypothetical economy presented in the table below.

Indicator	Real GDP	Unemploy-ment rate	Consumer price index	Current account deficit	Business investment
Unit	*$ bn*	*% labour force*	*Year 1 = 100*	*% of GDP*	*% of GDP*
Year 1	922	4.6	100.0	1.2	14.2
Year 2	943	5.3	102.8	0.6	14.3
Year 3	960	5.7	105.8	0.8	15.3
Year 4	998	5.4	110.6	-1.5	18.6

1. Calculate the rate of economic growth in Year 2; the inflation rate in Year 4; and the change in business investment in Year 3. [3 marks]
2. Explain the relationship, over the four year period, between EITHER economic growth and unemployment; business investment and growth; or inflation and unemployment. [4 marks]
3. Describe the performance of the economy over the four year period. [5 marks]

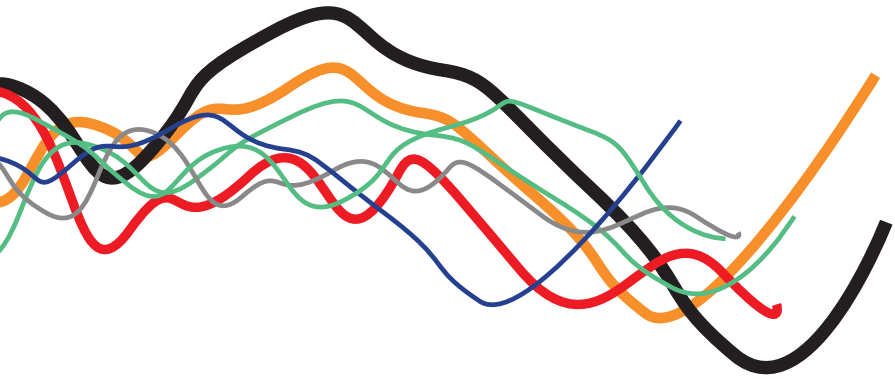
Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Describe the typical characteristics of the expansion phase of the 'business cycle? [12 marks]
   b. Explain why an economic expansion cannot continue indefinitely. [8 marks]

2. a. Describe, using examples, the role of economic indicators in understanding macroeconomic events. [10 marks]
   b. Referring to examples, discuss how economic indicators would be expected to change during the downswing phase of the business cycle. [10 marks]

3. a. Discuss the causes of the cyclical fluctuations that characterise the business cycle. [10 marks]
   b. Discuss the likely trends of TWO of the following economic indicators in the trough phases of the business cycle: business profitability; the level of imports and exports; retail spending; and the Australian government Budget outcome. [10 marks]

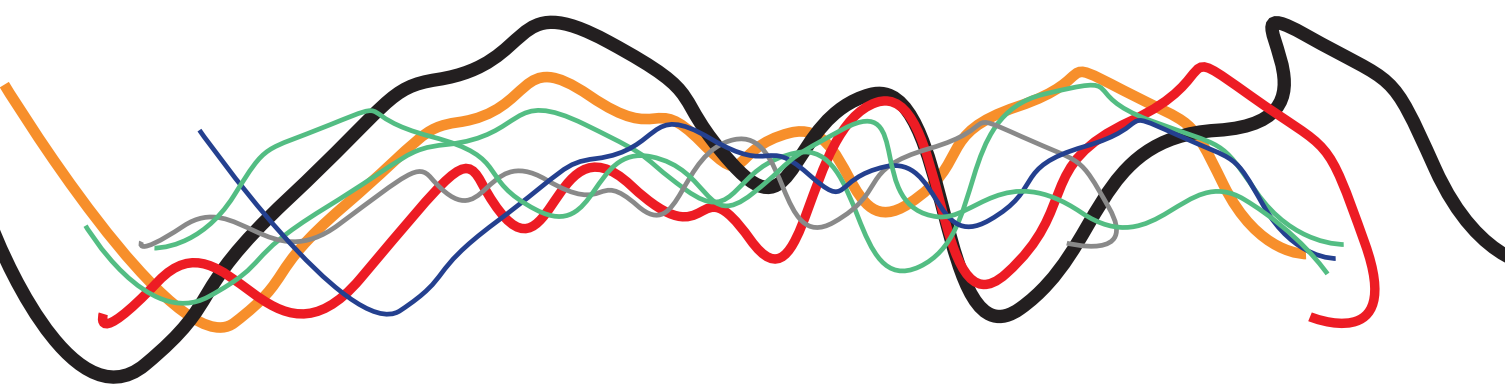


9

The aggregate expenditure model

Chapter concepts

- *the components of aggregate expenditure, and the factors affecting each of the components*
- *the relationship between income and consumption*
- *the concept of macroeconomic equilibrium*
- *the impact of changes in aggregate expenditure on the equilibrium level of output*
- *the multiplier process*



Introduction

Macroeconomics concerns the relationship between spending, output and income at the aggregate (whole economy) level. This chapter examines the role of spending in determining the level of production and income in the economy. Firstly, we outline the components of aggregate expenditure and examine the factors that affect each of them. We then develop the aggregate expenditure model (also known as the Keynesian aggregate expenditure model) that will help us to explain the concept of 'macroeconomic equilibrium', what happens when levels of spending change, and how these relate to the expansions and contractions associated with the business cycle.

Aggregate expenditure

Aggregate expenditure is the sum of all expenditure on final goods and services undertaken in the economy during a specific time period. It consists of consumption (household expenditure on final goods and services); investment (spending on capital equipment); government spending; and net exports (exports minus imports). We often use an equation:

$$AE = C + I + G + (X - M)$$

The components of aggregate expenditure

Australia's Gross Domestic Product in 2021-22 amounted to nearly $2.1 trillion dollars – $2,091 billion. The largest component of aggregate expenditure was consumption expenditure – household expenditure on goods and services. Consumption accounted for 53 per cent of the total ($1,103 billion). Consumption consists of:

- expenditure on non–durable goods;
- expenditure on durable goods; and
- expenditure on services.

Goods are tangible (they can be seen and touched). Non-durable goods are consumed shortly after purchase (technically, up to three years). This includes food, drinks, fuel, cosmetics, cleaning products, paper products, textiles, clothing and footwear. Much of this spending could be regarded as essential, as it satisfies the regular needs of most households. This means non–durable consumption spending is fairly stable over the course of time, typically accounting for about 35 per cent of total consumption expenditure.

As their name implies, durable goods last for a longer period of time – by definition, three or more years. Durable goods include white goods (large items such as washing machines, fridges, ovens); brown goods (light household items such as computers, audio equipment and televisions); furniture; sporting equipment; and motor vehicles. Spending on durable goods is often 'discretionary' (meaning it can be postponed or brought forward, depending on the individual household's

circumstances). Expenditure on durable goods is thought to account for about 15 per cent of aggregate consumption.

Services are intangible and provide transitory satisfaction of wants. Examples include education, transport, health, and household utilities. In modern economies, spending on services makes up the largest of the three slices of the consumption cake, accounting for approximately 50 per cent of all household expenditure. Some services are essential, such as education, health services and transport, while others are discretionary, such as spending on entertainment and leisure.

We could use the monetary (or current price) values of transactions to measure total expenditure at a point in time. This creates problems when comparing expenditure over time if the price level has changed (inflation). Because the ABS wants to measure the quantity of commodities produced or sold, and not changes in the prices of those items, it could apply 'constant price' or 'chain volume' measures to value production. It has used chain measures for over twenty years - unless otherwise stated, chain volume measures are used in this book.

In Australia, consumption spending averaged 56 per cent of aggregate expenditure (ranging between 49 to 60 per cent of the total) over the period 1980 - 2022 (see figure 9.2).

The second component of aggregate expenditure is private sector investment. Economists define investment as spending on new capital goods, and additions to inventories. A capital good is any item of machinery that is used to assist labour in the production process. Investment spending in the national accounts (gross private investment) is divided into three categories:

- business investment – privately funded business spending on capital goods used in production - equipment, machinery and buildings;
- housing investment – private expenditure on new housing; and
- inventories – unsold goods, sometimes described as 'stock'.

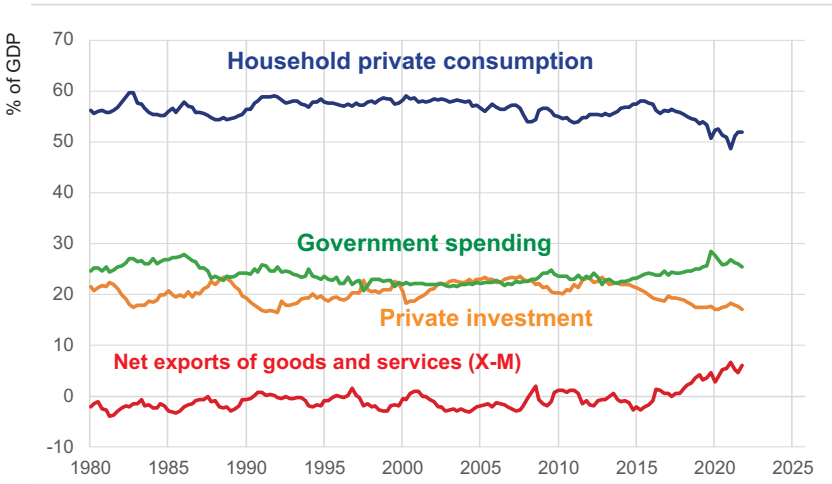
In 2021-22, private investment accounted for 18 per cent of aggregate expenditure in the Australian economy. Investment spending is the most volatile component

Figure 9.1 The components of aggregate expenditure

Component		Description
Consumption	**C**	expenditure on non-durable goods - food, clothing, petrol; expenditure on consumer durables - white goods, furniture, motor vehicles; and expenditure on services - doctors, plumbers, mechanics
Planned investment	**Ip**	planned business expenditure on new capital equipment - machines, factories, buildings, tools; and expenditure on new housing
Government	**G**	G1 current (consumption) expenditure which are part of the day-to-day functions of government; and G2 capital (investment) expenditure to provide for future needs such as schools, roads, power, communications
Net Exports	**X - M**	exports minus imports (goods, services and financial transactions)

On average, consumption spending accounts for 56 per cent of GDP; investment 20 per cent; government spending 24 per cent and net exports -1 per cent (figures rounded).

Investment shows greatest variability - minimum 16 per cent of AE, maximum 23 per cent.



Source: ABS, Australian National Accounts, Table 3 (author calculations)

Figure 9.2 Aggregate expenditure proportions 1980-2022

of aggregate expenditure. Over the last forty years, private investment has accounted for between 16 per cent and 23 per cent of Australia's GDP. As discussed in the last chapter, fluctuations in private investment spending are thought to be a key factor in explaining changes in economic activity over the course of the business cycle.

Government expenditure is the third component of aggregate expenditure. In 2021-22, total government spending in Australia amounted to $580 billion, which represented 27 per cent of aggregate spending. Government spending is made up of current spending (G1) and capital spending (G2). Current spending finances the day-to-day business of government such as wages and salaries, and purchases of goods and services. Capital expenditure is spending on public infrastructure such as power and water supply, public buildings, schools, roads, railways and communications networks.

Net exports (exports minus imports) is the final element of aggregate expenditure. Overseas purchases of goods and services produced in Australia is an export in Australia's national accounts, and adds to aggregate expenditure. Imports occur when Australian households, firms, and governments purchase goods and services from overseas. Imports are a withdrawal from the circular flow of income, and thus reduce the aggregate amount of expenditure on Australian goods and services.

Figure 9.2 reveals some interesting recent trends. Firstly, consumption as a proportion of aggregate spending has fallen since about 2016. This was exacerbated by the pandemic, when shutdowns affected normal buying patterns and household savings rose. Secondly, net exports have often been negative in Australia (that is, imports exceeded exports). In the last few years, however, net exports of goods and services (the trade balance) has been positive, and up to

6 per cent of GDP! Outbound tourism (normally Australia's largest import) was severely impacted by travel restrictions associated with COVID-19. The fall in consumption and investment spending also reduced the demand for imports. Thirdly, government spending rose, reflecting the economic support provided to households and businesses through policies such as JobKeeper.

This completes the brief description of the components of aggregate expenditure (AE). We now investigate the factors that affect the components of aggregate expenditure – this will give further insight into the nature and causes of the business cycle described in the last chapter.

The determinants of aggregate expenditure

Although economists are interested in how much spending occurs in each sector of the economy, they are actually more concerned with why that spending changes over the course of the business cycle! Hence we need to explore the factors that influence each of the components of aggregate expenditure.

Factors affecting consumption spending

Aggregate consumption includes household spending on day-to-day items such as food and clothing (non-durable items), durables such major appliances, consumer electronics and furniture, and services such as health and education. Expenditure on household necessities is stable over the course of the business cycle. Discretionary expenditure varies according to changes in households' income; wealth; willingness to borrow; and expectations about future job security.

The most important factor affecting aggregate consumption is the level of disposable income (Yd) – the income households have available after tax. As we would expect, there is a positive relationship between the amount households spend on consumption and their disposable income. But the proportion declines as income rises. A household with a disposable income of $50,000 may spend $40,000 (80 per cent of their income). A family unit with a disposable income of $100,000 may spend a greater amount in absolute terms (say $70,000), but this represents a smaller proportion of their income. This relationship – the consumption function – is the cornerstone of the Keynesian aggregate expenditure model developed later in this chapter.

Households often borrow to finance discretionary consumption, so the cost of credit (the interest rate) is relevant in their decisions. Interest rates represent the price of money – the cost of borrowing. We would expect low interest rates to have a positive effect on household spending because:

- if credit has been used to fund consumption, the periodic repayments are a smaller slice of disposable income, and
- the opportunity cost of consumption falls. In other words, saving is less attractive when interest rates are low because funds in interest-bearing accounts earn a lower rate of return.

On the other hand, rising rates cause households to postpone discretionary consumption, because loan repayments take up a larger proportion of disposable income, and because the opportunity cost of consumption spending increases.

Households' perceived stock of wealth is another factor that influences aggregate consumption. Households that hold real assets such as property or shares tend to feel wealthier or more confident when share prices or property prices are rising. The 'wealth effect' can also act as a drag on consumption, as illustrated in early 2020, when the value of public companies fell on world markets. In Australia, the ASX index for the top 200 companies fell from 7144 on 18 February to 4735 on 23 March, although half of those losses were restored by the end of the financial year. Although this fall in value may have only been 'on-paper', the decline in the stock of wealth caused many households to change their spending and saving patterns.

A reflection of the impact of confidence on economic behaviour is the net savings rate (the proportion of household disposable income directed to 'saving'). The Australian savings rate was negative at times during the mid 2000s, rose markedly to 10% after the GFC, then fell to about 3%, before climbing above 5% in 2022.

Consumer sentiment and expectations play an important role in spending decisions. News concerning economic growth, changes in interest rates, changes in exchange rates, and movements in the share and property markets effect household confidence, and thus their willingness to purchase goods and services. The impact of changing expectations on spending on essentials such as food, clothing and transport is probably small. Consumer sentiment has a greater impact on household intentions to purchase discretionary items such as holidays, computers, televisions and motor vehicles.

The list of factors discussed above is not exhaustive. Other influences on aggregate consumption could include changes in exchange rates; the distribution of income and wealth; demographic factors (such as the changing age structure of the population); exogenous events (external shocks such as COVID-19); and changes in community attitudes – mitigating the effects of climate change may bring considerable changes in household consumption patterns in the next few years.

Government economic policy (see chapters 12 and 13) also influences household consumption. The Reserve Bank of Australia administers monetary policy using the 'cash rate' – the official interest rate. If the cash rate rises, higher interest rates generally flow through to other financial markets. Banks, for example, are likely to lift interest rates charged on personal loans and housing mortgages, meaning households have less spending power. The Commonwealth Government (Treasury) is responsible for fiscal policy – using the government's spending and taxing powers to influence household and business decisions.

Factors influencing investment expenditure

Investment is expenditure on new capital goods that will be used to produce final goods and services in the future. Aggregate private investment is the most volatile element of aggregate expenditure, ranging between 16 and 23 per cent of the total over the last fifty years.

It is important to remember that when businesses invest, they are expecting to get a positive return in the future. As the future is unknown, it involves risk. Investment rises and falls according to the perceived risk which the future entails. Many factors (both economic and non-economic) influence risk – political decisions; international events; and changes in consumer sentiment being examples.

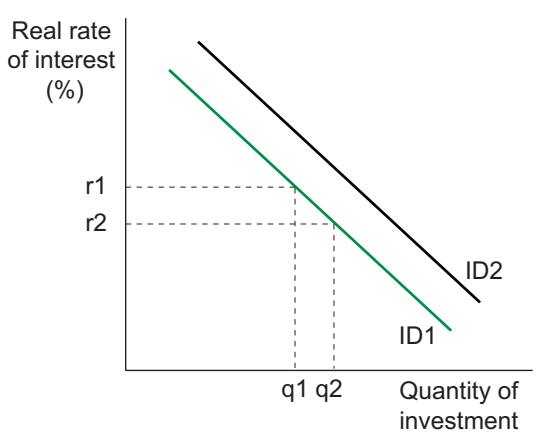
Risk is the chance that the actual outcome from an investment will be different from the expected outcome. Returns could be better or worse than expected - in economics and finance, the term risk refers to the probability of difference. This could be positive or negative!

The rate of interest plays a key role in business investment decisions. Other things being equal, interest rates and the level of investment expenditure are negatively related. This concept is illustrated by the investment demand curve, illustrated in figure 9.3. Lower rates of interest (r) tend to induce higher investment expenditure. If interest rates fall from r1 to r2, for example, we would expect an expansion in investment demand from point q1 to point q2.

There are two explanations for the inverse relationship between interest rates and investment. Firstly, interest rates represent the price of borrowed money, so when rates rise, so do the periodic repayments on borrowed funds. Secondly, interest rates represent the opportunity cost of money. Firms have the choice of using retained profit for new investment or some alternative purpose. The opportunity cost of investment increases when interest rates are high. For example, if business interest rates were 8 per cent p.a., the prospective rate of return on capital equipment must exceed 8 per cent (and by a considerable margin) before a rational firm would consider the investment to be a prudent decision.

It is important to understand the difference between nominal and real rates of interest. Nominal interest rates are the current price of borrowed money (i.e. the advertised or published rate). The real rate of interest takes the rate of inflation into account. If nominal rates of interest are 8 per cent, and expected inflation is 4 per cent, then the real rate of interest is 4 per cent (8 minus 4). Real rates of

Figure 9.3 The investment demand curve



The investment demand curve describes a negative relationship between the (real) interest rate and planned investment. Lower real rates of interest tend to induce higher investment expenditure. If interest rates fall from r1 to r2, we would expect a movement along the investment demand curve - the level of investment will expand from q1 to q2 on ID 1.

The curve ID 2 shows a shift of the whole investment demand schedule. This would result from a favourable change in one of the other (non-price) factors affecting investment (e.g. improved business confidence).

interest are more important to decision-makers than nominal rates, because they reflect the 'true cost' of borrowed money.

In figure 9.3, the investment demand curve ID 2 represents a positive shift of the whole investment demand curve brought about by a change in one of the non-interest rate factors affecting investment. For example, positive expectations about the business climate would cause a shift of the investment demand curve from ID1 to ID2. So too would increased business profitability, as many firms use profits to purchase new equipment.

While the relationship between interest rates and investment illustrated in figure 9.3 is clear, the responsiveness of investment spennding to changes in interest rates is less certain. Economists refer to this as the 'elasticity of investment with respect to interest rates'. The interest rate elasticity of investment may be influenced by the current stage of the business cycle and expectations about the future. In a cyclical upswing, for example, producers are likely to be upbeat about future prospects and continue to invest despite rising interest rates. On the other hand, during a contraction or trough phase, expectations of lower levels of economic activity and profits are likely to hold back investment decisions, even though interest rates may be relatively low. Over the period September 2017 to April 2022, interest rates were at historic low levels in Australia, yet business investment spending was below average levels.

Investment spending is linked to profitability in the business sector. Many firms retain a portion of their profits to buy new equipment. When economic conditions are challenging and profits low, firms tend to run down (depreciate) capital equipment over a longer period of time. On the other hand, a booming economy tends to lift profits, providing a pool of funds to spend on new capital items. Note that technological progress is embodied in new capital items. This means that firms invest to take advantage of the lower average costs of production and increased efficiency that the capital equipment can deliver. Investment in more efficient equipment is an important business strategy to lower unit costs, even when the level of economic activity is low.

Business expectations are an important determinant of investment – what business thinks about the current level of economic activity and trends in the near future. Business sentiment is is influenced by perceptions of current economic events such as levels of sales and inquiries from buyers. If expectations about future sales and profit levels are positive, then it is likely that the investment demand curve will shift to the right. On the other hand, a downturn in the level of business confidence could result in a reduction in planned investment.

Government policies can also have a significant impact on private investment. Fiscal and monetary policies affect investment decisions because they affect costs and expected sales revenue. Taxing the earnings of an industry can change the risk / reward relationship in that sector. On the other hand, tax incentives may attract investment funds to an industry.

The government's record in achieving key macroeconomic objectives (growth, price stability and full employment) also helps to foster a positive business environment. A stable macroeconomic environment is important for long-life private sector investment projects, such as construction, mining and transport. Stability really means the level of certainty provided by the institutional, political and legal system. Responsible and stable government is an important element in providing certainty for decision-makers. The government's regulatory framework can also affect market structures and the level of competition in the economy. In recent years, microeconomic reforms have improved productivity and competitiveness (see chapter 14). These reforms have had an impact on the cost of business regulations, the availability of funds for investment, and the openness of markets.

Factors influencing government expenditure

The majority of government spending is on current items – the goods and services consumed by government institutions and the wages and salaries paid to employees. In the main, this size of that spending is governed by the need to fund essential services such as heath, defence, education and social security, which are themselves governed by the size of the population. The government also undertakes investment in essential infrastructure – public utilities such as power and water supply, roads, railways and communications networks. These decisions are also governed by the need to provide appropriate levels of service across all communities.

Sometimes, their timing might be influenced by the state of the economy. It would be inappropriate, for example, to undertake a major new infrastructure project when the economy was operating at full capacity, as this would worsen supply bottlenecks and build inflationary pressure.

In general, economic factors are not considered central to government consumption and investment decisions. They do, of course, affect government policy decisions, as will be discussed in chapters 12 and 13.

Factors affecting net exports

Exports and imports of goods and services are reasonably volatile components of aggregate expenditure, particularly in Australia, because of the nature of its traded goods and services. Overseas demand for Australian commodity exports fluctuates according to regional and world economic conditions. Domestic supply can also contribute to volatility, as agricultural and pastoral commodities are influenced by the vagaries of seasons and events such as drought.

Domestic levels of economic activity influence Australians' propensity (willingness) to import. Australian imports are thought to be relatively elastic with respect to GDP – that is, if GDP rises by 2 per cent, then it is likely that imports will rise by more than 2 per cent. This reflects the small size of Australia's manufacturing sector. In periods of strong economic activity, consumers import

goods that cannot be sourced from local manufacturers, and businesses buy capital equipment that may not be produced in Australia.

The exchange rate is an important determinant of expenditure on exports and imports. When the Australian dollar appreciates, domestic residents can buy more units of other currencies, so imports are cheaper and more competitive against domestically produced items. Appreciation also means that overseas residents can buy fewer units of AUD, so Australian exports become less competitive in overseas markets. Other things being equal, appreciation of the currency has a contractionary effect on aggregate expenditure because net exports fall. On the other hand, if the Australian dollar depreciates against other currencies, the price of Australian exports falls for overseas buyers, but prices paid for imports increases. The impact of any change in the exchange rate will depend on relative price elasticities – how buyers react to the price changes brought about by changes in the exchange rate.

Movements in the terms of trade play a significant role in determining spending on exports and imports. Australia's exports are dominated by mineral and agricultural commodities such as iron ore, coal, wheat and barley. In the early 2010s, the rapid growth of the Chinese economy meant that demand for mineral commodities rose and their prices reached record levels, boosting Australia's export price index. Other things being equal, this means that Australia's export income rises. Australian mining companies received a double dividend from

Figure 9.4 The determinants of AE

Factors influencing aggregate consumption expenditure **C**	• disposable income (Yd) • interest rates (r) • expectations • availability of credit • stock of wealth (property, shares)
Factors influencing aggregate planned investment expenditure **Ip**	• business expectations • interest rates (r) • level of past profits • government policies (e.g. taxation)
Factors influencing government expenditure **G**	• discretionary changes in accordance with government policy objectives e.g. social policies, health, education • automatic changes due to the business cycle • can be used to stabilise macroeconomic fluctuations
Factors influencing net exports **X - M**	• level of domestic and overseas economic activity • exchange rates • terms of trade • presence of tariffs; quotas

rising world demand – higher prices and higher sales. At the same time, Australia's import price index fell. Again, the reason seems related to Asia, where labour is cheaper than in Australia. Recently, the terms of trade has risen strongly, due in part to the impact of the war in Ukraine on the prices of agricultural commodities that comprise a large part of Australia's exports.

Alternatively, a falling terms of trade (as happened between 2012–2016) sees the prices received for exports fall relative to the prices paid for imports, in which case net export receipts are likely to fall (net of volume effects).

Figure 9.4 summarises the factors which affect the components of aggregate expenditure. There are clearly many factors in play that could potentially change aggregate expenditure at any point in time.

Changes in aggregate expenditure

Consider the following situations:

- You are the manager of a plumbing supplies firm. New home construction is at its highest level for four years. How would the building boom effect (a) your level of inventory (b) the size of the orders you lodge with suppliers, and (c) the size of your business loans?
- You own a restaurant. How would an economic downturn affect the number of customers who make bookings; the number of staff you employ; and the quantity of food and beverage you order from suppliers each week?

It is logical that the plumbing supplies firm would turn over its stock more quickly in a building boom; that it would place larger orders with suppliers; and that it may have to ask the bank manager for more operating funds. In a downturn, the restaurant would probably sell fewer meals and bottles of wine as people reduce their entertainment budget. As a result, they would employ fewer chefs and wait staff, and place smaller orders with suppliers of food, beverage and equipment.

The impact of any change in aggregate expenditure is felt widely across the whole economy. Macroeconomics is the study of the whole the economy – the study of economic aggregates. All economic activity revolves around the production of output (O), the earning of income (Y), and the spending of that income (E - expenditure). Essentially, when aggregate expenditure (AE) rises, output, income and GDP must also rise. On the other hand, a fall in aggregate expenditure (AE) will result in lower output, lower income and lower employment.

The Keynesian aggregate expenditure model

To analyse the impact of changes in aggregate expenditure on economic activity we introduce the Keynesian expenditure model, based on the work of British economist John Maynard Keynes. Keynes developed his theory of aggregate expenditure in the 1930s, in the midst of the Great Depression, when economic

growth averaged –5 percent for each of the years 1929 – 1931, and unemployment in some countries exceeded 30 per cent of the work force! Prior to the Depression, economists generally thought that the economy would always operate near full employment if prices (including wages) were free to adjust to market conditions. As a result, they believed there was no need for government intervention and that the government should balance its budget. Government spending should match revenue collected, no matter what the state of the economy!

Keynes, however, argued that aggregate demand determined the overall level of economic activity, and that inadequate aggregate demand could lead to prolonged periods of high unemployment. He proposed the active use of fiscal and monetary policies to mitigate the adverse effects of downturns in aggregate demand. His ideas were developed and popularised through the 1940s and 1950s, and came to be known as the 'Keynesian Revolution'. Whilst economic cycles continue, their size and impact is smaller than was the case prior to the acceptance of those ideas.

The consumption function

The Keynesian expenditure model is based on the relationship between the level of disposable income received by households, and the level of consumption and saving. This is known as the consumption function. Initially, we assume that there is no government sector and no overseas sector – so there are only two possible ways that people can use their disposable income: spend it or save it. In other words,

$$Y = C + S$$

where Y represents income, C is consumption and S is savings.

A hypothetical consumption function for the economy is illustrated in the table in figure 9.5, which shows the planned levels of consumption and savings expenditure at each level of income.

The level of spending (on consumption and saving) is shown on the vertical axis, and disposable income is shown on the horizontal axis. The 45˚ line is equidistant between the two axes, and thus shows points where planned expenditure equals total income. When the consumption function intersects the 45˚ line, the economy is in 'equilibrium'. This means that the level of income, output and spending in the economy is in balance – the level of economic activity is stable.

At point 'x' in figure 9.5, total consumption expenditure (C) is $150 billion, which equals the level of income. This is sometimes referred to as the 'breakeven' point. At levels of income greater than $150 billion, consumption is less than income and saving is positive. For example, at an income level of $300 billion, consumption is $240 billion and saving equals $60 billion. At a lower level of income, such as $100 billion, consumption ($120 billion) exceeds income, which means that savings is negative. This is referred to as 'dissaving'.

The consumption function can be expressed as a linear (straight line) equation:

$$C = a + bY$$

The right hand side of the equation has two parts. The variable 'a' is the vertical intercept – the point where the consumption function meets the y-axis. This is described as 'autonomous' consumption. This means there would be some level of aggregate spending even if consumers had no income (presumably households would draw on savings or claim transfer payments from government). The second part of the right hand side (the variable 'b') is the rate at which consumption (C) changes when income (Y) rises – the slope of the consumption line.

In figure 9.5, the equation for the consumption function is $C = 60 + 0.6Y$. This means that if income was zero, the autonomous level of consumption in the economy would be \$60 billion. For every \$1 increase in disposable income, households will spend 60 cents, and save 40 cents. The spending fraction $(C = 0.6Y)$ is known as the marginal propensity to consume (MPC). The MPC is the proportion of any change in income that is spent on consumption. It can be represented as an equation:

$$MPC = \Delta C / \Delta Y$$

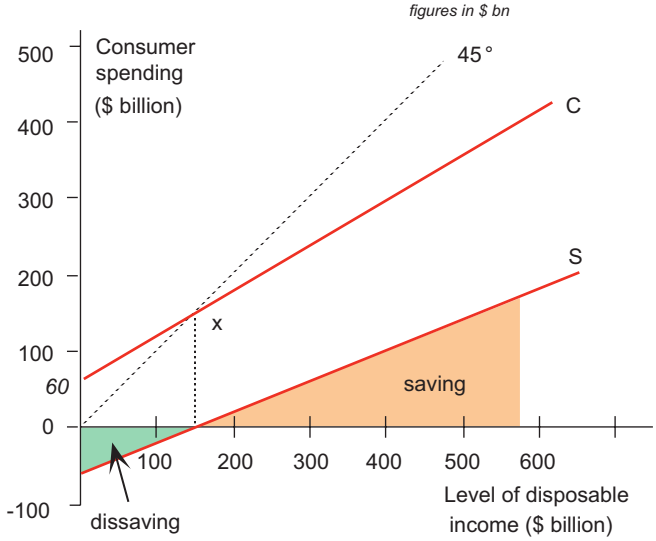
where the symbol Δ means 'change in'.

Figure 9.5 The consumption function

Yd	=	C	+	S
0	=	60	+	- 60
100	=	120	+	- 20
200	=	180	+	20
300	=	240	+	60
400	=	300	+	100
500	=	360	+	140
600	=	420	+	180

figures in \$ bn

The Keynesian consumption function shows that consumption increases as disposable income rises, but not by as much as the increase in income. This is shown in the hypothetical table at left. Note the assumption that income can only be spent or saved (i.e. Y = C + S).



The C function can be described in an equation [C = a + bY], where a represents the autonomous component of consumption (here \$60 billion), and b represents the marginal propensity to consume (MPC). The MPC is the slope of the C line (in this case MPC = 0.6). The equation for the C function in this diagram is C = 60 + 0.6Y.

Similarly, the fraction of any change in income that is saved is known as the marginal propensity to save (MPS). In our example, the MPS is 0.4. The MPS is the change in savings divided by the change in income:

$$MPS = \Delta S / \Delta Y$$

Given that our simple model assumes that all income is either spent or saved, then the MPC and the MPS must add to one:

$$MPC + MPS = 1$$

The size of the MPC depends on the attitude of consumers to spending and saving. If the MPC increases, then the consumption function will be a steeper line. For example, if the MPC were to equal 0.7, consumers would spend 70 per cent of extra income, and save the rest (30 per cent), so the MPS would be 0.3. A consumption function having a slope of 0.9 would be steeper again, as households would spend a greater proportion of any increase in income.

What happens to MPC, MPS, APC and APS, as income rises? The MPC and MPS do not change - they are constant. But the APC and the APS do change. In figure 9.5, when Y = 300, C = 240 and S = 60. The APC is 0.8, and the APS is 0.2 At Y = 600, C = 420 and S = 180. The APC has fallen to 0.7, and the APS has risen to 0.3.

The overall proportion of income spent or saved at any level of income is known as the average propensity to consume (APC) and the average propensity to save (APS). The APC is defined as the proportion of total income spent on consumption. The APS is the proportion of total income that is saved. The APC and the APS must also sum to one. In our example in figure 9.5, when income is 200, consumption is 180 and saving is 20. So the APC equals 0.9, while the APS equals 0.1. Notice what happens as income rises. At an income level of 400, consumption has risen to 300 and the APC has fallen to 0.75. The APS is now 0.25. Thus, as income rises, the APC falls and the APS rises, even though the marginal rates of consumption and saving stay the same!

Introducing the financial sector

The consumption function is the cornerstone of the Keynesian aggregate expenditure model. We now relax the assumption that consumers can only spend or save their income. Figure 9.5 showed how much people wish to consume and save at each level of income. What happens to those savings? The financial sector acts as an intermediary to channel the savings of households to firms who can draw on these funds to finance investment. To make the model easier to understand, we assume that investment spending is a fixed amount, independent of the level of income. We assume that, in total, business firms plan to invest $60 billion.

The level of aggregate expenditure is now equal to the sum of consumption plus investment: $AE = C + I$. In the table in figure 9.6, the C + I column is derived by adding the amount of investment ($60 bn) to the amount of consumption at each level of income. Equilibrium occurs where total planned spending (C + I) equals output or income. This occurs where the C + I function intersects the 45°

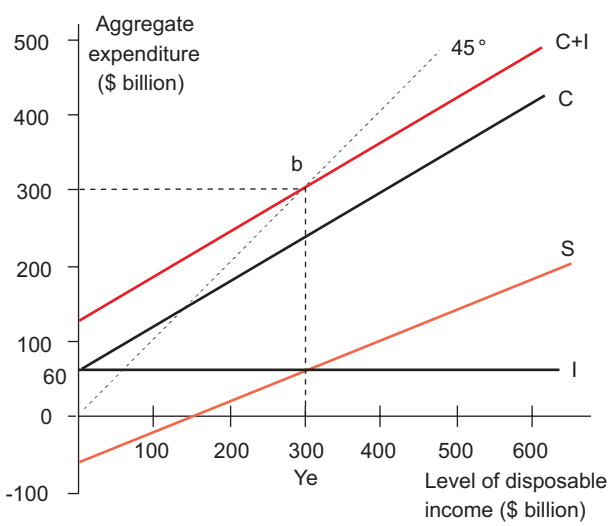
line (see point b on the model). Equilibrium can also be defined as the income level where planned saving by households equals planned investment by firms. The equilibrium level of income in our model is $300 billion (Ye).

If the level of income is either above or below equilibrium, then planned spending will not equal output and firms' inventories will change, signaling the firms' managers to either increase or decrease production. The level of output and income will automatically move towards the equilibrium level. At an income level of $400 billion, for example, planned spending equals $360 billion. Firms will have unsold output (inventories) of $40 billion – inducing them to cut their output in the next time period, leading in a fall in income. In the model, the C + I function is below the 45° line when disposable income is $400bn.

On the other hand, if the level of income was $200 billion (below the equilibrium level) total planned spending would equal $240 billion. In the model, the C + I function is now above the 45° line. This means that firms will have sold all their current output and will have to sell $40 billion worth of output from inventories. Inventories will thus fall, and firms will react by increasing production in the next time period. Rising production will increase the level of income earned.

Figure 9.6 The model with savings and investment

Yd	C	S	Ip	C+Ip	Change in Inventories	Effect on Output
0	60	-60	60	120	-120	Increase
100	120	-20	60	180	-80	Increase
200	180	20	60	240	-40	Increase
300	**240**	**60**	**60**	**300**	0	**No change**
400	300	100	60	360	40	Decrease
500	360	140	60	420	80	Decrease
600	420	180	60	480	120	Decrease



This model extends the consumption function by adding planned investment. Aggregate expenditure is now equal to C + I.

Equilibrium occurs where C + I intersects the 45° line. The equilibrium level of income is $300bn, and S = I at $60bn. At equilibrium, there is no addition to, or withdrawal from, inventories.

Only when real GDP is $300 billion, where planned spending matches output, can the economy be in equilibrium. In figure 9.6, this is where the C + I function cuts the 45° line. It is important to understand the key role that inventories (unplanned investment) play in 'pushing' the economy towards equilibrium:

- when the C + I line is below the 45° line, the level of savings is greater than the level of planned investment, so inventories rise, firms reduce production, and income earned from production must fall;
- when C + I is above the 45° line, investment is greater than savings. Inventories fall, firms increase production and employ more resources, creating more income.

The full aggregate expenditure model

We now relax the assumption that the economy has no government or overseas sectors. Figure 9.7 reflects the addition of government spending and net exports into the model:

$$AE = C + Ip + G + (X - M)$$

Figure 9.7 The Keynesian model

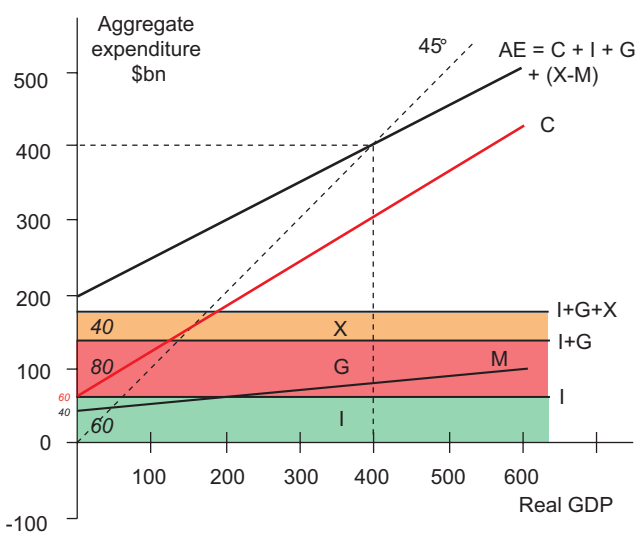
Real GDP	C	Ip	G	X	M	AE	Δ Inventories
0	60	60	80	40	40	200	-200
100	120	60	80	40	50	250	-150
200	180	60	80	40	60	300	-100
300	240	60	80	40	70	350	-50
400	**300**	**60**	**80**	**40**	**80**	**400**	**0**
500	360	60	80	40	90	450	+ 50
600	420	60	80	40	100	500	+100

figures in $bn

The level of planned aggregate expenditure (AE) at each level of income is calculated by adding C + I + G + (X-M).

It is assumed that I, G and X are autonomous (independent of the level of real GDP), but that M is a function of income. The equilibrium level of real GDP is $400bn. At this point planned spending matches actual production.

At income levels above $400bn, total spending < output, and inventories increase. At income levels below $400bn, total spending > output, and inventories decrease.



Government expenditure (G) is assumed to be a fixed amount and independent of the level of real GDP (G = $80 billion). We make the same assumption for exports – X is a fixed amount of $40 billion. Imports, however, are assumed to increase with the level of disposable income. In our model, import spending increases by $10 billion for each $100 billion increase in GDP . This is the 'marginal propensity to import'.

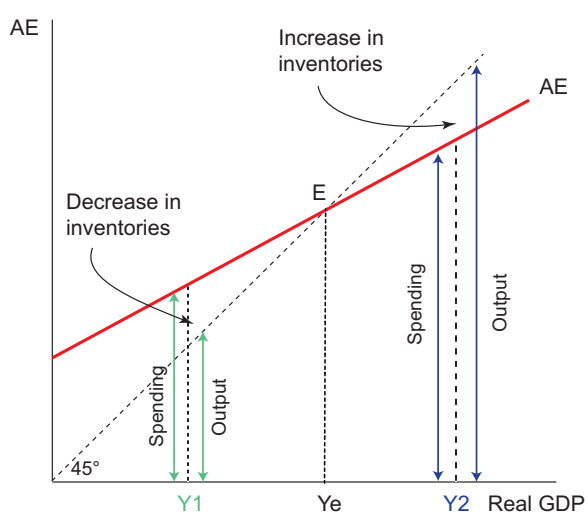
We can now derive the total amount of aggregate expenditure by adding the individual types of expenditure (C, Ip, and G) and adding net exports (X-M). In the table above figure 9.7, aggregate spending equals real GDP at $400 billion. This is the equilibrium level of aggregate expenditure – all current production is sold and there is no change to inventories.

The diagram in figure 9.7 is the complete AE model. We now label the horizontal axis 'real GDP'. The equilibrium level of income occurs when aggregate planned expenditure equals GDP – the point where the AE function intersects the 45° line. At this point, GDP and AE are equal at $400 billion.

If real GDP is below $400 billion, total spending exceeds output and inventories fall. Firms will respond by hiring additional resources in order to increase output. Output will rise until $400 billion of goods and services are produced. When this occurs, there are no unplanned changes in the level of inventories. This meets the definition of equilibrium – no tendency for change in the levels of income or output at that point in time. At higher levels of real GDP, total spending is less than output so inventories rise, signalling firms to cut back their production.

It is useful to recap on the meaning of macroeconomic equilibrium. As depicted in figure 9.8, equilibrium occurs when total planned spending equals total output. This is the point where the AE function crosses the 45° line – at point E, corresponding with the level of income Ye. At a lower level of income such as Y1,

Figure 9.8 Macroeconomic equilibrium



Macroeconomic equilibrium occurs when total planned spending equals production - when the AE function crosses the 45° line (point E).

When spending equals output, there is no change to inventories.

When spending > output, inventories decrease and the level of income rises.

When spending < output, inventories increase and the level of income contracts.

planned spending is greater than output and there is a decrease in inventories. Firms will increase aggregate output, so income and employment will rise. At an income level such as Y2, planned spending is now less than output so that there is an increase in inventories. Again this will automatically lead to a decrease in production and the level of output and income will fall back to the equilibrium level Ye (point E).

Is there anything special about the equilibrium level of income? Not really – it simply means that the level of income is stable. It doesn't necessarily imply that the economy is operating at its full potential.

Changes in expenditure – the multiplier

Changes occur from time to time in the components of aggregate expenditure. For example, the following events would result in a higher level of AE – the red line in the model would shift upwards at all levels of disposable income:

- a rise in retail spending due to an increase in consumer confidence;
- an increase in revenue from wheat exports; or
- an increase in business investment associated with clean energy projects.

To understand how such changes affect the rest of the economy, it is necessary to understand that new expenditure does not just have a once-off impact on the economy. Because 'one man's spending is another man's income', any addition to (or reduction of) the level of spending in the economy will have far-reaching effects on aggregate levels of income. Keynesian theory builds a model known as 'the multiplier' to explain this process.

Initially, we assume our economy has just three sectors – households, firms, and the financial sector. Aggregate expenditure therefore consists of consumption plus investment. Assume a mining company decides to spend $10 billion to develop a mine site and rail line in Western Australia. The new investment creates income for contractor firms and their employees, including engineers, architects and construction workers. These households then spend part of that income on goods and services including food, clothing, rent and entertainment. This spending will flow on to other people through the circular flow of income. The final impact of the new spending is thus likely to be much greater than the initial investment spending.

The multiplier refers to proportion by which income will rise following an initial change in spending. If an increase in investment of $10 billion caused the level of income to rise by $25 billion, the value of the multiplier would be 2.5 – that is, the final impact on income is 2.5 times the new investment.

The following example (see figure 9.9) shows the multiplier process and how the marginal propensity to consume determines its final impact. The new investment in the mining venture ($10 billion) initially creates new income of $10 billion for firms and people working on the project. Assume the MPC is 0.6, so households

spend $6 billion on goods and services and save the other $4 billion. The $6 billion of spending will flow on to other households in the next period of time. In period 2, 60 per cent of this income will be spent ($3.6 billion) and 40 per cent ($2.4 billion) saved. In the third round of spending, new income is $3.6 billion, of which $2.16 billion will be spent, and $1.44 billion saved. The cycle of 'one person's spending creating another's income' will continue over many periods until the incremental change in income is zero.

Figure 9.9 shows the progressive impact of the new investment on the level of income in the economy. After four periods of the income/spending cycle, $21.76 billion of extra income has been created from the initial increase in investment of $10 billion. If we follow the process to the end (through many time periods) we can show that the total change in income caused by the initial investment of $10 billion will be $25 billion. We can now derive the value of the multiplier (using the symbol 'k'). The multiplier is the amount by which real income or GDP changes after an initial change in expenditure. The value of the multiplier in the example we have developed above would be:

$$k = \Delta Y / \Delta I$$
$$= 25/10$$
$$= 2.5$$

The value of the multiplier is determined by the marginal propensity to consume. The following formula can be used:

$$k = 1/1 - MPC \quad (\text{or, } k = 1/MPS)$$

Using this formula, and assuming MPC equals 0.6, then the multiplier equals 2.5:

$$k = 1 / (1 - 0.6)$$
$$= 1/0.4 = 2.5$$

Figure 9.9 The multiplier over several rounds of spending

			Y	=	C	+	S
Time period			*assumes MPC = 0.6*				
new I ($10)	1	*creates new Y*	10.00	=	6.00	+	4.00
	2		6.00	=	3.60	+	2.40
	3		3.60	=	2.16	+	1.44
	4		2.16	=	1.30	+	0.86
after 4 time periods			∑Y	=	∑C	+	∑S
			21.76	=	*13.06*	+	*8.70*
after n... time periods			∑Y	=	∑C	+	∑S
			25.00	=	15.00	+	10.00

figures in $bn

The multiplier shows how one person's spending creates another person's income. An initial investment of $10bn creates new income, which is either spent or saved. The portion that is spent creates income for others in the second time period. This is also spent or saved. The total new income created by the initial investment can be determined using the formula $\Delta Y = k \times \Delta I$ (i.e. 2.5 x $10bn = $25bn). The symbol ∑ (sigma) means 'the sum of'.

MPC	MPS	Multiplier
0.25	0.75	1.33
0.4	0.6	1.67
0.5	0.5	2
0.6	0.4	2.5
0.75	0.25	4
0.8	0.2	5

What would happen if the MPC increased? This would increase the 'respending' effect from a given change in investment, so the size of the multiplier would rise. For example, an MPC of 0.75 would mean that the multiplier would be 4. Small changes in the MPC can have a dramatic effect on the size of the multiplier, as shown in the sidebar. As the MPC increases (MPS decreases), the multiplier increases. The multiplier always has a value greater than one, unless the MPC is zero!

What determines the value of the marginal propensity to consume? It depends on attitudes to spending and saving, and may change over time. Remember that the MPC is an average across all households in the economy.

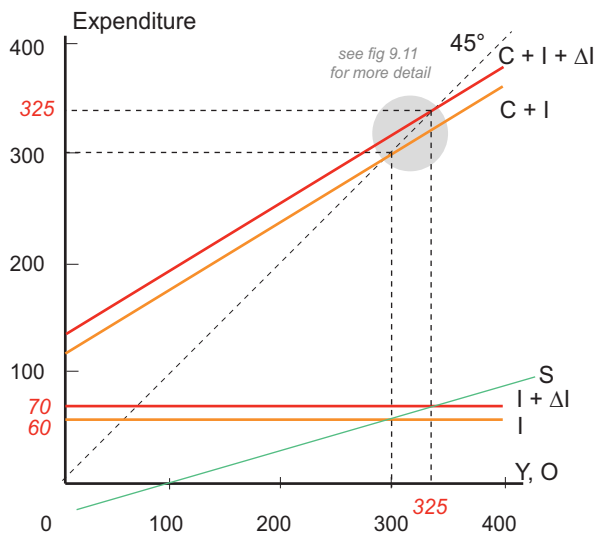
The multiplier principle can be illustrated using the Keynesian aggregate expenditure model. Figure 9.10 demonstrates how an increase in investment causes the equilibrium level of income to increase by a much larger amount. Initially the economy is in equilibrium with income Y = 300. Saving and investment are equal at 60. Assume that planned investment increases by 10 (from 60 to 70). The investment schedule will shift up to $I + \Delta I$. The C + I function will also shift upwards by the increase in investment. The level of income in the economy expands in successive rounds of new spending which generates new income. Each change in income will induce new spending via the marginal propensity to consume. Figure 9.11 shows the multiplier process in more detail, illustrating the 'steps' as successive increases in income induce new rounds of spending. Eventually, the initial increase in investment of 10 raises the equilibrium level of income to 325 – an increase of 25. In other words, the multiplier is 2.5.

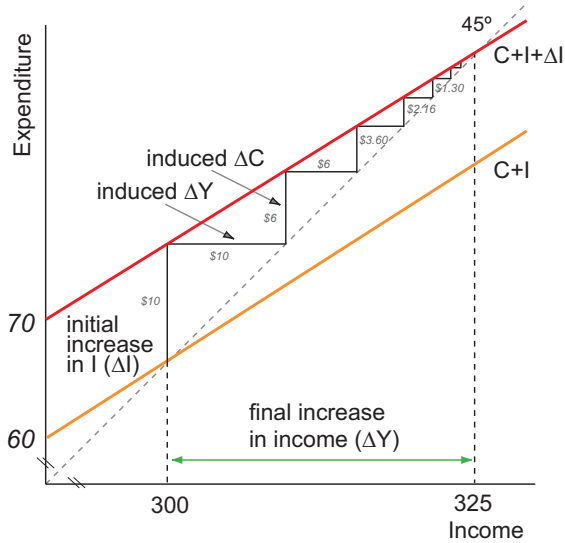
Figure 9.10 The multiplier effect

Initial equilibrium occurs at Y = $300 bn with savings equal to investment at 60. Firms then decide to increase I by $10 bn (shown on the diagram as I + ΔI) to $70bn. This extra $10bn sets off a spending /income cycle: "one man's spending is another man's income".

Over time, income increases from $300bn to $325bn - an increase of $25bn. The value of the multiplier (ΔY / ΔI) is 2.5. The initial increase in investment has resulted in a multiple change in income.

The shift to the right shown on the x-axis is greater (325 - 300) than the change in investment (70 - 60) shown on the y-axis.





This diagram shows the multiplier stages in greater detail – what happens within the shaded circular area in figure 9.10.

The initial increase in investment increases income (the 'tread' on each of the steps) which then induces increases in consumption (the 'rise' in the steps).

A $10 billion autonomous rise in investment will, after a series of 'steps', create $25 billion more income.

Figure 9.11 The multiplier 'steps'

There are many instances in which the multiplier principle would have an impact on the Australian economy. Remember that the multiplier process applies to any autonomous change in expenditure – which could be a change in investment, government spending or exports. Examples include:

- resource projects in the Pilbara region of WA;
- government spending on new railways; or
- the increase in the Jobseeker allowance during the pandemic.

The multiplier process also applies for any decrease in autonomous spending. The closure of a bank in a rural town would have a ripple effect on other services as bank employees moved, cutting supermarket turnover, cafe sales, doctors' visits and so on. On a wider scale, the global financial crisis (GFC) in 2008–09 and the pandemic in 2020 both led to a fall in investment spending and a fall in GDP.

The size of the multiplier

The size of the multiplier is determined by the factors that affect the marginal propensity to consume. If the MPC is greater than zero but less than one, the

Economic skills	**Investigation - MPC and MPS - class survey**
	Feeling generous, your teacher has decided to give everyone in your economics class $20. She then asks every student how much of their windfall they will spend, and how much they will save. Don't forget that economics is a social science, so you should expect a range of responses, none of which is 'right' or 'wrong'. Tabulate the results in two columns (C and S), asking each student for their reasons (e.g, a student might say "I decided to spend $18 and save $2 because I need clothes at the minute"). Calculate the average proportion of the first column (e.g. $16 out of $20 will be 0.8). This is the class MPC. What should the other column be called? Could the results be different in 5 years time?

multiplier will have a value greater than one. Is there an upper limit to the multiplier? If the MPC was equal to one, then the multiplier would equal infinity! In reality, there are a number of factors which restrict the value of the MPC and therefore reduce the size of the multiplier. The extent of the multiplier will be influenced by the size of leakages associated with savings, taxation and imports. Each of these leakages reduces the size of the multiplier. When these are taken into account, the formula for the multiplier equation looks slightly different:

$$k = 1 / (MPS + MPT + MPM)$$

where:

- MPS = marginal propensity to save
- MPT = marginal propensity to tax
- MPM = marginal propensity to import

Assuming for example that the MPS is 0.2; the MPT is 0.3 and the MPM is 0.2, the combined leakages would be 0.7 of new income. This would imply that the multiplier would be

$$k = 1 / 0.7 = 1.43$$

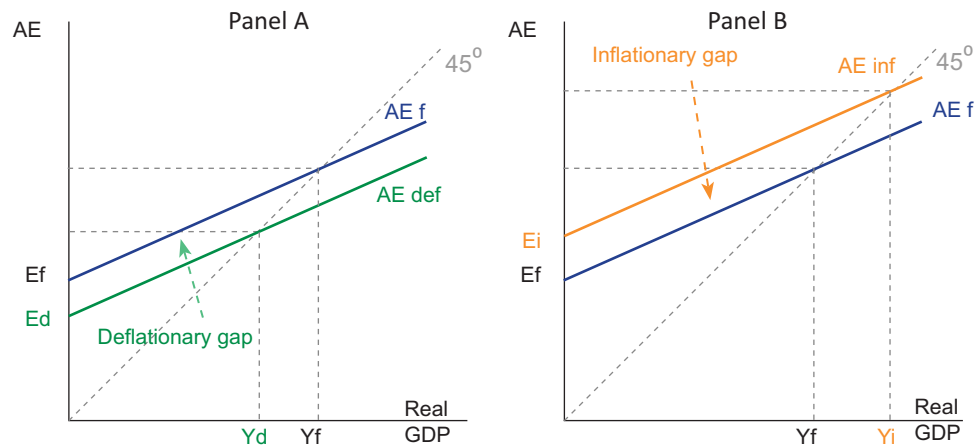
Can we calculate the value of the multiplier in the Australian economy? Estimates show that while it varies over the course of the business cycle, its average value is between 1.5 and 2.5. This is useful information for governments when formulating policy tools for different phases of a business cycle.

Aggregate expenditure and the business cycle

The Keynesian aggregate expenditure model can be applied to show the economic impact of changes in any of the components of aggregate expenditure on the business cycle. In panel A of figure 9.12, the blue line AEf represents the level of aggregate expenditure necessary to fully employ resources, including labour. If there is an autonomous decrease in expenditure, this will be multiplied to result in Yd – a lower level of real GDP represented by the green line AE def. In the Keynesian model, the difference between the current level of spending and that required to achieve full employment (the economy's potential GDP) is called a deflationary gap. The fall in expenditure (which could have endogenous or exogenous causes) illustrates the contractionary phase in the business cycle.

When aggregate expenditure rises again, the economy is in the expansionary phase of the business cycle. Output will increase but inflationary pressure will occur as output approaches the full employment level of income (the economy's potential at this point in time).

Panel B shows what is called an inflationary gap. The orange line AE inf is higher than the full employment level of spending denoted by AEf. The economy has expanded beyond its potential so demand for inputs and final goods forces up the price level.



The business cycle can be modelled using the Keynesian aggregate expenditure model. Falls in AE (panel A) bring about a contraction, as growth in real GDP slows from Yf to Yd. Rises in AE, on the other hand, are associated with an expansion - growth in real GDP increases from Yf to Yi.

Figure 9.12 The Keynesian model and the business cycle

Worksheet 1 - aggregate expenditure

Read the aggregate expenditure sections to answer the following questions.

1. List the components of aggregate expenditure.
2. Define the term 'consumption'. Provide three examples each of durable and non-durable consumption.
3. Define the term 'investment'.
4. What is the meaning of the term 'expectations'? Carefully explain how 'expectations' might affect the aggregate level of durable consumption; of investment?
5. The cost of credit (interest rates) affects aggregate levels of consumption and investment for two reasons. Carefully explain those reasons.
6. Draw an 'investment demand function', then explain what would cause a movement along that function and what would cause a shift of the whole function (right or left).
7. Explain why the 'elasticity of investment demand with respect to interest rates' might vary over time.
8. Distinguish between automatic and discretionary forms of government spending.
9. What factors influence spending by overseas residents on Australian exports?
10. Draw up a table that summarises the determinants of each component of aggregate expenditure. Highlight what you believe are the two most important factors affecting each element. Provide an example of a recent instance of each influence.

Worksheet 2 - the expenditure model

Read the sections on the consumption function and aggregate expenditure model to answer the following questions.

1. Describe and draw the consumption function, labeling the 45˚ line; break-even point; the MPC; saving and dis-saving;and the point of equilibrium.
2. In the three sector model (consumers, producers and the finance market), where is the point of equilibrium? In figure 9.6, why isn't Y = 400 an equilibrium level of income? What happens when the economy is not in equilibrium?
3. Why are the I, G and X lines shown as horizontal lines in our model of aggregate expenditure, such as figure 9.7?
4. Define the 'multiplier'. Recalculate the data in figure 9.9 using the same amount of new investment, but changing the marginal propensity to consume (MPC) to 0.7. Comment on differences between the results.
5. Write the formula used to calculate the value of the multiplier? Describe the relationship between the size of the multiplier and the the marginal propensity to consume (MPC)?
6. Using the Keynesian model, show how an autonomous increase in the size of an injection (I, G or X) would lead to a multiplied increase in the level of community income.
7. Using a model, explain how an increased rate of savings in the economy can lead to a reduction in the equilibrium level of income (unless there is an increase in the level of investment).

Aggregate expenditure data

The questions below refer to the table below, which shows aggregate expenditure data for Australia over the period 2014–15 to 2021-22. Figures are in original (current price) $m.

1. Calculate aggregate expenditure for each year, using the formula AE = C + I + G + (NX).
2. Calculate the proportion of AE made up by each of the components in each year. For example, in 2014–2015, private consumption made up 56.9% of AE.
3. Which element of AE is most stable over these years? Suggest why.
4. In which years did private investment expenditure fall? Suggest three possible reasons.
5. Using the aggregate expenditure model, explain the impact of a fall in investment on aggregate expenditure.
6. Explain why net exports of goods may have experienced such wide swings over this period.
7. The 2019-20 full year figures show falls in household consumption and significant rises in government spending. Explain.

Australia - aggregate expenditure data: 2014–15 to 2021-22

Financial year	Household consumption	Private investment	Government spending	Net exports (goods)	AE
2014-2015	922890	354362	368714	-24391	1621575
2015-2016	957683	342762	393556	-37291	
2016–2017	991309	333706	422751	9179	
2017–2018	1031784	356357	455010	6238	
2018–2019	1065547	353212	479492	47875	1946126
2019–2020	1048690	346556	515448	77812	
2020-2021	1068651	357808	549615	90045	
2021-2022	1143754	405572	601491	135942	

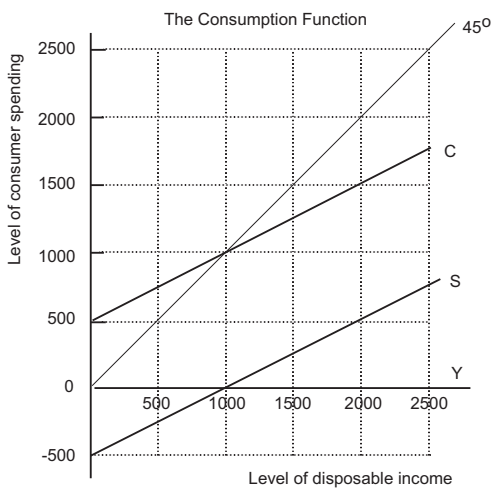
Source: ABS Australian National Accounts. Table 3 $m current prices

Consumption function 1

Refer to the data and the graph below. Assume no government or overseas sectors.

1. What level of consumption (C) occurs in this economy if disposable income (Yd) is 1000; 2000?
2. Explain the significance of the 45˚ line.
3. From the data, write the equation for the consumption function.
4. What is the breakeven point?
5. What level of saving (S) occurs in this economy if disposable income is 500?
6. What does the savings (S) function represent?
7. Define the marginal propensity to consume (MPC).
8. a) Calculate the MPC when disposable income increases from 500 to 1000.
   b) Calculate the MPC when disposable income increases from 1500 to 2000.
9. Calculate the APC for:
   a) Y = 500; b) Y = 1500 c) Y = 2500
10. Label or shade the area of the diagram where no saving is occurring.
11. Is the slope of the savings function determined by APC, MPS, or APS? Explain.
12. Why must the MPC + MPS always equal 1.
13. What will happen to the equilibrium level of income for this hypothetical economy if consumers become more thrifty and save more of their income?
14. Illustrate what will happen to the consumption and savings functions if: consumer expectations improve; the savings ratio rises.

Disposable income (Yd)	Consumer spending (C)	Saving (S)
0	500	-500
500	750	-250
1000	1000	0
1500	1250	250
2000	1500	500
2500	1750	750



Consumption function 2

From the table below, plot the household consumption (C) and savings (S) levels at each level of disposable income (Yd). Choose your scales and label the axes carefully (expenditures on consumption and saving on the vertical axis, and disposable income on the horizontal axis). Include a 45˚ line to help see where expenditures are equal to incomes.

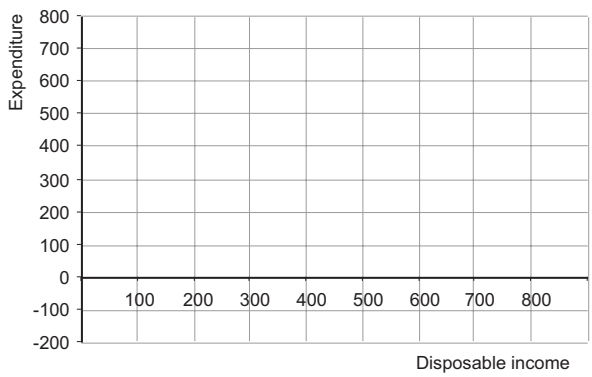
Level	Yd	C	S
a	0	60	-60
b	100	120	-20
c	200	180	20
d	300	240	60
e	400	300	100
f	500	360	140

1. Label the section of the savings function where disposable income is less then consumption expenditure (dis-saving), and the part of the function where saving is positive.
2. Calculate the Average Propensity to Consume (APC) at Yd levels a, c and e.
3. Calculate the Average Propensity to Save (APS) at Yd levels a, c and e.
4. What happens to APC and APS as income rises? Explain.
5. Calculate the Marginal Propensity to Consume (MPC) at levels b, d and f.
6. Calculate the Marginal Propensity to Save (MPS) at levels b, d and f.
7. Determine the equations for the consumption and the savings functions.
8. What determines the slopes of these lines?
9. List the determinants of consumption. Illustrate what happens if the MPC increases.
10. Draw new consumption and saving functions on your graph. The C function should be C = 60 + 0.7Y. What will the S function be? Explain how these lines are different from the functions you graphed initially.

Expenditure model - a graphical analysis

Refer to the table and income / expenditure axes below.

Yd	C	S	I	C+I
0	70	-70	50	120
100	140	...	50	...
200	210	-10	...	260
300	280	20	50	330
400	...	50	50	400
...	420	80	50	470
600	490	...	...	540
700	...	140	50	610
800	630	170	50	...



1. Calculate the missing cells in the table, and graph the C, S, I, C+I and 45° lines.
2. Calculate the marginal propensities to consume (MPC) and (MPS).
3. Determine the equation for the consumption function.
4. Shade in the area which represents 'dis-saving'.
5. What is the equilibrium level of income for this economy?
6. State what would happen in this economy if the level of investment rose from its current level (50) to a higher level (70).

The multiplier

Assume that a country had a GDP of $200 million, and was initially in macroeconomic equilibrium, with aggregate savings and aggregate investment equal at $25 million.

1. Using the table over, show how an autonomous increase of investment of $10 million would bring about increased levels of aggregate income, consumption and savings during the first five time periods. Assume that the MPC is 0.8.
2. Calculate the 'final' effect on GDP of the new autonomous investment. What is the size of the multiplier in this case?
3. In one sentence, state how your answers to questions 1 and 2 would change if the MPS increased to 0.25.

			Y	=	C	+	S
Time period				assume MPC = 0.8			
new I ($10)	1	creates new Y	$10.00	=		+	
	2			=		+	
	3			=		+	
	4			=		+	
	5						
after 5 time periods			∑Y	=	∑C	+	∑S
				=		+	

figures in $ millions

4. Assume the marginal propensity to tax in this economy was 0.2, and the marginal propensity to import was 0.1. Recalculate the final effect that the autonomous increase in investment has had on the economy. Is the effect smaller or larger than the answer you calculated in question 2? Explain.

Multiple choice

For each of the questions below, choose the best alternative.

1. Aggregate expenditure is defined as:
   a. the sum of consumption and investment expenditure undertaken by private households, firms and government.
   b. the total amount that firms and households plan to spend on goods and services at each level of income.
   c. the sum of consumer expenditure, firms' expenditure on capital items, government expenditure, and expenditure on net exports.
   d. expenditure on new capital equipment to produce final goods and services in the future.

2. Which of the following factors is LEAST likely to affect the amount of business investment at any time?
   a. the level of real interest rates.
   b. the level of nominal interest rates.
   c. the current level of corporate profit.
   d. changes in business expectations.

3. Which combination of the following factors is most likely to increase the level of durable consumption?
   i an increase in interest rates.
   ii an increase in asset prices, such as housing.
   iii depreciation of the Australian dollar.
   iv positive expectations about economic growth.
   a. i and ii.
   b. ii and iii.
   c. i and iii.
   d. ii and iv.

4. If Australian imports are elastic with respect to GDP, which of the following results is more likely?
   a. a two per cent rise in GDP will bring about a one per cent increase in import volumes
   b. a two per cent rise in GDP will bring about a two per cent increase in import volumes.
   c. a two per cent rise in GDP will bring about a four per cent increase in import volumes.
   d. a two per cent rise in imports will result in a four per cent GDP increase.

5. If, in a particular period of time, Y = 4000, C = 3000, S = 1000 and I = 800, then
   a. there will be no change in the level of income in the next period.
   b. the amount of income earned in the next period will increase.
   c. the amount of income earned in the next period will be the same.
   d. aggregate output produced in the next period will fall.

6. If the level of investment exceeds the level of saving, it is likely that
   a. the level of investment cannot be sustained because there are insufficient funds available from the savings pool.
   b. the level of income in the economy will rise in the near future.
   c. unsold stock (inventories) will increase.
   d. the level of saving will fall during the next period.

7. For the consumption function expressed by the equation C = 80 + 0.8Y, the marginal propensity to save (MPS) is .... , so the multiplier is .....
   a. -20; 1.25.
   b. 0.2; 5
   c. 0.2; 4
   d. 0.8; 1.25

8. Which of the following statements about the consumption function is correct?
   a. APC falls, and MPC rises as disposable income (Yd) rises.
   b. APC rises as Yd rises; MPC does not change.
   c. APC falls as Yd rises; MPC does not change.
   d. both APC and MPC fall as Yd rises.

9. The 45˚ line in the Keynesian expenditure model of income analysis
   a. shows all points where aggregate expenditure equals aggregate output.
   b. shows the point of equilibrium national output.
   c. shows all points where real GDP equals the value of production.
   d. shows all equilibrium levels of aggregate expenditure.

10. The slope of the consumption function is determined by:
    a. the marginal propensity to invest.
    b. the marginal propensity to consume.
    c. the top marginal tax rate.
    d. the spending multiplier.

11. If the value of the investment multiplier is 5, an autonomous increase in
    a. income of $10 will result in investment increasing by $50.
    b. investment of $10 will result in income increasing by $60.
    c. investment of $10 will result in consumption increasing by $50.
    d. consumption of $10 will result in investment increasing by $40.

12. Which of the following would cause an increase in the value of the overall multiplier?
    a. an increase in the terms of trade index.
    b. a reduction in income tax rates.
    c. a rise in the marginal propensity to save.
    d. an increase in investment spending.

13. Suppose that real GDP equals $700 billion while full employment real GDP equals $800 billion. To close this gap, the government should
    a. increase its spending by $25 billion if the MPC is 0.80.
    b. increase its spending by $30 billion if the MPC is 0.70.
    c. increase its spending by $20 billion if the MPC is 0.75.
    d. increase its spending by $15 billion if the MPC is 0.80.

14. Macroeconomic equilibrium in Australia occurs when
    a. total spending equals total output.
    b. government spending equals government tax revenue.
    c. imports equal exports.
    d. savings equal investment.

15. Assume that the government increases its spending by $9 billion. If the MPS is 0.4, what will be the total increase in income?
    a. $9 billion
    b. $10 billion
    c. $22.5 billion
    d. $2.5 billion

Extended responses

Each of the questions below should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Explain why private investment expenditure is more volatile than consumption spending. [10 marks]

   b Explain how TWO of the following events would be expected to affect aggregate consumption in Australia? [5 + 5 marks]
   i. a rise in interest rates.
   ii. the level of disposable income falls during a contraction.
   iii. an increase in mining investment in Australia.

2. a. How would a fall in the real interest rate affect the demand for non-durable and durable consumer goods? [10 marks]

   b. Explain how TWO of the following events may affect aggregate private investment in Australia? [5 + 5 marks]
   i. a fall in interest rates.
   ii. the level of disposable income falls during the early stages of a downturn.
   iii. levels of corporate profit are the highest in the past three years.

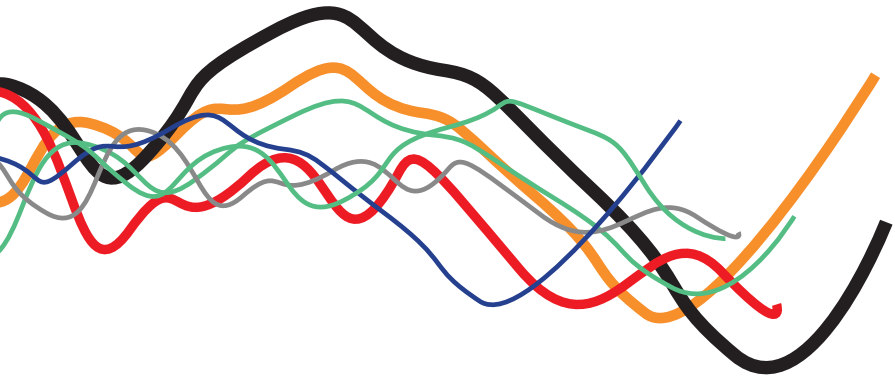
3. a. In a series of monetary policy decisions. the Reserve Bank of Australia (RBA) cut interest rates from 4.75% in 2010 to 2% in 2015. Discuss the likely effects of lower interest rates on consumption and investment spending. [10 marks]

   b. Over the year to September, 2020, new business investment in Australia declined by 1.4 per cent. Using an appropriate model, explain how this decline would have affected the Australian economy. [10 marks]

4. Using the Keynesian Cross model, describe the concept of macroeconomic equilibrium and explain how changes in investment and savings can alter the equilibrium level of income. [20 marks]

5. In recent years, Australia has experienced considerable investment in solar energy and power storage (battery) facilities.
   a. Discuss the importance of investment (in general) to the Australian economy and explain the factors that can influence the total amount of investment spending in Australia. [10 marks]
   b. Use the aggregate expenditure model, and refer to the multiplier process , to demonstrate and explain the likely effect of the increased solar energy investment on the Australian economy. [10 marks]

6. a. Draw a Keynesian cross diagram to show the effects of a rise in autonomous expenditure if the economy is initially below full employment. [10 marks]
   b. Explain how the 'marginal propensity to withdraw' affects the outcome of a rise in autonomous expenditure. [10 marks]

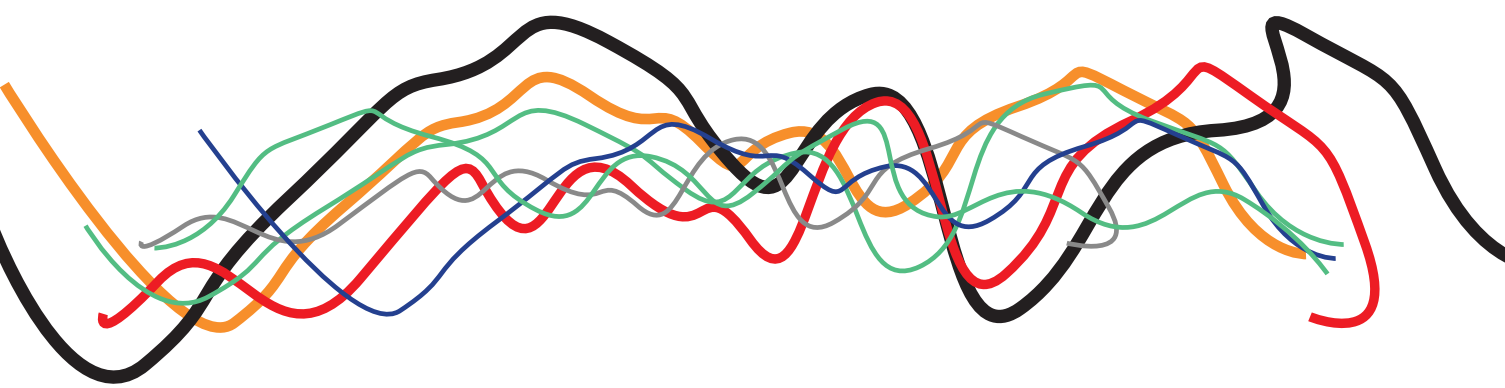


10

Aggregate demand and supply

Chapter concepts

- *the aggregate demand (AD) curve and factors that can cause movements along and shifts of the AD curve*
- *the aggregate supply (AS) curve and factors that can cause movements along and shifts of the AS curve*
- *macroeconomic equilibrium using the AD/AS model*
- *the impact of changes in aggregate demand and aggregate supply on the equilibrium level of income/output using the AD/AS model*
- *the use of the AD/AS model to explain the business cycle.*



The aggregate demand / aggregate supply model

The Keynesian aggregate expenditure model and the multiplier principle enable us to develop an understanding of the economic impact of changes in any of the components of aggregate expenditure.

The aggregate expenditure model, however, only shows the impact of a change in spending on output. It says nothing about the impact of changing expenditure on the general price level. This is an important omission – it means the model says nothing about inflation (one of the 'twin evils' associated with the business cycle).

The aggregate expenditure model also only focuses on the demand side of the economy – it ignores the supply side. This means that the effect of changes in important economic variables such as the labour force, the capital stock, the level of technology and rising productivity are not considered.

The purpose of this chapter is to introduce a more complete macroeconomic model – the aggregate demand/aggregate supply model (for which we use the AD/AS model abbreviation).

Aggregate demand

Aggregate demand is the total amount of demand for final goods and services in an economy at any point in time. This is a similar definition to the aggregate expenditure definition introduced in chapter 9. The way the concept is presented in this model, however, is different. As illustrated in figure 10.1, the AD curve describes a negative (downward sloping) relationship between the level of aggregate demand and the overall price level. The x-axis shows the level of output produced in the economy – we usually label this as Real GDP, as this shows the value of output produced.

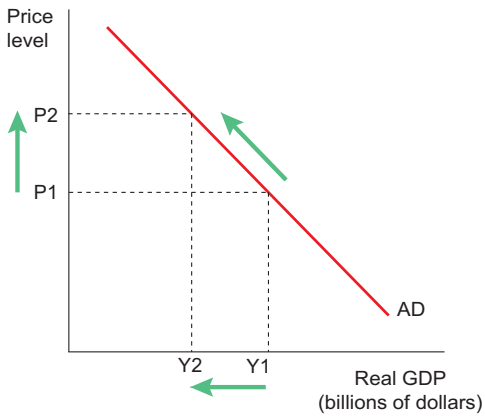
It is important to note that the aggregate demand curve is very different to the demand curve for an individual good or service studied in microeconomics.

There are three reasons behind the negative relationship between AD and the price level:

- the income or wealth effect;
- the interest rate effect; and
- the open economy effect.

Firstly, a rise in the price level (inflation) reduces the purchasing power of household income or wealth. If prices were to rise by 10 per cent tomorrow, would you be able to buy more or less goods and services? The answer, of course, is less (assuming no increase in your income). As the price level increases, the purchasing power of household income falls, so consumption (a key element of aggregate demand) also falls.

Secondly, inflation affects interest rates. A rise in the general price level means that households and firms will demand more funds to finance their transactions. They could do this by withdrawing money from banks, by borrowing, or by selling



The aggregate demand curve shows the total amount of spending in the economy at each price level. A rise in the price level (higher inflation rate) causes a movement upwards along the AD curve reducing aggregate spending and real GDP

Figure 10.1 The aggregate demand (AD) curve

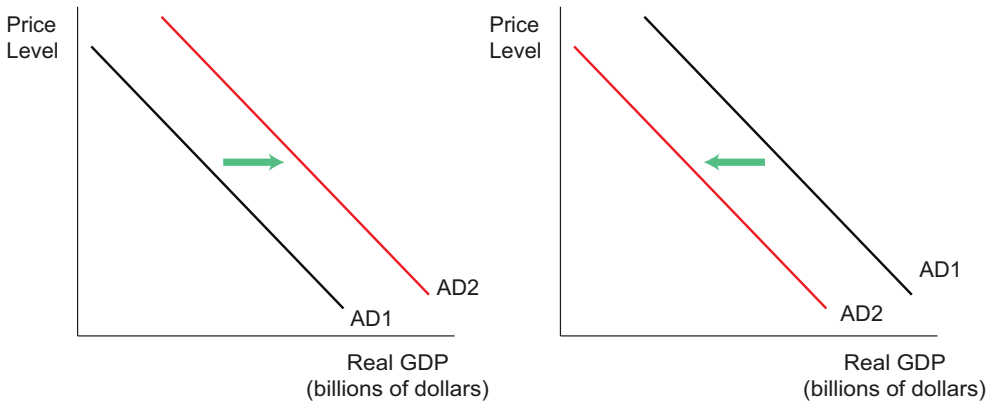
financial assets such as bonds. The rising demand for money drives interest rates upwards, increasing the cost of borrowing and creating a disincentive to spend. This is called the interest rate effect – a rise in the price level increases interest rates, which has a negative impact on the investment and consumption components of AD.

Thirdly, the downward slope is partly explained by the 'international' or 'open economy' effect. If the domestic price level (inflation) rises relative to other countries, domestically produced goods and services become less competitive with those produced overseas, leading to a reduction in export revenue. At the same time, a rise in the domestic price level will mean that consumers and business firms will purchase more goods and services from foreign producers, and less from domestic producers. In other words, an increase in the price level will decrease net exports (X – M).

In summary, increases in the general price level (inflation) can be expected to reduce total spending in the economy – a movement up and to the left along the AD curve, as illustrated in figure 10.1. Falls in the price level, on the other hand, can be expected to increase total spending in the economy and cause a movement down, and to the right, along the AD curve.

Shifts of the aggregate demand curve

The whole AD curve will shift to the left or the right if factors other than the price level were to change. This refers to the actors that influence consumption (C), investment (I), government spending (G) or net exports (NX). If, for example, the government reduced income tax, disposable income will rise and household spending will tend to increase. The AD curve would shift to the right – described as 'an increase in AD'. An increase in AD increases real GDP, income and employment. Other events that might cause an increase in consumption include a rise in consumer confidence, a fall in interest rates, or an increase in household wealth driven by rising share prices or property values.



A rise in consumer confidence will increase household consumption causing an increase in AD – the AD curve will shift to the right

A fall in business confidence or a rise in interest rates will decrease investment causing a decrease in AD – the AD curve will shift to the left.

Figure 10.2 Shifts in aggregate demand

The AD curve would shift to the left if, for example, investment spending fell because of a decline in business confidence or a rise in interest rates.' A decrease in AD will reduce real GDP and employment.

Changes in government spending would also shift the AD curve. An increase in government spending would shift the AD curve to the right, while a decrease in government spending will shift the AD curve to the left.

Changes in global economic growth will have an impact on Australia's exports. Higher economic growth in China, for example will increase Australia's exports and shift the AD curve to the right, increasing real GDP and employment.

Figure 10.2 illustrates the impact of some economic events on the AD curve.

The aggregate supply curve

In building the AD/AS model, we develop two aggregate supply curves – the long run aggregate supply curve (LRAS), and the short run aggregate supply curve (SRAS).

The LRAS curve is vertical because it represents the maximum level of output at a particular point in time. The position of the LRAS curve is determined by:

- the size of the population (the number of households buying goods, and the potential size of the work force);
- participation in the work force; and
- the productivity of labour influenced by the stock of capital equipment and the state of technology.

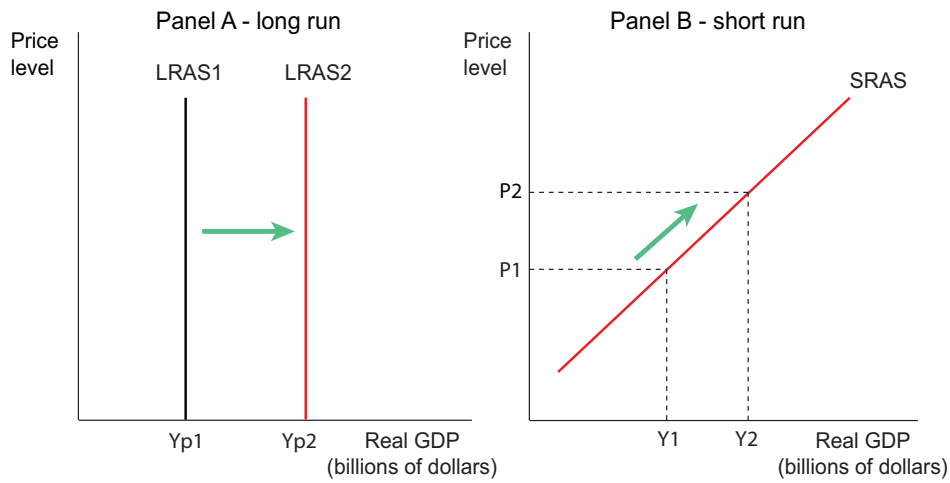


Figure 10.3 Long run and short run aggregate supply curves

The LRAS curve shows the economy's maximum or potential level of GDP when all resources are fully employed. The LRAS curve is vertical – the price level does not influence potential output.

Potential GDP is independent of the price level. Over time, the potential level of output (Yp) increases, as illustrated by Panel A of figure 10.3. Over the long term in Australia, the annual rate of increase of potential output is around 3 per cent.

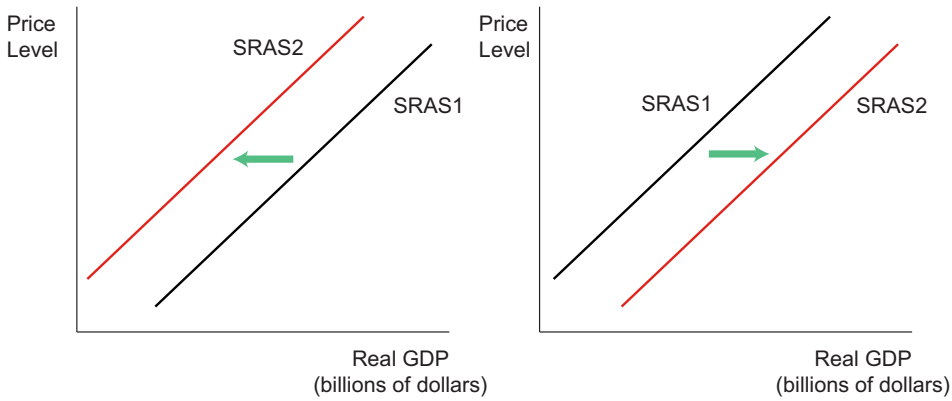
The potential level of output and income (Yp) is unlikely to correspond to a zero rate of unemployment. In recent times, the continuing presence of both frictional and structural unemployment suggests there is a natural rate of unemployment – around 4 per cent of the workforce, according to the Reserve Bank of Australia (RBA).

The SRAS curve shows how an increase in economic activity increases the general price level.

The short run aggregate supply curve (SRAS) curve is positively sloped. The aggregate supply curve describes the relationship between the total production of goods and services, and the general price level. As the level of economic activity increases, the price level rises. Why does this occur? To increase production, firms require more labour and capital, which puts pressure on resource prices. The most important cost of production is the price of labour – wages. When productive output rises, wages should begin to rise, causing the general price level to rise. This is especially true as the economy approaches its potential capacity or full employment. In panel B of figure 10.3, the SRAS curve shows that an increase in real GDP from Y1 to Y2 will cause the price level to rise from P1 to P2 because production costs have increased.

Shifts of the aggregate supply curve

Shifts in the SRAS curve are caused by events that can affect the availability of resources and/or costs of production in the short term. Some examples are



The early stages of the coronavirus pandemic were regarded as a 'supply-side' shock. Strict lockdowns in parts of China forced factories to close, disrupting supply chains in many industries across the world.

An improvement in technology, or a fall in the price of an important input such as oil would shift to the right (an increase in SRAS). The level of real GDP and employment will rise.

Figure 10.4 Shifts of the SRAS curve

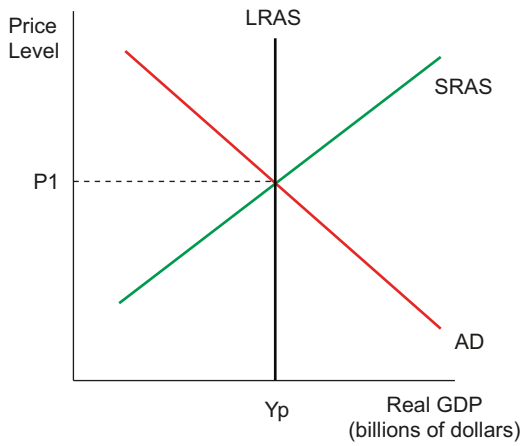
illustrated in figure 10.4. Unanticipated shifts of the SRAS curve are sometimes referred to as 'supply shocks'. Negative supply shocks cause an leftward/upward shift in the SRAS curve, whilst a positive supply shock would cause a rightward/ shift.

It is important to distinguish the factors that can shift the short run AS curve from those factors that will shift the long run AS curve. Any changes in input prices, such as the price of oil, the price of labour (wages) and raw materials will shift the SRAS curve, but not the LRAS curve. Significant weather events often cause a negative supply shock – in 2021-2022, the concurrent La Niña event and positive southern annular phase brought significant flood disruption to the Queensland and NSW economies.

Changes in the quantities of factors of production, on the other hand, will shift both short run and long run aggregate supply. For example, the COVID-19 pandemic resulted in dramatic cuts in migration to Australia, meaning a leftward shift in both short run aggregate supply (shortages of labour) and long run aggregate supply (reduced population growth).

Macroeconomic equilibrium

The economy is in short run equilibrium at the point where the AD curve intersects the SRAS curve. This is the economy's actual level of spending, production and income. The economy is in long run equilibrium when all three curves (AD, SRAS and LRAS) intersect. This outcome implies that actual output equals potential output. This is illustrated in figure 10.5.



The economy is in long run macroeconomic equilibrium when the AD and SRAS curves intersect at the potential level of output Yp (that is, on the LRAS curve).

A shift in either the AD curve or the SRAS curve will cause short run equilibrium to diverge from the economy's potential output, with some impact on the price level.

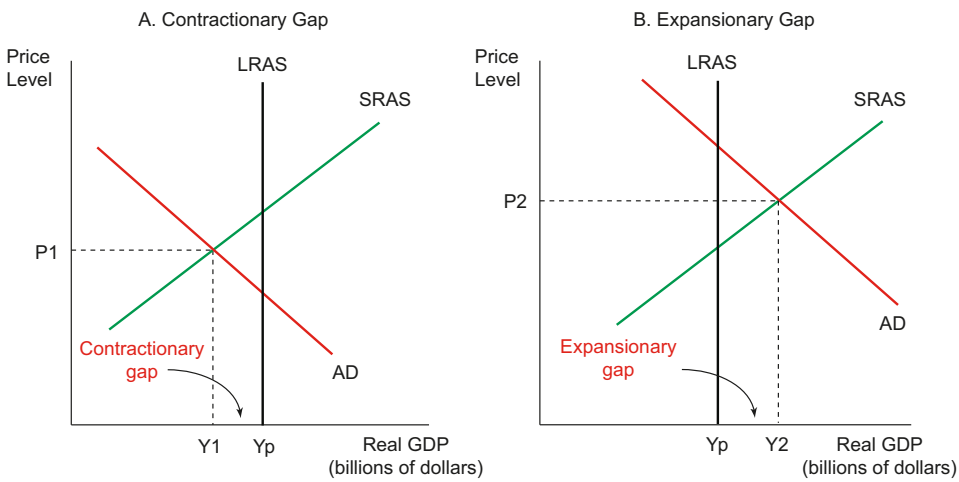
Figure 10.5 Macroeconomic equilibrium

Does the economy always operate at long run equilibrium? The answer is no. In the June quarter of 2020, for example, economic growth was negative as a result of economic disruption brought about by the pandemic. Actual GDP of $1,880 billion was less than potential GDP, which was estimated to be around $2,000 billion. The unemployment rate of 7 per cent was higher than the natural rate (5 per cent at the time). This suggests that the economy's short run equilibrium (AD and SRAS) intersected to the left of the LRAS curve.

What might 'long run macroeconomic equilibrium' look like in Australia? The rate of unemployment would be 4.5 per cent; the rate of inflation would be in the 2-3 per cent band, and the growth rate of GDP would be 3.25 per cent.

Over time all three curves on the model – the AD, SRAS and the LRAS – shift to the right due to economic growth. The population and labour force grow because of natural increase and migration. The capital stock, consisting of machinery, business equipment, new housing, factories and social infrastructure also grows as new projects and businesses are developed. This means that both the short run and the long aggregate supply curves are shifting to the right. At the same time, aggregate demand tends to increase due to the increase in aggregate consumption and investment that economic growth brings. But the AD curve may not shift at the same rate as the AS curves. At any point in time the economy's short run equilibrium may be below, or above, its potential. We therefore distinguish two types of short run outcomes – a contractionary gap and an expansionary gap.

These 'gaps' are illustrated in figure 10.6. The model in panel A shows the economy in short run equilibrium below the full employment (natural rate) level of real GDP (Yp). The AD curve intersects the SRAS curve to the left of the LRAS curve. This is a contractionary gap because the current equilibrium level of real GDP (Y1) is less than potential GDP.



In panel A, short run equilibrium is below the potential level of output - AD intersects SRAS to the left of the LRAS curve. The contractionary gap is the distance between Y1 and Yp. Economic indicators will reflect the output gap (for example the unemployment rate will rise; business investment will tend to fall; inventories will rise).

In panel B, short run equilibrium above potential - AD intersects SRAS to the right of the LRAS curve. The expansionary gap is the distance between Yp and Y2. We would expect to see low unemployment; wage rises; strong retail sales and corporate profit, and we would upward pressure on prices.

Figure 10.6 Contractionary and expansionary gaps

Characteristics of a contractionary gap include:

- lower rates of inflation, due to spare capacity in the economy;
- higher levels of cyclical unemployment;
- a fall in the labour force participation rate if unemployed workers feel they have less chance of finding a job;
- lower company profits;
- slower growth of consumer expenditure (especially on durables);
- increased need for social security (the Jobseeker allowance);
- lower interest rates; and
- a decrease in the current account balance will increase investment relative to savings.

In other words, an economic downturn! Will an economy become 'stuck' in a contractionary or recessionary gap? No, because the economy has a self correcting mechanism to push the economy to its long run equilibrium. When actual GDP is below potential GDP, the unemployment is above the natural rate. This should cause real wage increases to slow, shifting the short run AS curve to the right, moving the economy back towards potential GDP. At the same time, aggregate

demand may start to rise as consumer and business confidence improves or as the government and/or the Reserve Bank implements expansionary policies to encourage private sector spending.

Panel B shows the economy in short run equilibrium at a level of real GDP higher than the natural employment level (Yp). The AD curve intersects the SRAS curve to the right of the LRAS curve. This is s an expansionary gap – the equilibrium level of real GDP (Y2) is greater than potential GDP (Yp). Characteristics of an expansionary gap include, for example:

- wage inflation if there is a tight labour market (competition for workers);
- an increase in the participation rate, as people expect they will be able to find a job if they seek work;
- lower levels of cyclical unemployment – consumer demand for goods and services is high, so firms need to employ labour to produce those goods and services;
- an increase in company profits and business confidence;
- increased consumer confidence and sales of consumer durables and luxury items;
- reduced need for cyclical welfare payments, such as unemployment benefits (JobSeeker) ; and
- the current account balance will fall if investment increases relative to savings.

Will the economy become stuck in an expansionary or inflationary gap? Again, the answer is no, because the economy has self-correcting mechanisms to restore its long run equilibrium. These were outlined when we discussed the upper turning point of the business cycle in chapter 9. In addition, we would also expect tighter fiscal and monetary policies to reduce spending in the economy which will shift the aggregate demand curve to the left.

The AD/AS model and the business cycle

The AD/AS model helps us to visualise expansions and contractions of the business cycle and the associated problems of unemployment and inflation.

Firstly, we use the AD/AS model to show how an economy can experience a downturn or contraction in activity. We begin by assuming the economy is initially in long run equilibrium at its potential GDP. As shown in panel A of figure 10.7, the level of aggregate demand (AD1) matches short run aggregate supply (SRAS) at the economy's potential level of output Yp (that is, on its LRAS curve). The price level (rate of increase) is P1.

Panel A then shows the impact of a reduction in aggregate demand from AD1 to AD2. Firms would react to lower demand by cutting production, so income and

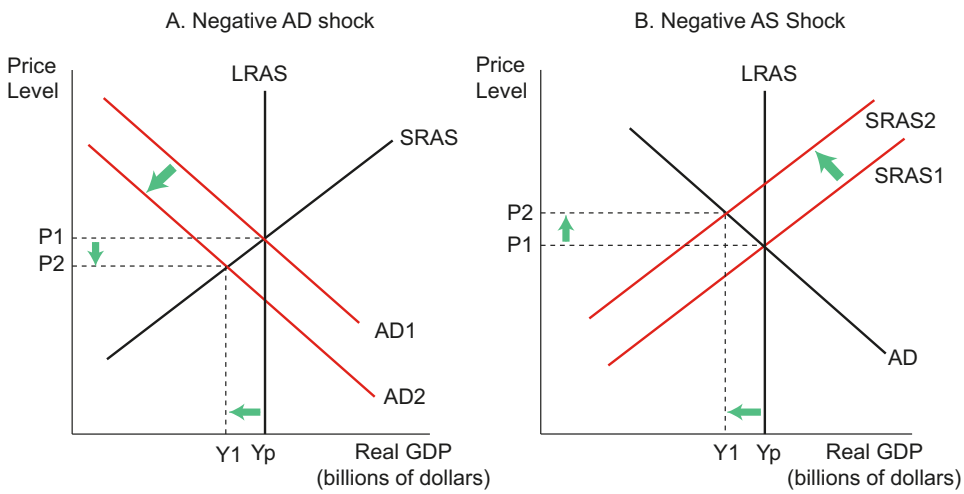


Figure 10.7 Using the AD/AS model to show a contraction

employment would fall. Real output would fall from Yp to Y1. Reduced inflationary pressure sees the price level fall from P1 to P2.

Panel B shows how a contraction could result from a negative supply shock – perhaps a rise in world oil prices, a natural disaster, or problems with the supply chain like those during the pandemic. The model again shows that the equilibrium level of output falls from Yp to Y1, but this time prices rise from P1 to P2 because these supply shocks cause production costs to rise, causing upward pressure on prices. The term 'stagflation' was coined to refer to a negative supply shock – a stagnant (lower growth) economy in which prices are rising due to higher costs.

The AD/AS model could also be used to show a business cycle expansion. In Australia's recent mining construction boom, investment spending and strong commodity exports drove increases in output, employment and income. The economic growth rate jumped to 4.4 per cent – well above the long term average. Economic growth in Queensland and WA was nearly 10 per cent in one year! The unemployment rate fell to just 4 per cent – well below the natural rate of unemployment at tht time. The increase in investment and exports would be modeled as a rightward shift in aggregate demand, leading to an increase in economic activity (higher production, employment and aggregate incomes), perhaps with some pressure on the price level as the economy nears its capacity.

An expansion that is caused by the short run AS curve shifting to the right will cause inflation to fall. This could occur, for example, if new technologies boosted labour productivity or reduced energy prices.

Now that we have introduced the Keynesian and aggregate demand/aggregate supply models we again review Australia's business cycles since 1980. Figure 10.9 is based on the same data as figure 8.1 from chapter 8.

Figure 10.8 An alternative AD/AS model

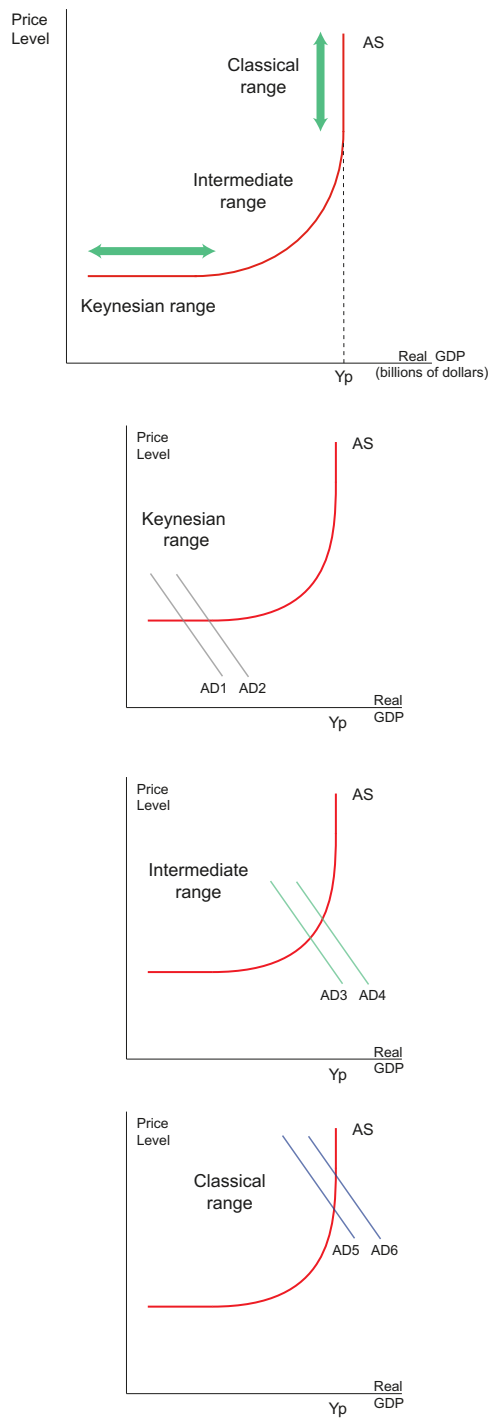
An alternative AD/AS model combines the SRAS curve and the LRAS curve into one curve – as shown at right.

When the economy is in a trough, as in the second diagram, aggregate demand is very low, and would intersect the AS curve in its 'Keynesian' range, where the AS curve is flat or horizontal. The economy has significant spare capacity, so the economy can expand (AD shifts from AD1 to AD2) with little impact on prices.

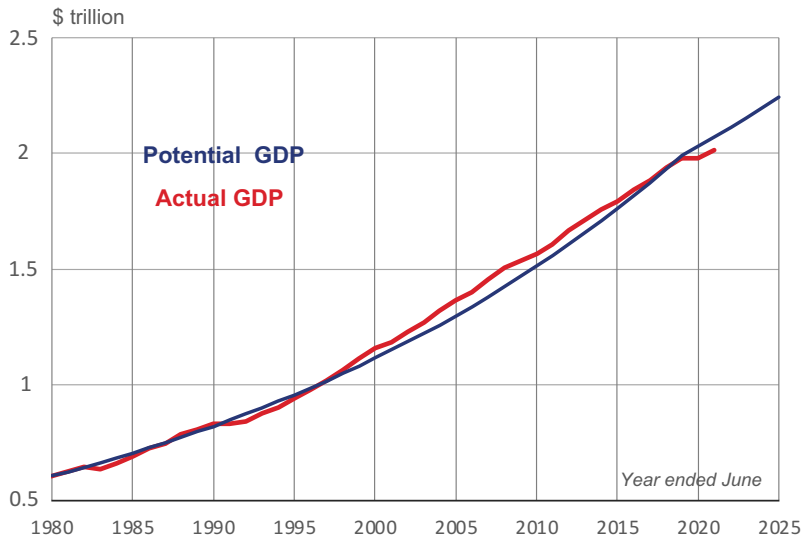
As the economy approaches its full employment or natural rate of output, the AS curve starts to slope upwards. This is referred to as the 'intermediate' range of the AS curve. Rises in real GDP caused by an increase in AD from AD3 to AD4 (third diagram) cause the price level to increase because labour and other factor markets are beginning to tighten. Competition among producers for reduced supplies of resources will cause their prices to increase (especially as production and employment levels rise and the economy is closer to potential output).

When the economy reaches the full employment level of output (Yp), the AS curve becomes vertical. This is referred to as the 'Classical' range of AS. Increases in economic activity, such as a shift from AD5 to AD6 (lower diagram) have no impact on real GDP because the economy is at full capacity. An increase in aggregate demand would be highly inflationary.

In this version of the AD/AS model, the ranges of the AS curve describe different phases of the business cycle. The Keynesian range is typical of an economy in a recession or trough. The level of real GDP is below the full employment level and unemployment is high. The Classical range describes an economy in a boom – the economy has reached its full employment potential (at the natural rate of unemployment) and higher levels of aggregate demand put pressure on the price level. Between these extremes, the economy would be in an Intermediate range.



The blue line shows the potential GDP over the period 1980–2022 consistent with a 3 per cent annual growth rate (until 2018 - 2.7% after that). This is determined by growth in the workforce and in productivity. The red line shows movements of actual GDP growth around potential GDP.



Source: ABS Australian National Accounts Table 34 (author calculations)

Figure 10.9 Australia - actual vs potential GDP since 1980

The blue line shows the potential GDP that would result from a consistent year-by-year shift in LRAS due to increases in the factors we have mentioned previously – growth in the labour force (due to natural increase and migration), increasing capital stock, technological change and increases in productivity. The potential GDP line is slightly curved due to the effect of compounding (although we cut the rate slightly after 2020 due to the expected long term impact of the pandemic).

The red line shows actual GDP (expenditure) rates over the same period. When the red line is above the black one, output was 'above potential'. When actual GDP is below potential, the economy is experiencing a contraction, with levels of output income and expenditure below their long term potential. The contractions of 1983, 1991, 2008 and 2020 are again evident.

This diagram gives a realistic portrayal of the business cycle over a long period of time. Economic activity rises slowly at about 3 per cent per annum compounded. Cycles of expansion and contraction vary actual performance a few percent either way in the short term. The chart also shows the 'long boom' in the Australian economy that occurred between 1991 and 2020 – 29 years without a recession (although there were three individual quarters of negative growth).

Worksheet - the AD/AS model

Read chapter 10 to answer the following questions.

1. What three key macroeconomic variables does the AD/AS model explain?
2. Define aggregate demand. What are the elements of AD?
3. Draw an AD curve. In what way are the axes different to the AE model?
4. How does an increase in the price level affect aggregate real income?
5. Why would a rise in the price level in the economy tend to increase interest rates?

6. Explain what is meant by the 'open economy' effect?
7. List two events that could lead to an rightward shift in the AD curve.
8. What effect would a 10 per cent fall in ASX share prices have on the AD curve? Explain. Explain the term 'aggregate supply'.
9. Explain why the LRAS curve is vertical.
10. Explain why the SRAS curve is upward sloping.
11. List two events that could lead to a leftward shift of the SRAS curve.
12. Explain the difference between short run and long run macro equilibrium.
13. Draw a diagram to illustrate a contractionary or expansionary gap. Provide an explanation for the economy to be not at full employment equilibrium.
14. Explain how the economy will 'self correct' if actual GDP is less than potential GDP.
15. Explain why the LRAS curve typically shifts to the right over time.
16. What impact does improving technology over time have on the economy? Use the AD/AS model to support your answer.
17. Using the AD/AS model, explain the impact on the price level, real GDP and unemployment of the events below. Assume in each case that the GDP is currently slightly below its potential.
    a. lower economic growth in China
    b. the COVID-19 pandemic.
    c. an appreciation of the AUD.
    d. a decrease in the terms of trade.

News extract

Read the extract from the RBA Monetary Policy Meeting minutes, and answer the questions that follow.

Economic conditions August 2022

The outlook for business investment remained positive through the month. The June quarter ABS Capital Expenditure Survey, conducted in July and August, indicated that non-mining firms expected to increase investment in the 2022/23 financial year, driven by investment in machinery and equipment. Capacity utilisation remained high across industries, with non-mining capacity utilisation at its highest level in over three decades.

The demand for labour remained robust, judging by the timely information from job ads and liaison. Most firms interviewed as part of the RBA liaison program expected to increase headcount, but some had expressed concern about their ability to do so because of poor labour availability and strong competition from other firms. Measured employment had declined in July; however, looking through the monthly volatility, the labour market remained very strong.

The employment-to-population ratio and participation rate were around record highs, and measures of spare capacity were at their lowest levels in decades. The unemployment rate had declined further to 3.4 per cent in July. Members noted recent announcements that staffing levels in visa processing would be increased to clear backlogs in this area. Immigration of skilled workers, students and working holidaymakers could all be anticipated to increase in the period ahead, which would add to labour supply as well as aggregate demand.

Wages growth was picking up as expected. A range of data sources, including interviews with business people, business surveys and measures based on retail banking data, indicated that this pick-up had continued over prior months. In the June quarter, the Wage Price Index had increased by 0.7 per cent in the quarter and 2.6 per cent in year-ended terms. The pick-up in growth had been stronger in the private sector than in the public sector, where wages growth had remained more subdued. Wages growth had been strongest in the construction industry, consistent with information from liaison about labour costs and availability in that industry.

Source: RBA Minutes of the Monetary Policy Meeting of the Reserve Bank Board Sydney – 6 September 2022 (edited for context)

Questions

1. State five examples of 'economic indicators' mentioned in the extract. How would the RBA business liaison program add to the RBA's knowledge about the state of the economy?
2. What impact does immigration and working holiday makers have on the economy, according to this extract?
3. The extract suggests that wages are "picking up"? Give two reasons from the extract that suggest why this is occurring.
4. Explain, using a model, how the fall in investment mentioned in the extract can affect both the AD curve and the SRAS curve.
5. Use an AD/AS model to show the events of June quarter in 2016. Assume the economy was below its potential in 2015 and the first three months of 2016.

The AD/AS model

For each of the following events, determine whether the AD or SRAS curve would shift and in which direction (and increase or decrease).

	Event	Curve (AD or SRAS)	Effect (increase or decrease)
1	An increase in the labour force		
2	An increase in investment		
3	A cut in income taxes		
4	A decrease in interest rates		
5	A depreciation of the AUD		
6	A fall in the terms of trade		
7	A fall in the world oil price		
8	COVID-19 causes supply chain problems		
9	A global financial disaster		
10	Australia signs a free trade agreement with China		

Multiple choice questions

For each of the questions below, choose the best alternative.

1. Which of the following statements explains why the aggregate demand curve is downward sloping?
   a. Falling price levels cause a reduction in aggregate spending in the economy.
   b. Rising price levels increase real interest rates.
   c. Rising prices increase purchasing power.
   d. A depreciation of the AUD decreases overseas purchasing power for Australian goods.

2. A rise in net exports shifts:
   a. the aggregate demand curve to the right.
   b. the aggregate demand curve to the left.
   c. the short run aggregate supply curve to the right.
   d. the long run aggregate supply curve to the left.

3. An increase in the value of the AUD relative to the Japanese yen will:
   a. increase aggregate demand in Australia.
   b. decrease aggregate supply in Australia.
   c. increase aggregate demand in Japan.
   d. increase aggregate supply in Japan.

4. A recession overseas would:
   a. increase Australian net exports and increase domestic aggregate supply.
   b. increase Australian net exports and increase domestic aggregate demand.
   c. reduce Australian net exports and reduce domestic aggregate demand.
   d. reduce Australian net exports and increase domestic aggregate demand.

5. The LRAS curve shifts to the right by about 3% each year. This is due to:
   i. increases in aggregate demand.
   ii. rising productivity.
   iii. students leaving school.
   iv. increases in the size of the labour force.
   a. i and ii.
   b. ii and iii.
   c. ii and iv.
   d. iii and iv.

6. Which of the following could explain an increase in aggregate demand?
   a. A reduction in wage levels
   b. A fall in interest rates.
   c. A rise in interest rates.
   d. An appreciation of the Australian dollar.

7. The expected increase in real wages in 2022/2023 will have the following impact on the economy.
   a. The increase will lift employment and real GDP.
   b. The increase will shift the aggregate supply curve (SRAS) to the left.
   c. The increase will reduce the price level.
   d. The increase will shift the long run aggregate supply curve (LRAS) to the right.

8. Suppose technology improves. If aggregate demand remains constant, what will happen to the long-run equilibrium price level and output level?
   a. The price level will fall, and the level of output will rise.
   b. The price level will rise, and the level of output will rise.
   c. The price level will fall, and the level of output will fall.
   d. The price level will rise, and the level of output will fall.

9. Assume the economy has experienced a sudden bout of demand pull inflation – the price level, as measured by the CPI, has risen by five per cent. In an aggregate demand aggregate supply model (AD/AS), this would be represented by:
   a. a rightward shift in aggregate demand such that the intersection of AD and SRAS is at or beyond the position of the LRAS curve.
   b. a rightward shift in aggregate demand such that the intersection of AD and SRAS is to the left of of the LRAS curve.
   c. a rightward shift of the AS curve.
   d. a leftward shift of the LRAS curve.

10. Suppose over time aggregate demand grows more rapidly than aggregate supply. Which of the following will occur?
    a. Potential GDP will increase, but the price level will remain constant.
    b. Both the price level and actual GDP will increase.
    c. Neither the price level nor potential GDP will change.
    d. Both the price level and potential GDP will decrease.

11. Which of the following is an example of a 'negative supply shock'?
    a. A fall in interest rates during an economic slowdown.
    b. An unexpected improvement in business expectations.
    c. An unexpected increase in the price of a key resource such as labour.
    d. An unexpected fall in oil prices.

12. Suppose the economy experiences a 'supply shock' due to a rise in oil prices. In the short run the price level will _____ and the level of output will _____.
    a. increase; increase.
    b. decrease; increase.
    c. increase; decrease.
    d. decrease; decrease.

13. Which of the following would shift the SRAS curve to the left?
    a. An increase in labour productivity due to improvements in technology.
    b. A decrease in the cost of education due to tighter quality controls
    c. Drought conditions impacting on the supply of agricultural crops.
    d. A fall in business confidence.

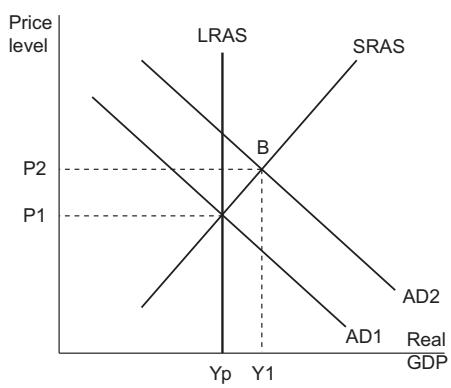
14. The global financial crisis (GFC) decreased business confidence. How would this affect the AD curve?
    a. It will move the economy up along a stationary aggregate demand curve.
    b. It will move the economy down along a stationary aggregate demand curve.
    c. It will shift the aggregate demand curve to the right.
    d. It will shift the aggregate demand curve to the left.

15. Which of the following is most likely to reflect government policy designed to increase efficiency and productivity in the economy?
    a. The AS curve shifts to the left.
    b. The AD curve shifts to the left.
    c. The AS curve shifts to the right.
    d. The AD curve shifts to the right.

Data interpretation

Q1. The AD/AS model illustrates an economy operating at point B (real GDP is Y1)

1. Describe three events that might have caused the shift in aggregate demand from AD1 to AD2.
2. Briefly describe what this model tells you about the state of the economy - refer to unemployment, inflation & GDP growth.



3. Explain what would you would expect to happen to return the economy to its long run potential GDP. [3+4+5 marks].

Q2. Refer to the following economic indicators:

- the real GDP growth rate for the past year is 3.6%;
- the terms of trade have increased by 12% over the course of the year;
- the unemployment rate has fallen from 5.5% to 4.5%; and
- the current inflation rate of 4.3%.

Describe the likely state of the economy, based on these indicators. Would the economy be operating above or below potential GDP? Draw an AD/AS model to depict the state of the economy. [12 marks]

Q3. This question refers to the following news extract.

> "The collapse of mining investment in the resources sector and slower population growth will reduce the growth in Australia's potential GDP over the next few years. Slower productivity growth will also contribute to a slowdown in potential GDP. This means that the trend rate of growth is likely to be relatively lower than previous decades. This has important implications for the growth in living standards over time".

1. Describe how "the collapse in investment" affects aggregate supply. [2 marks]
2. Explain how the events discussed in the extract would impact on Australia's long run aggregate supply curve. [4 marks]
3. Explain how the events discussed in the extract would impact on levels of output, employment and inflation in the Australian economy [6 marks]

Media release

Economic activity fell 7.0 per cent in June quarter

Media Release 2/09/2020

Australian Gross Domestic Product (GDP) fell 7.0 per cent in the June quarter, the largest quarterly fall on record, according to figures released by the Australian Bureau of Statistics (ABS) today. This follows a fall of 0.3 per cent in the March quarter 2020.

The combined effect of the pandemic and the community and government responses to it led to movements of unprecedented size, not only in GDP but also in many of the other economic aggregates in the National Accounts. The Government's response to support Australian households and businesses resulted in record payments from the public to the private sectors.

Private demand detracted 7.9 percentage points from GDP, driven by a 12.1 per cent fall in household consumption expenditure. Spending on services fell 17.6 per cent, with falls in transport services, operation of vehicles and hotels, cafes and restaurants.

The household saving to income ratio rose to 19.8 per cent from 6.0 per cent, driven by the fall in consumption expenditure. Hours worked fell a record 9.8 per cent, outpacing the record 2.5 per cent decline in wages which were supported by JobKeeper payments. Social assistance benefits in cash rose a record 41.6 per cent, due to increased number of recipients and additional support payments.

Government net saving fell to -$82.6 billion from $1.2 billion in the March quarter 2020. The fall in the June quarter reflected the government economic response to the COVID-19 pandemic, which resulted in a record high subsidy payments of $55.5 billion and reduced tax income received.

Source: ABS National Accounts June 2020

Questions

1. What evidence suggests that the Australian economy was in recession?
2. Describe three characteristics of a recession.
3. Other than a fall in real GDP, describe three other economic indicators that would have fallen as a result of the pandemic.
4. Describe and explain the change in both household and government saving.
5. Use the AD/AS model to illustrate and explain the impact of the pandemic on the Australian economy.

Extended responses

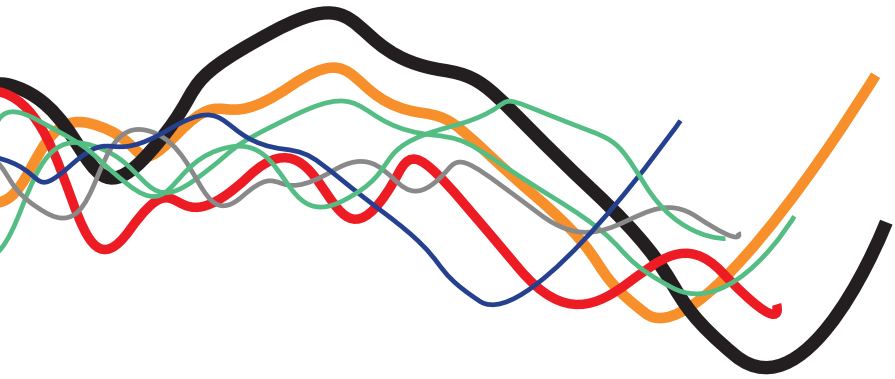
Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Distinguish between the causes of a movement along the aggregate demand curve and a shift of the curve. [10 marks]
   b. Explain how an increase in aggregate demand would impact on the economy, assuming the economy was initially in a trough or recession. [10 marks]

2. Show how the impact of the following events can be modeled using an AD/AS framework:
   (i) Australia's recent mining construction boom.
   (ii) disruptions to supply chains associated with the pandemic.
   (iii) a rise in productivity. [5 marks each]

3. a. In 2020-2022, supply chains around the world were disrupted by production and transport closures associated with the COVID-19 pandemic . Use the AD/AS model to explain how the disruptions affected economic growth. [10 marks]
   b. Use the AD/AS model to model an expansionary gap. Discuss five characteristics of such a period. [10 marks]

4. Use the AD/AS model to depict and explain each of the following statements.
   a. "the economy has experienced a large expansionary shock from the high terms of trade and has relatively modest amounts of spare capacity. Looking ahead, the risk of inflation rising again over the medium term remains". [10 marks]
   b. "House prices in Queensland are likely to sink as the financial effects of the state's devastating floods strain household budgets and dent banks' willingness to lend". [10 marks]

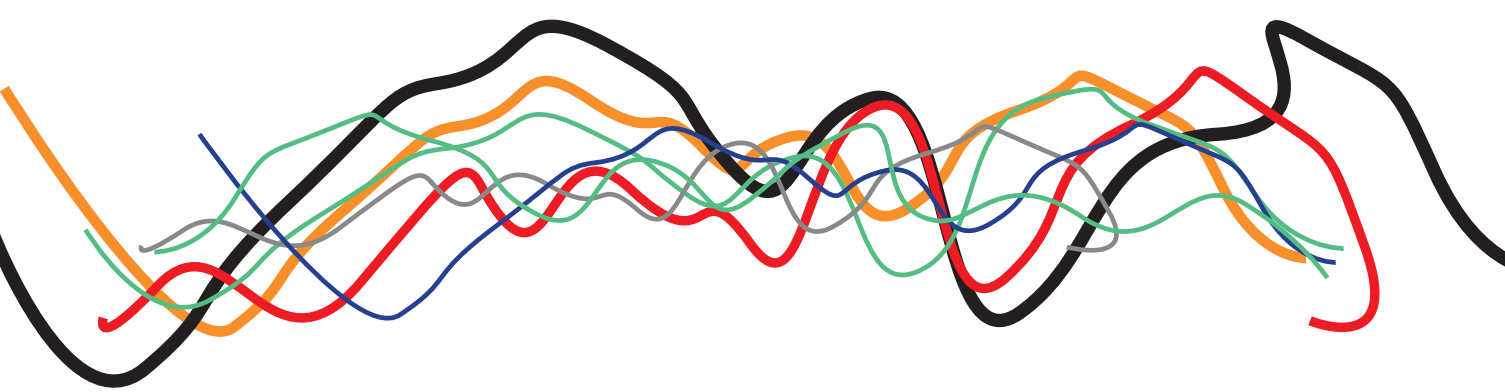


11

Economic policy objectives

Chapter concepts

- *the economic objectives of the Australian government*
- *the economic objectives of the Reserve Bank of Australia*
- *the extent to which the economic objectives of the Australian government may conflict and complement each other*
- *time lags and how they affect the use of economic policies.*



The economic roles of government

As discussed in chapter 8, government spending in developed economies typically accounts for about 23 per cent of all spending in the economy. Governments have a wide range of responsibilities and functions, not all of which have an economic focus – they also regulate aspects of business operation; provide public goods and services; and provide a social welfare system. Governments in western economies have played an active role in macroeconomic management since the 1950s. The development and use of policy measures to reduce the fluctuations in economic activity associated with the business cycle came about as a result of the influence of 'Keynesian' economics.

The next four chapters are concerned with the role the government plays in managing the macroeconomy. This chapter discusses the objectives of economic policy, and chapters 12–14 discuss the policies that can be implemented in pursuit of those outcomes.

Government economic objectives

Australia has had two official statements outlining government economic objectives:

- a 1945 White Paper (a policy discussion document) entitled "Full Employment in Australia" concluded that the basic economic objective of the Commonwealth Government was to 'stimulate spending on goods and services to the extent necessary to maintain full employment'. The title of the paper reflected concern that the high levels of unemployment (up to 32 per cent) seen in the Great Depression of the 1930s should not occur again after World War II.
- the Vernon Report (1965) concluded that the broad objective of economic policy should be a "high rate of economic and population growth with full employment, increasing productivity, rising standards of living, external viability and stability of costs and prices".

A lot of time has elapsed since these statements were released. For a number of reasons, they seem less relevant in the 2020s. Rapid economic growth is now regarded as being unsustainable from an economic, environmental and social point of view. The high rates of population growth that supported infrastructure and resource projects and the development of a manufacturing economy after World War II were founded on both natural increase and migration. Natural population growth rates started to fall in the 1970s, but migration remained strong until the border closures associated with COVID-19. The 25 million population milestone was reached in August 2018, some years ahead

In the 2010s, annual population growth averaged around 1.5 million people – about 60% of which was migration. The onset of the pandemic slowed population growth. Australia's population increased by just 135,000 people in 2021. Natural increase (births - deaths) was 138,500 and net overseas migration was -3,600.

of the forecast. The 'external viability' objective referred to a sustainable trade balance; no excessive fluctuations in the exchange rate; and the maintenance a 'sustainable' foreign debt to GDP ratio. But external viability no longer has any real meaning, because the government has had no policy control over the exchange rate since the currency was floated in 1983 (although exchange rates are a part of the monetary policy transmission mechanism, as explained in chapter 13). The importance of economic efficiency and productivity as an objective has increased since the 1980s, when governments of both political persuasions started a process of deregulation and pro–competition reforms, as described in chapter 14.

If a list of economic objectives and policy goals was drawn up today, it would be somewhat different from the priorities listed in the Vernon Report. A sustainable rate of economic growth would probably be the top priority, given that we now recognise the need for immediate action on climate change and the environment. Price stability is crucial to maintain the spending power of our income and the competitiveness of our economy. High employment is a very important objective, although the concept of 'full employment' has a different meaning today than it did in the 1960s. Productivity, efficiency and competitiveness would feature prominently in any current discussion of economic objectives. Equality of opportunity is considered important in achieving an equitable distribution of income and wealth in the long term.

Policy objectives of the Reserve Bank

The Reserve Bank's Charter states:

> *"It is the duty of the Reserve Bank Board, within the limits of its powers, to ensure that the monetary and banking policy of the Bank is directed to the greatest advantage of the people of Australia and that the powers of the Bank ... are exercised in such a manner as, in the opinion of the Reserve Bank Board, will best contribute to:*
> - *the stability of the currency of Australia;*
> - *the maintenance of full employment in Australia; and*
> - *the economic prosperity and welfare of the people of Australia".* *(RBA, 2018)*

The Charter effectively sets out the economic objectives of the Bank. The phrase 'currency stability' refers to price stability, not exchange rate stability. Since 1992, the RBA has followed the objective of keeping consumer price inflation between 2 and 3 per cent, on average, over the course of the business cycle. 'Economic prosperity and welfare' can be taken to mean the achievement of rising living standards in the long term (economic growth), along with the management of the business cycle through monetary policy. 'Full employment' can be taken to mean achieving the 'natural' rate of unemployment, which is currently thought to be about 4 per cent of the workforce. At this level, cyclical unemployment would be close to zero, but there would be some frictional and structural unemployment.

The Reserve Bank Board makes decisions independently of the political process – the government of the day has no role in the conduct of monetary policy (the policy interest rate that is in Australia called the 'cash rate'). Central bank independence

in determining monetary policy is the international norm. Independence prevents manipulation of interest rates for political ends and keeps monetary policy focused on RBA goals.

The following sections provide further detail about government economic objectives.

Economic growth

Economic growth is defined as the increasing capacity of the economy to satisfy the material wants of its members. Growth is usually measured by calculating the rate of change in real Gross Domestic Product (GDP) over a period of time. In Australia, the target rate of growth is perhaps 3 per cent per annum.

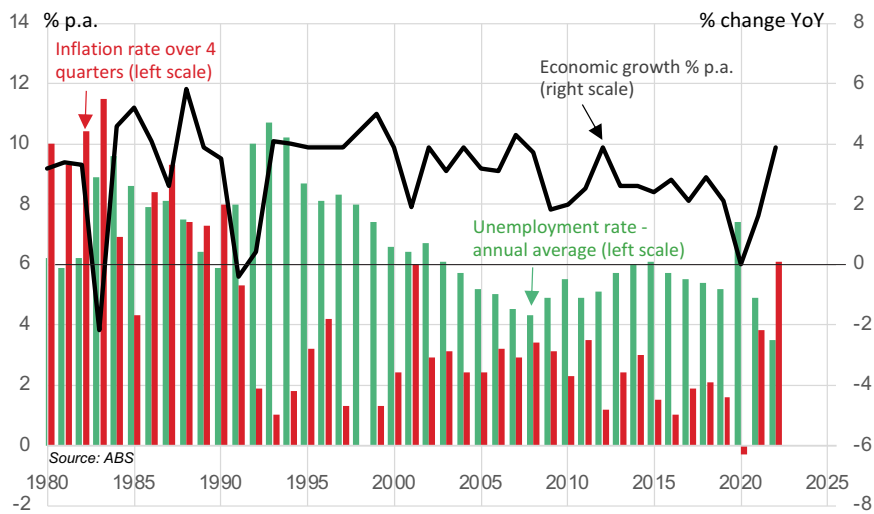
Potential growth is determined by growth in the labour force, and growth of productivity. If, for example, the labour force grew by 1.75 percent, and productivity by 1.5 per cent, then potential GDP growth would be 3.25 per cent. The actual rate of growth in any year, however, depends upon the level of aggregate demand at any point in time.

Growth is the key economic objective because it delivers higher real income and enables people to satisfy more wants. Growth creates more demand for productive resources, including labour. The extent to which growth helps achieve higher employment depends, however, on whether the growth rate exceeds the rate of growth of the population and workforce.

Figure 11.1 illustrates Australia's economic growth since 1980 (read the black line against the right hand scale). Growth has ranged between –2.1 and 5.9 per cent over the period, averaging 3.0 per cent per annum if we include the COVID-19 recession of 2020-2021 (or 3.1 per cent otherwise).

Figure 11.1 Australia's macroeconomic record: 1980–2022

Since the early nineties, the three main economic objectives have essentially been achieved, with economic growth averaging 3.1 per cent per annum; inflation within the 2–3 per cent target band (although quite sluggish after the GFC); and unemployment within 0.5 – 1.0 per cent of the 'natural rate'.



Economic growth in Australia exceeded 5 per cent on three occasions since 1980. Rates that high are unsustainable in a mature economy as they put pressure on factor markets (i.e. markets for raw materials and labour) and risk driving up prices (demand inflation). On the other hand, when growth is slow (as in the three years when it was below 2 per cent) there is insufficient demand to fully employ resources. In developed countries, a rule of thumb is that economic growth rates have to exceed 3 per cent per annum before unemployment can be reduced.

Australia's growth record by decade

Decade	*Annual average % p.a.*
1960s	5.5
1970s	3.8
1980s	3.6
1990s	3.3
2000s	3.1
2010s	2.4

Source: ABS, National Accounts

Prior to the COVID-19 pandemic, the Australian economy had recorded 28 consecutive years of economic growth – the longest period of recession-free growth for a developed country. The pandemic brought on an economic recession because of its dual impact on aggregate demand and aggregate supply, and it will also impact on Australia's long-term growth potential because migration stopped for two years.

It should be noted that GDP is not necessarily considered the best, or most accurate, measure of economic welfare and progress. Many economists prefer broader measures of national well-being that include a number of welfare indicators such as environmental sustainability; objective indicators of social welfare such as education, health and economic security; and subjective measures of well-being such as life satisfaction and happiness.

Price stability

Price stability occurs when there is little change in the general price level – that is, there are low rates of inflation. The Reserve Bank and the Treasury agree that the appropriate target for inflation rate is 2-3 per cent, on average, over the course of the business cycle. Price increases have been within the target range since the early 1990s (see the red columns in figure 11.1, using the left hand scale). 2000 was an exception because the introduction of the Goods and Services Tax (GST) in July flowed through to prices. Inflation has increased markedly in the last two years due to the combined effect of:

- supply side pressures associated with the pandemic (interruptions to supply chains; periodic lockdowns; high rates of absenteeism from work), the war in Ukraine and floods in eastern Australia; and
- demand pressures – pent-up demand, pandemic stimulus payments and record-low interest rates.

Controlling inflation is a very important objective. Sustained inflation rates above the target range bring a number of economic costs. Firstly, inflation erodes the purchasing power of household incomes (real income). Price increases mean consumers are able to buy smaller quantities of goods and services than they previously could, unless their income increased at the same rate as general prices.

Inflation can be described as the 'headline' rate or the 'underlying' rate. The headline rate is the rate of change in the Consumer Price Index (CPI) which reflects the prices consumers pay for goods and services. The underlying rate takes volatile and seasonal price changes into account, and is also adjusted for the influence of government policies such as changes in tax rates or interest rates.

Inflation also feeds into higher interest rates, which are an important influence on business decisions concerning investment and household discretionary spending. When prices rise, interest rates must follow otherwise lenders are paid in inflated dollars and they do not receive a positive rate of return. That said, the real interest rate is more important than the nominal rate – the real rate is the nominal interest rate minus the inflation rate. If the inflation rate is 3 per cent, and the nominal interest rate is 7 per cent, the real rate of interest is 4 per cent.

Persistent inflation erodes the confidence people have in money as a store of value, so many households seek 'hedges' against expected price rises by purchasing assets which are likely to appreciate in value, such as property, antiques or precious metals. Such 'speculative activity' reduces the potential output of the economy if it diverts resources away from productive activities.

Business investment decisions are more risky in an inflationary environment because rising prices make it more difficult to contain costs and operate profitably.

Other things being equal, international competitiveness is eroded if domestic inflation rates exceed those overseas. To illustrate, assume a buyer in the United States could purchase a product from either New Zealand or Australia – if the quality of the competing products are similar, the decision would presumably be made on the basis of price. If inflation levels in New Zealand were running at 4 per cent, whilst prices in Australia were increasing at 7 per cent, then over a period of time the US importer will tend to favour the New Zealand product as it becomes cheaper relative to the Australian product. Similarly, imports become more competitive in the domestic market as their prices fall relative to domestic prices.

The relationship between inflation and the exchange rate is a 'double-edged sword'. Other things being equal, if our inflation rate was higher than that experienced overseas, we would predict currency depreciation because demand for our exports would fall. But depreciation means exports become more competitive (overseas buyers can buy more goods for the same cost), and imports become more expensive. It also means the prices of imports rise, which is inflationary! The net effect of depreciation on inflation depends upon the relative

Economic skills

Numeracy - interpreting statistical information

Use the International Monetary Fund's World Economic Outlook (WEO) database (search for IMF WEO) to collect economic performance data for any six countries. The data should refer to:

- price stability
- level of unemployment
- annual rate of economic growth

Compare your findings with the Australian data in figure 11.1.

price elasticities of imports and exports – that is, the responsiveness of domestic and overseas buyers to price changes.

Sustained inflation may bring about structural changes in the economy. For example, capital–for–labour substitution occurs if wages (the price of labour) rise faster than productivity, in which case labour 'prices itself out of a job' and employers replace labour with machines (that don't ask for pay rises). The rising oil prices that led to cost push inflation in the 1970s provided an incentive for companies to focus on energy efficiency and fuel consumption.

The burden of inflation does not fall evenly on all sectors of the community. Households that are able to anticipate inflation may be able to arrange their financial affairs to benefit from expected price increases. As explained above, households in a financial position to purchase real assets which rise in value with inflation (e.g. property) insulate themselves from falls in purchasing power.

The living standards of low income earners and recipients of transfer income (such as pensions) will fall during periods of inflation unless these payments are indexed to compensate for price rises. Sectors of the economy with market power (business owners who can pass on price increases to their customers, or trade unions who can achieve wage increases for their members) seem more capable of maintaining their real incomes.

Sustained inflation also effects taxation and government revenue. 'Pay as you go' (PAYG) taxpayers suffer bracket creep as inflation gradually causes their income levels to rise to levels where they are liable for higher marginal rates of taxation. Government revenue increases as a result.

Full employment

Full employment occurs when everyone who is willing and able to work can find a job. Given the dynamic nature of developed economies, it is impossible to achieve a zero rate of unemployment. The 'friction' associated with job search (uncertain matching of demand and supply across the labour market) is responsible for perhaps 1.5 to 2.5 per cent of the reported unemployment at any point in time. Structural unemployment occurs if there is a mismatch of available and required skills in a geographical or occupational sector of the economy. Currently, structural unemployment may account for 2–3 per cent of the total unemployment rate.

Together, the frictional and structural rates constitute what economists call the 'natural rate' of unemployment – the lowest rate of unemployment that can be achieved without inflationary pressure developing. In current conditions, the natural rate is thought to be 4 per cent of the workforce. Cyclical or demand–deficient unemployment adds to this during periods of lower economic activity.

The average rate of unemployment during the period covered by figure 11.1 is 6.7 per cent. Unemployment rates at the peak of the boom in 2007–08 were the lowest in thirty years, although they are still high compared to the 1950s and

1960s, when rates were below 2 per cent. Peaks in unemployment followed recessions in 1982-83 and 1990-91, and there was also some increase after the Global Financial Crisis (although much smaller than expected). The COVID-19 pandemic had a negative impact on the labour market due to restrictions on movement, business shutdowns and loss of household income. Unemployment rates have fallen dramatically in 2021 and 2022, reaching just 3.4 per cent in July, 2022. The underemployment rates fell to 6 per cent. At the time of writing, there are apparently more job vacancies than there are unemployed people!

Perhaps figure 11.1 does not tell the full story about whether the unemployment objective was achieved, however! Firstly, ABS data understates the true extent of joblessness in the workforce, perhaps by a significant amount. Many people holding part-time or casual jobs would prefer to work longer hours, and are thus underemployed. In mid–2022, the underutilisation rate (unemployment plus underemployment) was about 9.5 per cent of the workforce (although this was the lowest level for many years). About half of all unemployed people found a job within three months, with the rest fairly evenly divided between medium term (13-52 weeks) and long term unemployment (more than one year). Unemployment among young people is consistently higher than adult unemployment. 7 per cent of 15-24 year-olds were unemployed in June, 2022. Unemployment is usually higher than the headline rate in outer metropolitan and regional areas.

The economic cost of unemployment is modeled by the 'GDP gap', where actual levels of production and income lie inside those that could be achieved on the economy's 'production possibility frontier'. The gap represents two types of costs for the economy. A direct monetary cost arises because unemployment results in lower levels of aggregate consumption, investment and business confidence, and increases the welfare payments paid to the unemployed from employed taxpayers' pockets. Unemployment also has an opportunity cost – the alternative use that could have been made of lost taxation and welfare payments, such as spending on infrastructure, health, or education. Over the long term, persistent unemployment reduces economic growth because the capacity of the economy to satisfy future wants is reduced. Long term unemployment also bears considerable personal and social costs on those who cannot find work.

With a few assumptions, it is possible to estimate the extent of lost production and income. In June 2022, the AWOTE (average weekly ordinary time earnings) for adults employed full time was approximately $1770. About 494,000 people were officially unemployed. The total cost to the community in lost output and income was thus $875 billion per week, or about $45 billion in a full year (1.5% of GDP). Add to this the $860 Jobseeker bill (assuming all eligible people applied) of approximately $25 billion p.a.

Other objectives

Economic growth, price stability and full employment are key macroeconomic objectives in all countries. Other objectives such as an equitable distribution of income and welfare can be achieved as a by–product of achieving these objectives. Most countries have considerable inequality of income and wealth. Efficient resource allocation is also an important economic objective related

to macroeconomic performance, although in a policy sense it usually involves changes at the microeconomic level (i.e. to individual sectors of the economy). As will be discussed in chapter 14, increasing productivity and efficiency are regarded as key ways of increasing prosperity in the future.

Economic objectives: conflict and compatibility

The economic problem applies to national economic objectives as much as it does to personal ones – at any point in time, a nation has limited resources with which to address unlimited wants, so choices have to be made.

Some economic objectives are compatible with each other, in the sense that the policies applied to achieve one objective also help to achieve other objectives at the same time. Other objectives are difficult to achieve simultaneously.

Compatible policy objectives

Some of the objectives above can be targeted simultaneously, because the policies used to achieve them are complementary. Examples include:

- economic growth and full employment (lower unemployment) – growth creates more demand for goods and services, and thus the resources used in production (derived demand). Economic growth also improves material welfare, so aggregate demand will rise, providing stimulus to the expansion of output and employment. Policies to achieve lower unemployment also promote growth – higher levels of employment reduce the 'GDP gap' and mean the economy operates nearer its potential;
- full employment and equitable income distribution – policies designed to lower unemployment should lead to a more equitable income distribution because, other things being equal, work provides households with the income to consume, save and build wealth;
- price stability and economic growth – keeping inflation low is an important prerequisite for promoting sustainable growth. Low inflation reduces uncertainty, encourages investment in productive activities and assists international competitiveness; and
- efficient resource allocation, productivity and economic growth – efficiency and productivity are the driving force in increasing long run aggregate supply. Improved efficiency use also lowers the cost of supply and helps to reduce inflationary pressures.

Conflicting objectives

Other pairs of macroeconomic objectives are difficult to target at the same time, as illustrated by the following examples:

- price stability and full employment – policies to reduce demand pull inflation generally aim to reduce the level of economic activity. If this reduces business activity and investment there may be less demand for labour. On the other hand, reducing unemployment by expanding economic activity puts pressure on available resources and prices. This suggests a trade-off between high employment and stable price levels;
- economic growth and price stability – a booming economy places demand pressure on resources, especially if there is no excess capacity – this is inflationary because competition for resources pushes up their prices in factor markets (including labour);
- economic growth and structural unemployment – growth is associated with structural change, which often involves the rise of some sectors of the economy and the decline of others. Structural change impacts on the labour market and long term unemployment; and
- economic growth and equitable income distribution – while economic growth increases the size of the economic pie, not everyone gets an equal slice of that pie! This is especially true in the short term. People employed in the expanding sectors and owners of appreciating assets such as property and shares tend to gain in relative terms.

Note that the 'ceteris paribus' assumption (other things remaining equal) applies when outlining the compatible and conflicting objectives above. The actual size of any of the above effects is difficult to establish because the relationship between cause and effect is rarely direct – there are likely to be several stages in the transmission from one event to another.

Economic policy institutions

This section briefly describes the institutions in the Australian economy that are primarily responsible for setting policies to achieve those objectives. There are basically three types of economic policy applied in Australia:

- fiscal policy (the use of government revenue raising and spending powers to influence the level of economic activity);
- monetary policy (the use of the 'cash rate' to influence the cost of credit for households and businesses; and
- competition and industry policy (to improve efficiency and productivity).

The first two policies are concerned with managing aggregate demand in the short term – stabilising the business cycle. Competition and industry policy, on the other hand, is directed towards improving competitiveness, efficiency and productivity to drive long term growth – the supply side of the economy.

As discussed in the next chapter, fiscal policy is developed in the Budget – the annual statement of government revenue and expenditure. The institution responsible for constructing the Budget is the Treasury.

The institution responsible for monetary policy (the Reserve Bank of Australia – RBA) has two specific obligations – the conduct of monetary policy and the maintenance of the financial payments system. The nine–member Board holds its monetary policy meeting on the first Tuesday of each month, except in January. Bank staff monitor a large set of domestic and international data series, including major ABS releases and privately compiled Australian business surveys, and present their analysis for consideration by the Board. As noted earlier, the Bank operates independently of government although it is required to 'inform the Government, from time to time, of the Bank's monetary and banking policy'.

At national level, the Productivity Commission conducts research and provides advice to the government on aspects of the economy's efficiency, productivity, and competitiveness – recent examples being inquiries into aged care employment, the maritime logistics system, and national productivity performance.

The nature and impact of time lags

Economic activity is conducted by the thousands of economic 'agents' (households and businesses; individuals and groups) who make independent decisions based upon their own best interest – how much to produce, what to buy; whether to employ more staff or less; whether to invest; and so on.

Nearly all economic activity is subject to time lags inherent in the production and distribution of goods and services. For many decisions, like buying food, the lag is short. Others, like building a house, involve long periods of time because of the processes involved such as obtaining approval, negotiations with a builder and construction of the building. Some business decisions involve very long lags. A big investment project like the construction of a port or a power plant involves lengthy consideration of the 'business case', preparation of contracts and plans, hiring of workers, purchasing of materials and so on. This is sometimes called a 'stock-flow lag': a one-off addition to capital stock will generate a flow of product for a considerable time into the future. A new truck may deliver goods for five years, a cargo ship has an economic life of thirty years .

Current and past decisions affect economic outcomes a long time into the future. This creates complications for those who study economic activity and manage policies around it. How do the policy makers know where the economy lies on the cycle at any point in time? How do they know what policy settings are appropriate?

The first issue is that the data that describes the state of the economy is always out-of-date. Economic indicators take at least a month (and more often three) to compile, analyse and publish. As a result, policy-makers face a recognition lag – the period of time it takes to recognise what is happening in the economy (at

macro level). The recognition lag makes driving the economy somewhat akin to driving a car looking in the rear-view mirror! Policy makers are forced to look backwards to see which direction the economic road just took!

A second time lag (the decision lag) occurs because it then takes policy-makers some time to decide what policy changes should be made in the light of the economic data. In the case of monetary policy, the decision lag is fairly short because the Reserve Bank Board meets every month. In the case of fiscal policy (the Federal Budget), the decision lag is longer because the Budget is prepared annually (although there have been 'mini–budgets' in years where significant events changed revenue or spending plans). Budget proposals also have to be agreed by both houses of Parliament before they become law – sometimes a long and tortuous political process!

It can then take some time for policy decisions to have an effect on household and business behaviour (the effect lag). If taxes were cut, for example, households have more disposable income. If they choose to spend it (rather than save it, or reduce household debt) consumption spending would rise, triggering increases in income, further changes in consumption (the multiplier), and rises in output as business firms react to higher orders. The full impact of the policy change might not be felt for some months.

It is estimated that changes in policy interest rates can take more than 18 months to take effect. If rates were reduced, it could take time for retail banks to pass them on to their customers. It might the take time for households and businesses to react to lower rates – for example, people with fixed mortgages may not be able to switch to a new loan with lower repayments for 2–3 years. Lower interest rates may also have lower impact in times where economic activity and confidence is low, as in a recession.

Worksheet

Read chapter 11 of the text in order to answer the following questions.

1. Briefly outline the economic objectives mentioned in the 1965 Vernon Report. Discuss the degree to which Australia's current objectives should be similar. Are there any objectives would you add to the 1965 list? Would you delete any?
2. What are the four major objectives of macroeconomic policy? Define each objective. Is it possible to quantify each one?
3. How successful has Australia been at achieving each of these objectives in the last five years? Which of the four has posed the largest macroeconomic problem for this economy?
4. Outline the economic costs of economic growth being too low, or too high.
5. Outline the economic costs of high levels of unemployment.
6. Compare the objectives of the Treasury and the RBA.
7. Explain, using examples, the meaning of the phrase 'compatible economic objectives'.
8. Why is it impossible for all of society's economic objectives to be achieved simultaneously? Is this any different from the economic problem at individual or group level?
9. Describe the time lags which can impact on the effectiveness of economic policy.

Cartoon economics

The Mitchell cartoon below appeared in the Australian newspaper in June 1993, and is reproduced by kind permission. The driver of the car is the Prime Minister at the time, Paul Keating.

1. The cartoonist is reflecting on the announcement of the lowest inflation rate in 30 years (June 1993 – rate of inflation approximately 1.4%). Referring to figure 11.1, state the rates of unemployment and economic growth in June 1993.
2. List three advantages of maintaining low inflation in the Australian economy.
3. Refer to figure 11.1. In what stage of the business cycle was Australia in 1992–93?
4. Discuss the cartoonist's message about the costs of reducing inflation and achieving the "gold medal result"
5. Refer again to figure 11.1. Find the inflation rates in each of the business cycle peaks and troughs. Do your figures support the idea that levels of inflation and unemployment are inversely related?

Multiple choice questions

Choose the best alternative in the following questions.

1. Most governments in developed economies play an active role in demand management in order to:
   a. reduce fluctuations in economic activity associated with the business cycle.
   b. collect revenue to finance expenditure on community needs and wants.
   c. redistribute wealth from the rich to the poor.
   d. provide competition for private firms which might otherwise have been able to monopolise the market for a particular commodity.

2. Which of the following is not regarded as an economic objective of the government?
   a. An equitable distribution of income.
   b. Full employment.
   c. Maintaining a stable exchange rate.
   d. Efficient resource allocation.

3. Other things being equal, which of the following groups benefit most from periods of inflation?
   a. Lenders and salaried workers.
   b. Borrowers and salaried workers.
   c. Lenders and people who 'invest' in property.
   d. Borrowers and speculators.

4. Which of the following statements about the government's full employment objective is FALSE?
   a. It is impossible for the economy to achieve a zero rate of unemployment.
   b. Frictional and structural unemployment together constitute the 'natural rate' of unemployment.
   c. Underemployment occurs because of rapid changes in the structure of the economy.
   d. Peaks in cyclical unemployment follow contractions in the business cycle.

5. Which of the following statements the government's price stability objective is FALSE?
   a. Rising inflation is likely to place downward pressure on interest rates as there is less demand for borrowed money.
   b. Inflation makes Australian exports more competitive on overseas markets.
   c. Price stability protects the real value of household savings.
   d. Long term inflation increases the chances of structural unemployment.

6. Which of the following economic policy objectives would be regarded as compatible - i.e. the objectives can be achieved at the same time?
   a. Price stability and full employment.
   b. Economic growth and full employment.
   c. Economic growth and equitable distribution of income.
   d. Economic growth and price stability.

7. Higher economic growth and lower unemployment are compatible objectives because:
   a. growth leads to structural change in the economy, and this reduces structural unemployment in the short term.
   b. economic growth improves welfare, so Australians are less likely to import products produced overseas.
   c. economic growth increases demand in both goods and factor markets.
   d. high employment attracts resources from overseas, bringing new ideas and technology that promotes growth.

8. The extent to which high rates of economic growth affect inflation depends upon:
   a. the level of interest rates - high rates are associated with rising inflation, which is in conflict with economic growth.
   b. the amount of excess capacity in the economy.
   c. whether growth causes greater demand for imports - meaning production costs tend to rise.
   d. whether growth is associated with higher wage levels.

9. Economic indicators often take several months to compile, andlayse and publish. This suggests that policy makers face:
   a. a recognition lag.
   b. a stock-flow lag.
   c. a decision lag
   d. a policy impact lag.

10. Fiscal policy suffers from a relatively short impact or effect lag. This refers to the fact that:
    a. changes in the taxation and government spending can only be made in the Budget.
    b. it takes only a few months for changes in tax rates or government spending to change aggregate expenditure.
    c. key economic indicators are published very soon after trends in the economy are observed.
    d. changes in tax rates take some time to effect household spending.

News extract

Read the extract then answer the questions that follow.

Low inflation is causing us some problems!

The three objectives of the RBA are well known: to 'contribute to the stability of the currency, full employment, and the economic prosperity and welfare of the Australian people.' To achieve these goals, the RBA uses the cash rate to target the medium term inflation rate. In a period of slow activity, reducing cash rates should increase household and business spending, although inflation would probably increase slightly.

In recent years, however, things have changed slightly. Inflation was once considered a major enemy because of the way it eroded the value of money. But most central bankers would now like some inflation — the problem now is to prevent inflation going negative! Even if inflation doesn't fall below zero, this reduction in prices seems to be putting the brakes on the economy. Falling prices seem to act as a deterrent to spending! Rather than buying now, people defer larger purchases. The reduction in demand leads to lower production and output, which puts another dent in consumption because incomes fall and there is less money in the economy to share around. This leads to further problems - workers seem less likely to spend their money in case they too are put out of work.

One way of ensuring some inflation is wages growth, but this has also been falling, in Australia wage growth has halved over the last few years. Low wages growth tends to put a cap on household spending. On the other hand, slow wages growth has also helped keep unemployment lower than it might have been. "The more flexible labour market in recent years has enabled companies to limit wages growth in a slow jobs market, with workers possessing little real negotiating power," one economist said in a bank research note. "There are still plenty of people working; it's just that many aren't expecting pay rises anytime soon".

Until there are signs of inflation starting to rise again, we can expect interest rates to remain low. This will help to put a floor under demand. But until wages start to grow again, the economy will be stuck in second gear.

Questions

1. What, according to this excerpt, are the three objectives of the Reserve Bank?
2. Give three reasons why inflation is usually considered 'an enemy' by policy makers.
3. How would the RBA traditionally use monetary policy (using the cash rate) to speed up economic activity?
4. According to the writer, what problems does low inflation cause for the economy?
5. Explain why the slow economy and low inflation could have caused slow wages growth.
6. Explain how the post-GFC recession could have impacted on the distribution of income.

Data interpretation

Q1. This question refers to the table which shows performance data for a hypothetical country over a four year period.

Year	Unemployment rate (% of workforce)	Inflation rate (% p.a.)	Economic growth rate (% p.a.)
1	4.5	2.6	2.7
2	4.9	2.0	2.4
3	5.2	1.1	2.0
4	4.9	1.2	2.3

1. Briefly describe how the macroeconomic position of this economy has changed between years 3 and 4. [2 marks]
2. Identify and explain any relationship between growth and inflation in years 1-3. [3 marks]
3. To what extent has this economy met its macroeconomic objectives over the course of the four years (assuming its objectives are similar to those used in the Australian economy)? [5 marks]

Q2. The table shows the rate of inflation, as measured by the Consumer Price Index (CPI) over a five year period.

Year	CPI
1	101.2
2	103.7
3	106.8
4	110.5
5	115.4

1. Calculate (i) the rate of inflation in Year 5, and (ii) the average rate of inflation over the five year period. [2 marks]
2. If an economic report released in Year 5 stated that the economy was operating near capacity, predict what might happen to the economic growth, inflation and unemployment rates in Year 6. Explain. [3 marks]
3. If policy makers decided to reduce inflation in Year 6, suggest how their decision would impact on cyclical unemployment and economic growth? [5 marks]

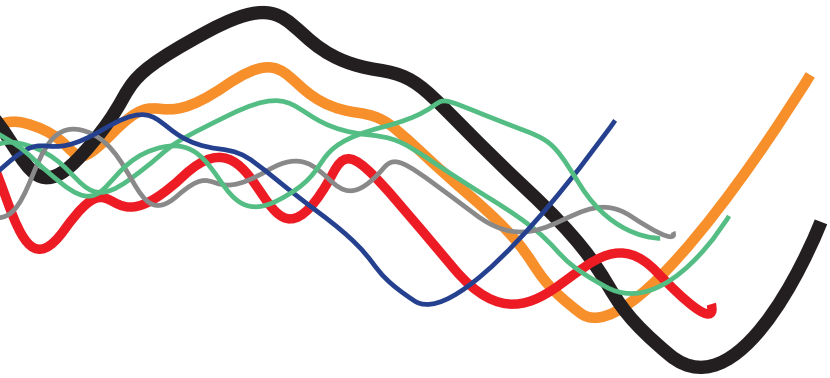
Extended responses

Answer each of the following questions in about 2-3 pages of normal writing. Use economic models and examples where appropriate. Pay attention to the specified allocation of marks.

1. a. Outline appropriate targets for unemployment, inflation and economic growth in Australia in the current economic circumstances [10 marks]
   b. Discuss the extent to which these targets have they been achieved since 2019? [10 marks]

2. a. Outline the macroeconomic objectives of the government? [10 marks]
   b. Explain why it is difficult to achieve the aims of price stability and low unemployment simultaneously. [10 marks]

3. Discuss the effect of high levels of economic growth (i.e. levels in excess of 5 per cent) on the simultaneous achievement of the following objectives:
   a. low unemployment
   b. price stability
   c. the sustainability of natural resources
   d economic welfare. [20 marks]

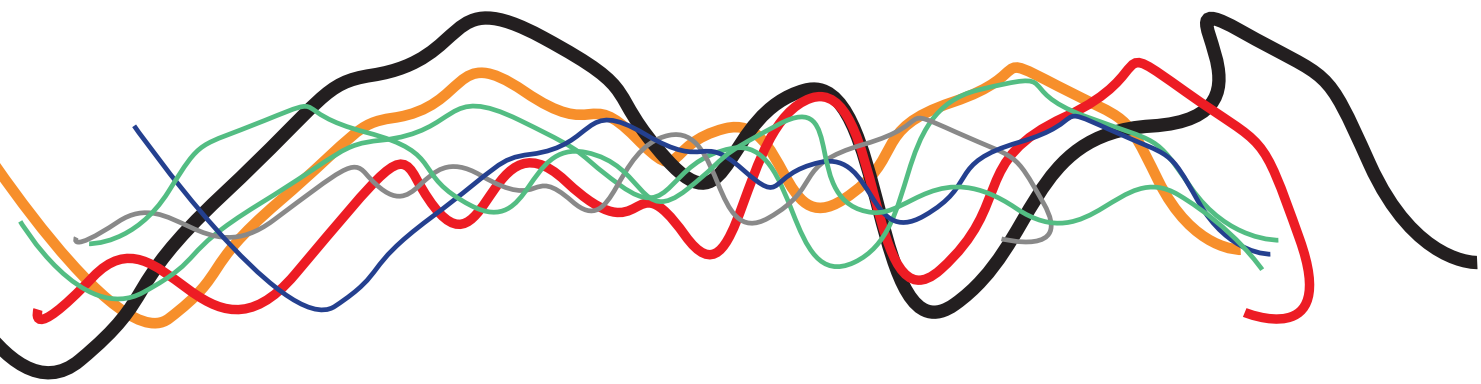


12

Fiscal policy

Chapter concepts

- *the concept of fiscal policy*
- *the components of government revenue and expenditure in the budget*
- *the nature of balanced, surplus and deficit budget outcomes*
- *differences between planned and actual budgetoutcomes*
- *methods of financing a budget deficit and the uses of a budget surplus*
- *the distinction between automatic stabilisers and discretionary fiscal policy*
- *the distinction between budget outcomes associated with fiscal stabilisers and outcomes associated with discretionary fiscal policy*
- *the concepts of expansionary, contractionary and neutral fiscal stances*
- *the impact of different policy stances on the level of economic activity*



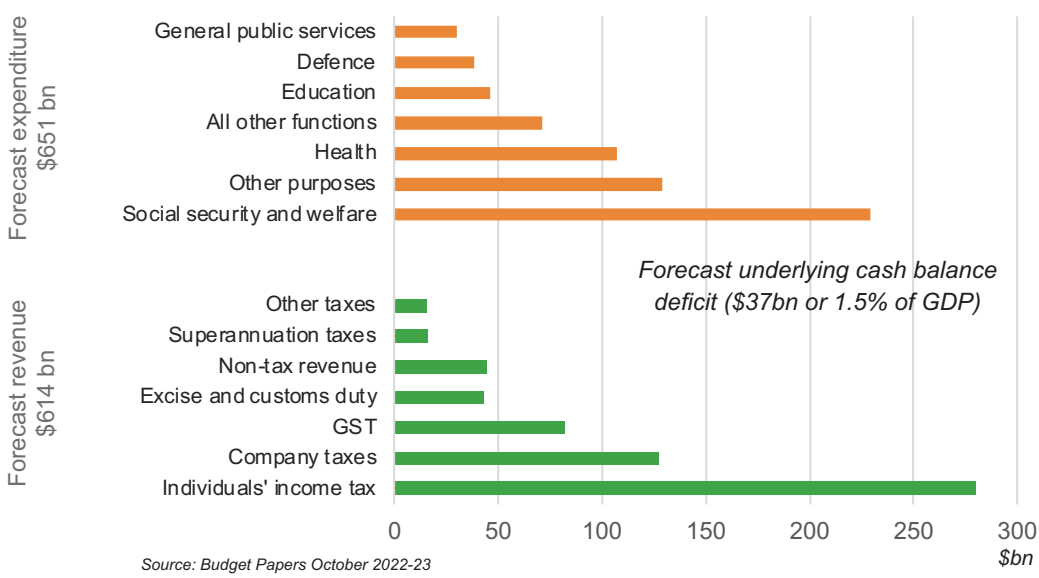
Government revenue and expenditure

Every individual, household, business firm or organisation has a budget in which it identifies its sources of income and the ways in which those funds will be spent over a period of time. In the same way, the Federal Budget, usually delivered in Parliament in May each year, estimates government revenue and spending plans for the coming year. As shown in figure 12.1, projected revenue for 2022-23 was $614 billion, and forecast expenditure was $651 billion, leaving a deficit of $37 billion (or 1.5 per cent of annual GDP).

The Commonwealth Budget has three functions. Firstly, it decides how revenue will be raised, and allocates funds to areas of need. Budget allocations don't really change much from year to year, because they are determined by the funding needs of the public sector. For example, education spending can't be cut by 20 per cent one year then raised by 20 per cent the next, because it is an essential public service that provides for the needs of school–age children. Funding allocations are partly driven by the political process, as the government of the day needs funds to support its initiatives (recent examples being the National Disability Insurance Scheme, and projects on the Infrastructure Priority list).

Secondly, the budget plays a role in income redistribution. Wealthy households pay higher rates of tax, and those on lower incomes receive more government support (both direct and indirect) than those on high incomes. Thirdly, the government can use the budget to influence the level of macroeconomic activity. (i.e. to stabilise fluctuations in the business cycle). In Australia, the first time a budget was deliberately used for this purpose was in 1951–52, when the budget

Figure 12.1 2022-2023 Budget: expenditure and revenue



Source: Budget Papers October 2022-23

was designed to 'cool' the booming post-war economy with inflation above 15 per cent, and unemployment less than one per cent.

Prior to the early 1950s, governments thought it sensible to balance their budget (ensuring that revenue and expenses were similar). Keynes argued that this 'balanced budget policy' could actually destabilise the economy because government expenditure was tied to revenue. In a recession, when revenue fell, a balanced budget would actually mean lower government expenditure – just the opposite of what the economy needed to restore levels of spending and output. Keynes advocated for an 'interventionist' economic policy, suggesting that governments should use fiscal and monetary measures to reduce the adverse impacts of business cycles.

John Maynard Keynes (1883-1946) was a British economist whose ideas were a significant influence on macroeconomic theory and government policy.

Budget outcomes

The 'outcome' of the budget refers to the relationship between government revenue and government spending. There are three possible outcomes:

- a balanced budget, where revenue and expenditure are equal (G = T):
- a surplus budget, where revenue is greater than spending (T > G); and
- a deficit budget, where spending exceeds revenue (G > T).

In general, a surplus budget will occur when GDP growth is strong and the economy is close to full employment. A deficit budget will occur in the opposite scenario when GDP growth is relatively slow or when the economy has contracted.

It is almost certain that the actual budget result at the end of the year will differ from the planned outcome, for a number of reasons. Should there be a downturn in economic activity, business conditions would be tougher and taxation revenue from households and businesses would fall. As a result, the actual deficit would be worse than the planned deficit. On the other hand, an unanticipated upswing in economic activity after the announcement of the budget would result in rising government revenues and lower welfare spending, in which case the actual outcome would be a smaller deficit than the forecast outcome. Changes in conditions in world markets could also impact on the budget outcome. Higher costs (perhaps resulting from rising oil prices) would put pressure on the budget because they signal higher transport charges. A fall in commodity prices (perhaps a fall in iron ore prices) would have a significant impact on tax revenue.

Learning activity	**Applying mathematical techniques**
	Refer to the web sites of government treasuries in other countries, such as the United States, United Kingdom, New Zealand, Canada, France, Germany, Singapore or Japan. For the latest year, find out whether the budget in those countries is in deficit or surplus. What is the level of accumulated government debt in the country you have chosen? Calculate the government debt per head of population.

Exogenous factors (economic shocks) could also cause the actual outcome to differ from the predicted result. This has been evident in recent years, with bushfires and floods in the eastern states; the coronavirus pandemic; and the Ukraine War. These events could not have been anticipated in the Budget forecasts for the relevant years. A predicted small surplus for 2019–2020 turned to a significant deficit, for example, when the government was forced to introduce economic support measures during the initial stages of the pandemic.

Budgets and government finance

When the government records a budget deficit, then the difference needs to be financed – usually this is through government borrowing. A budget surplus will mean that the government is now saving and can use the surplus funds to retire past debt.

A budget deficit will have an expansionary effect on the economy because there is a net injection of funds into the economy. If planned government spending was $500 billion and planned government revenue was $450 billion, then the deficit or net injection is equal to $50 billion.

There are four main methods a government can finance a budget deficit:

- selling new government bonds to domestic and/or overseas residents;
- borrowing from the central bank;
- borrowing from overseas; and
- selling government assets.

The most important method is by selling new government bonds, known as Commonwealth Government Securities (CGS). This method normally accounts for around 95 per cent of the government's borrowing requirement. A bond is a financial instrument which raises funds for its issuer (in this case, the government) in return for a rate of interest payable to the buyer. They are guaranteed by the government and are very popular with institutional and private investors. They can be bought by both domestic and foreign residents. In 2022, of the $892 billion worth of CGS on issue, 45 per cent were owned by overseas residents.

Government bonds are one of many types of financial instrument available to investors with surplus funds. As they are guaranteed by the government, bonds are very safe and so the rate of interest offered will reflect their secure status.

When the government issues new bonds it is competing for funds in the financial market. This can lead to interest rates rising which can discourage private borrowing. Economists call this 'crowding out' – private investment spending is said to be 'crowded out' by the higher government spending. But selling bonds to domestic residents has the advantage that it does not affect the money supply – the public withdraws money from the banking system to pay for purchases of securities. When the government spends the borrowed funds, the net effect on the money supply is nil.

A second method of financing the deficit is to borrow from the central bank (Reserve Bank of Australia). This is referred to as 'printing money'. While this will have the desired expansionary effect on the economy, it could lead to higher inflation rates because it is directly increasing the money supply. The Reserve Bank has recently stated that it will not finance the current government's deficit .

Thirdly, the government could borrow from overseas to fund a deficit, but this is rarely used. It would mean the government would seek loans from foreign banks or governments rather than issuing new government securities. If the government used this method it would directly add to the government's foreign debt and result in an appreciation of the Australian dollar due to the inflow of money capital. An appreciation would counter the expansionary objective of the planned budget deficit by reducing net exports.

The final method the government could use is to sell government (public assets). It can do this by 'privatising' government business enterprises or by selling government property such as public land and/or buildings. While this method can raise finance, it is not used often because it can compromise the level of public services delivered in some situations.

When the government borrows to fund its deficit, it increases the government debt. Is this a problem? In 2022-23, the government's net debt was $572 billion. The annual interest payments on this debt equaled $13.6 billion. There is an obvious opportunity cost here as this amount could be used to fund the health or education sectors. But if the borrowing has been used to 'grow' the economy through higher levels of economic activity, and increased spending on infrastructure, then the economy will actually benefit. An important point is that governments should always borrow to fund public investment - this helps to share the burden of borrowing between current and future generations ('intergenerational equity').

Government borrowing leads to an increase in public debt. The interest payments on this debt may have a significant opportunity cost.

What impact does a surplus have on pubic finances? The surplus could be used to retire (pay off) government debt built up by past deficits, held over to fund future expenditure, or returned to taxpayers (perhaps as a direct payment, perhaps as a tax cut). All three happened in the mid-2000s, when Australia was one of the few countries in the world with no public debt. Australia still has a comparatively low government debt (about 23 per cent of GDP in 2022) even after the spending stimulus that was necessary during the coronavirus pandemic.

Stabilising the economy

Government economic policy is countercyclical – its objective is to 'smooth' the ups and downs of the business cycle. Fiscal policy has an important role to play in meeting this objective. Firstly, however, we need to understand that there are automatic mechanisms that play a role in smoothing the fluctuations associated with the cycle.

Tax revenue rises as GDP rises, as shown by the positively sloped line. The transfer payments line is negatively sloped, because claims on welfare fall as economic activity rises. If we start at the Budget balance point and the economy slows, tax revenue falls and transfer payments rise, pushing the budget into deficit and stabilising the economy to some extent. Alternatively, if we start at the Budget balance point and the economy expands, tax revenue rises and transfer payments fall – automatically pushing the budget towards surplus and slowing the economy by reducing aggregate spending power.

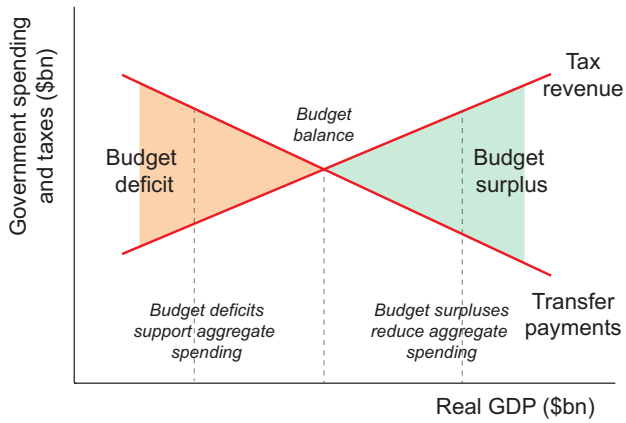


Figure 12.2 Automatic stabilisers

Automatic stabilisers

Even if the government makes no decisions about changing its revenue or spending patterns, the budget balance will vary over the course of the business cycle due to the impact of automatic stabilisers. When the economy is in the contraction phase of the cycle (slower growth), tax revenue falls and welfare payments rise, so the budget balance moves into deficit (the orange section of figure 12.2). When the economy is stronger, tax revenue rises and welfare payments fall, so the budget balance moves into surplus. Income taxes and transfer payments act like an economic shock absorber! They limit the rise of aggregate spending in a boom, and increase it in a trough. Essentially, the taxation and transfer payments stabilisers mean the budget deficit will automatically increase as the economy contracts, and automatically decrease as the economy expands.

Automatic stabilisers do not prevent fluctuations in the business cycle, and are not by themselves sufficient to completely counteract the peaks and troughs in economic activity. Generally, the action of automatic and discretionary stabilisers will be complementary, unless discretionary policy decisions are poorly timed.

Discretionary fiscal policy

Discretionary fiscal policy refers to the changes to expenditure and revenue that the government makes in the budget to stabilise the economy. We will examine three possible fiscal stances described earlier – expansionary, contractionary, and a balanced budget stance.

An expansionary policy stance

In a period of slow economic activity, it is appropriate to use an expansionary budget in order to stimulate spending. An expansionary policy stance is usually associated with a deficit budget – where planned expenditure is higher than

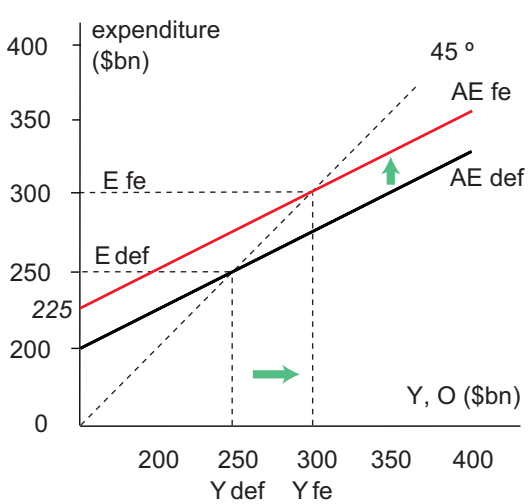
revenue. Policy measures to stimulate household and business spending could include:

- reducing income tax to increase household purchasing power;
- cutting corporate tax to stimulate business spending on inputs, employment and investment; and/or
- increasing government spending on infrastructure, such as transport and communications projects;
- direct payments to households and/or firms.

A budget deficit will always have an expansionary effect because there is a net injection of funds into the economy. But what if the budget deficit is reduced from one year to the next? For example, if the deficit in year 1 is equal to $20 billion and in year 2 the deficit has fallen to just $$10 billion - is this still expansionary? The answer is yes. Assume the multiplier equals 2.5. in year 1, real GDP will increase by $50 billion (20 x 2.5) and in year 2, real GDP will increase by $25 billion.

We can analyse expansionary fiscal policy using the macroeconomic models developed in chapters 9 and 10. Figure 12.3 uses the Keynesian model. The economy is initially at Ydef – the phrase 'deflationary gap' is used to describe the output gap that exists between the current level of income and that which could be achieved at full employment (Yfe). To close the gap, the budget takes an expansionary stance using some combination of the discretionary measures mentioned above. These policies stimulate household and business spending, so aggregate expenditure rises from AEdef to AEfe. The final effect is larger than the initial stimulus because of the effect of the multiplier – a small change in government spending (i.e. a small vertical movement in AE) produces a larger increase in the level of aggregate income.

Figure 12.3 Expansionary fiscal policy



In a contraction, the government uses its budget to increase aggregate expenditure to counter the deflationary gap (the difference between Y def and Y fe). A deficit budget involves cutting taxes and / or increasing spending. Expansionary fiscal policy gives households more disposable income. Company taxes could also be reduced to allow firms to retain profit. As a result, the level of economic activity should rise from Y def to Y fe – a return to full employment levels of expenditure, output and income.

Note that the government spending multiplier applies – the final impact of the budget deficit ($50 billion) is greater than the initial stimulus ($25 billion), implying the government spending multiplier was 2.

Expansionary policy in periods of low economic activity is designed to bring about an increase in aggregate demand from AD1 to AD2. As a result, levels of real GDP rise from Y1 to Y2. Note that expansionary policy has only a small effect on the price level if the economy has considerable excess capacity.

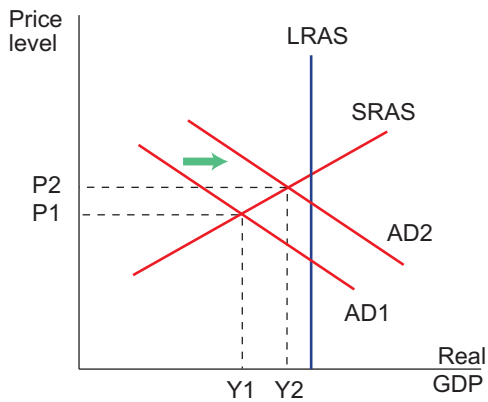


Figure 12.4 Expansionary fiscal policy – AD/AS model

The AD/AS model can also be used to model the operation of expansionary fiscal policy and its effect on the level of output. As shown in figure 12.4, increased government expenditure, and/or lower taxation will have an expansionary effect on aggregate demand, shifting the AD curve from its initial level AD1, to AD2. The level of real output (and thus incomes and expenditure) rises from Y1 to Y2. Expansionary policy has brought the economy closer to its potential (the level of output shown by the LRAS curve).

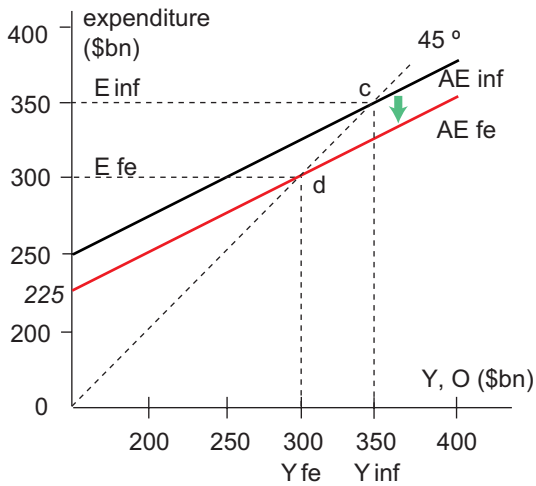
Expansionary fiscal policy should have minimal impact on inflation if the economy is in a trough. When economic output is below potential, increased aggregate demand will tend to soak up excess capacity and unemployed resources before putting much upward pressure on the price level.

A contractionary stance

In a period of higher economic growth, it would be appropriate for the government to plan a budget surplus to reduce levels of spending in the economy. Policy options to achieve this contractionary outcome might include:

- increasing personal and company tax rates;
- reducing or postponing spending on major projects; and/or
- increasing excise taxes such as those applied on sales of cars, tobacco and alcohol.

There are many components of government revenue and expenditure, so to 'reduce spending' means that a decision has to be made as to what component of expenditure will be reduced. It could be current or capital expenditure, and might be taken from defence, education, health or infrastructure. The actual way in which revenue is increased or expenditure is cut is usually influenced by political, as well as economic judgments. As previously mentioned, it is difficult to make large cuts in government expenditure, because most of the spending in any department (approximately 70 per cent) is spent on wages and salaries. The size and scope of the public sector creates its own inertia which makes budget



In a boom, the government uses its budget to reduce the inflationary gap (the difference between Y fe and Y inf). This can be achieved by raising taxes and / or reducing spending. Contractionary fiscal policy reduces households' disposable income, so aggregate consumption should fall. Company taxes could also be raised.

The level of economic activity should fall from Y inf to Y fe – a return towards full employment levels of expenditure, output and income. Note that the multiplier applies – the final reduction in AE ($50 billion) is greater than the initial reduction in government spending ($25 billion).

Figure 12.5 Fiscal policy in a boom

cuts hard to design and implement. Reductions tend to be made in small amounts over a period of time – pruning rather than slashing.

A budget surplus will always have a contractionary effect because there is a net withdrawal of funds from the economy. Even when the budget surplus is reduced from one year to the next, it will still have a contractionary effect.

Contractionary fiscal policy can be analysed using the Keynesian and AD/AS models. In figure 12.5, the economy is initially in equilibrium at Yinf – the term 'inflationary gap' is used to describe the pressure on prices that occurs when levels of expenditure are close to the level of expenditure at which resources will be fully employed (Yfe).

In a period of strong growth, the government could either increase taxation levels or cut its expenditure, reducing the spending power of households and

Fiscal policy and the multiplier

Will a change in government spending have the same multiplier effect as an equivalent change in taxes? For example, will an increase in government spending of $10bn have the same effect as a tax cut of $10bn?

The answer is no! The formula for the spending multiplier is 1/(1-mpc) or 1/mps. But the formula for measuring the effect of a change in taxes is different – it is mpc/(1-mpc) or mpc/mps. What is the reason for the difference? A change in tax must first change household consumption through the mpc, but a change in government spending will directly affect GDP.

The spending multiplier = 1/(1-mpc) or 1/mps. Thus if the mpc = 0.6, the spending multiplier = 2.5. If government spending is increased by $10 bn, GDP will increase by $25bn. The tax multiplier = mpc/(1-mpc), or mpc/mps. Thus if the mpc = 0.6, the tax multiplier = 1.5 If tax is cut by $10bn, GDP will increase by $15bn.

The economy is beyond its potential. Contractionary fiscal policy increases taxation, or decreases government spending (or both) to reduce aggregate demand from AD1 to AD2. As a result, levels of real GDP fall from Y1 to Y2. This will also reduce the price level (inflation rate).

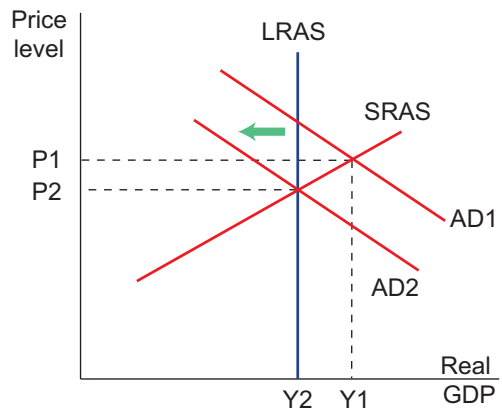


Figure 12.6 Fiscal policy in a boom - AD/AS model

businesses from AEinf to AEfe. The negative multiplier effect applies – reductions in spending or increases in revenue (i.e. a small downward movement in AE) produce a larger decrease in aggregate output and income. Figure 12.6 analyses the effect of contractionary fiscal policy, using the AD/AS model. Assume the level of aggregate demand was AD1. The associated level of output, Y1, is beyond the economy's full employment potential (indicated by the LRAS curve), placing upward pressure on prices (initially rising at the rate P1). Reduced government spending and/or increased taxation will have a contractionary effect on aggregate demand, shifting the AD curve to the left (from AD1 to AD2). Real output will fall from Y1 to Y2, and the rate of change of prices (level of inflation) will fall from P1 to P2.

In summary, when macroeconomic activity is below potential, the government plans to boost aggregate spending by increasing expenditure and/or reducing revenue. In boom conditions, the government plans to reduce spending power in the economy by cutting its own expenditure and/or increasing its revenue.

A neutral budget stance

If the government thought economic conditions were close to the natural rate of employment with inflation in the 2–3 per cent range, it might adopt a neutral budget stance. In this case, there would be little difference between planned revenue and spending, and the budget outcome would move towards balance.

Budget balance and the budget stance

The budget balance is determined by two factors – discretionary changes made by the government, and automatic changes related to the business cycle. The discretionary changes to government spending and taxation determine the structural balance, while the effect of automatic stabilisers determines the cyclical balance:

$$\text{Budget balance} = \text{structural balance} + \text{cyclical balance}$$

The real stance of fiscal policy is determined by the structural balance, not the overall balance – a structural deficit means that fiscal policy is expansionary, whereas a structural surplus implies that fiscal policy is contractionary. Ideally the structural balance should equal zero when the economy is at potential GDP (full employment).

Understanding whether the fiscal balance is driven by cyclical or structural factors is important in understanding the stance of fiscal policy. It is, however, difficult to separate the budget balance into its exact structural and cyclical parts, although the government does provide a range of estimates.

Strengths of fiscal policy

Several strengths of fiscal policy as a demand management tool can be identified.

Fiscal policy is fairly direct. Revenue and spending measures announced in the Budget can be implemented immediately, if required. For example, the Treasurer might announce an increase in the excise tax on a commodity from the day after the Budget, or a reduction in the marginal rates of taxation after a certain date. Consumers feel the impact of these decisions as soon as they come into law. Fiscal policy can be targeted to impact on specific sectors of the economy, and can also affect aggregate supply by, for example, spending on infrastructure projects.

Keynesian economists believe that a strength of fiscal policy is its positive impact on the economy in recession – the government can open a 'spending tap' to increase the level of aggregate demand in the community. In the Great Depression (1930s), government funds were used to build infrastructure and employ workers on government projects, providing an immediate boost to employment, spending power and consumption. In the Global Financial Crisis (GFC), many governments around the world adopted significant fiscal stimulus packages to try to avoid recession. As described later in the chapter, the COVID-19 pandemic again saw governments undertaking massive stimulus measures to keep households and businesses spending, and to save jobs and businesses.

Finally, well-timed fiscal policy measures and automatic stabilisers (refer to figure 12.2) are complementary. In a boom, both discretionary and automatic stabilisers dampen spending and economic activity. In a downturn, discretionary and automatic stabilisers act together to stimulate spending and economic activity.

Weaknesses of fiscal policy

Several weaknesses of fiscal policy can also be identified. As with all economic policy, time lags may have an impact (as discussed in chapter 11). The recognition lag occurs because economic indicators often lag the real trends, so policy may be based on out-of-date data. The decision lag refers to the time that passes whilst appropriate policy is formulated, especially when different views might need to be considered as part of the political process. The impact or effect lag is the time it takes for the policy to have an impact on the level of economic activity.

Fiscal policy is relatively inflexible. In developing the budget, Treasury cannot really make large changes to the patterns of allocation and distribution established in past years. There are social, demographic and political constraints which determine the fabric of the budget – these cannot be ignored just to get the economy into shape. It would be impossible, for example, to reduce spending in a boom by cutting all defence spending, or slashing social security payments. Similarly, it is unlikely that social security benefits could ever be increased by more than a small amount at a time, because funding larger benefits would be hugely expensive and may even encourage people to stop work! Policy makers also have to consider possible costs of compliance due to policy changes – retailers, for example, would not react well to constant changes in excise tax rates on goods they sell.

Political machinations impact on the budgetary process, because governments seek re-election. In the first year of their term, governments tend to apply tough fiscal measures, but in the year preceding an election, budgetary measures may appear easier – perhaps hoping to 'buy' votes from the electors. In May 2022, for example, the Treasurer delivered an expansionary Budget prior to an election. In October, the new government announced a Budget that limited expenditure growth in order to bring down the deficit. The data used to compile figures 12.1 and 12.7 refer to the October budget.

An important effect of the budgetary process is its unintended impact on decisions taken in the private sector. The crowding out hypothesis referred to earlier suggests that a budget deficit can actually make it harder for the private sector to participate in recovery because the supply and cost of loanable funds becomes tighter. This could have a negative effect on firms in the private sector because the availability of loanable money falls, and its price (the interest rate) is higher. Hence business borrowing becomes a more risky proposition, and private firms may decide not to go ahead with plans to borrow. At the extreme, crowding out could become a 'zero–sum game' – increased government expenditure could be canceled out by reduced private sector activity. In that case, expansionary fiscal policy would have no effect on the economy.

Fiscal policy should be part of the overall policy picture – it should not conflict with the direction taken by monetary policy. The Australian federal government

Learning activity

Critical and creative thinking - the MYEFO

The Mid-Year Economic and Fiscal Outlook (MYEFO) is prepared each year in accordance with the Charter of Budget Honesty Act 1998. The Charter requires that the Government provide a mid-year budget report which provides updated information to allow the assessment of the Government's fiscal performance against its fiscal strategy. The MYEFO is released half way through the financial year. Access the latest MYEFO from the government's Budget web site and read the Economic Outlook section which sets out the government's view of economic conditions facing the country as it prepares its Budget. If you were the Treasurer, what policy stance would you expect your advisers to recommend in the next Budget?

cut taxes for five years in a row between 2003 and 2007, despite a booming economy that saw nine increases in official interest rates over the same period! Fiscal and monetary policy stances seemed at odds, although the government explained that its intention was to return some of the surplus to taxpayers and to focus on long term structural reforms to the economy.

In the sections above, the phrase 'traditional fiscal policy' has been used deliberately. That is, how fiscal policy can be used as a demand management tool? How it can expand or contract the level of aggregate expenditure (aggregate demand) towards that associated with full employment or economic potential.

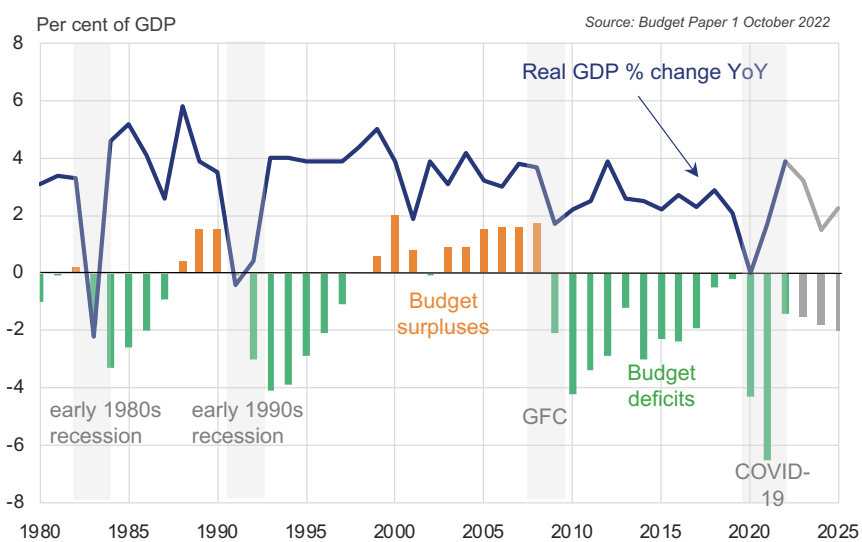
Note that whilst the focus of fiscal policy is often on shifting aggregate demand by changing government spending and taxation, fiscal policy can also affect the aggregate supply curve through

- spending on infrastructure, which adds to the capital stock, and
- the impact of income tax rates on the willingness of people to work (labour supply).

Recent fiscal policy in Australia

As illustrated in figure 12.7, there is a clear relationship between fiscal policy (budget outcomes) and economic performance since 1980. When economic growth slows, as it did in 1983, 1991, 2000, 2008 and 2020, the budget outcome quickly turns from surplus to deficit. Recovery and the economic upswing sees a gradual movement towards budget surplus, which extends through the expansion. This surplus/deficit pattern reflects both the action of automatic stabilisers and discretionary adjustments to government revenue and spending.

Figure 12.7 Budget outcomes since 1980



The line graph shows the rate of economic growth (% p.a.).

The columns show the planned budget outcome as a proportion of GDP. Orange columns indicate years in which the Budget was in surplus; green columns indicate deficits.

The 2023-25 figures are estimates from the October 2022 Budget.

As illustrated, Budget deficits decline as the economy recovers. Does this imply that the that the government had adopted a contractionary stance? The answer is no – the gradual reduction in the deficits was due to the operation of automatic stabilisers. The budget balance improved because the cyclical deficit was moving towards surplus, as tax revenue grew and claims on welfare fell. The structural balance was still in deficit, however because of discretionary policy announcements. In the post GFC period, for example, structural measures included reducing the tax burden for small businesses; funding transport infrastructure; amendments to education and health funding; changing income tax brackets (2017 Budget) and commitments to reduce company tax. These are classic examples of discretionary policy aimed at stimulating aggregate demand in order to increase economic activity and the rate of growth.

Over the period 1980-2023, there were 28 years of budget deficit (the green columns) and 13 years of surplus (orange columns). This section briefly reviews the government's fiscal stance (discretionary policy) in three of those years: 2008-2009 (during the Global Financial Crisis (GFC); 2014-15, and 2020-21.

2008–2009: The GFC and the need for stimulus

Australia was in excellent 'financial health' in the mid 2000s: debt-free, growing strongly, and running surplus budgets. Except for a brief lull in 2000, the world economy was also growing strongly. The expectation of rising asset prices (especially housing) encouraged excessive borrowing. In the US, housing loans are often packaged (securitised) and sold on to investors. Over time, however, some of those packages included riskier loans provided to less qualified buyers. As house prices peaked, a crisis emerged. Banks that had financed higher risk borrowers faced losses as the value of the property fell below the loan balance, triggering withdrawal of those investment funds. There was considerable panic as everyone was trying to reduce their exposure to housing mortgages at the same time. This caused credit to dry up as institutions sought to avoid risk, and business confidence plunged.

Many businesses responded to the financial crisis by slashing production and running down inventories. Consumer spending and confidence plummeted. By October 2008, the crisis had spread from the US to the world economy, with virtually every advanced economy in recession in 2009. Fearing slowing growth and rising unemployment, the Australian government announced the following discretionary measures in a special budget in October:

- an initial $10.4 billion stimulus package (1 per cent of GDP) consisting of cash payments to low–income families; support for housing construction including a first home owners scheme; and new training places; and
- a second $42 bn (4 per cent of GDP) package targeting consumption support and infrastructure spending (for example a schools building program and a home insulation program).

The Reserve Bank of Australia (RBA) also adopted an expansionary monetary policy stance, reducing the cash rate from 7.25 percent to 3 per cent over just nine months between August, 2008 and April, 2009.

Australia avoided recession, although growth was just 1.8 percent in 2008–09 and unemployment nearly 6 per cent (there were fears that it would rise above 10 per cent). Assisted by a favourable terms of trade and strong demand for minerals, Australia survived the crisis in better shape than many western countries.

Post GFC – a 'soft' economy

The economy did not, however, bounce back to its pre–GFC strength. Growth over the next decade averaged 2.5 per cent per annum, with 2011–2012 being the best at 3.9 per cent. The average rate of economic growth for 'high income' countries over the period 2010–2019 was just 2 percent (World Bank, 2020).

The stimulus measures undertaken in the GFC meant net government debt rose above 10 per cent of GDP, and there was great concern in Australia about how to raise revenue and/or cut expenditure to 'get back into surplus'. In May 2014, the government announced they were undertaking 'budget repair' by introducing tax increases and expenditure cuts, including:

- $80 billion cuts to education and health spending;
- review of eligibility for people under 35 receiving a disability pension;
- an extra fee for visits to a doctor;
- reduced unemployment entitlements for people under 25; and
- a 'temporary budget repair' increase in tax rates for high income earners.

This 'austerity' budget proved very unpopular, and many of the measures were abandoned by early 2015 as they proved to be electorally damaging. Economic growth and wage increases were insufficient to improve household budgets. It was apparent that using the budget to arrange a premature 'exit' from the deficit position was, in fact, just prolonging the soft economy, so budget repair was postponed!

The political mantra of 'returning to surplus' continued, however, and eventually the government forecast a small budget surplus for fiscal year 2020–2021. That forecast would prove to be short–lived.

2020 – the COVID-19 Pandemic

As discussed in chapter 8, the coronavirus pandemic saw the Australian economy enter recession for the first time since 1991. The rapid spread and uncertain health impact of the coronavirus meant governments faced a trade off between the health costs and the economic impacts of the disease. Most countries chose to limit the spread of the disease and its impact on health services by closing or restricting activities where people were in close contact with others.

Box 12.1 COVID-19 stimulus measures (February – August, 2020)

Support for businesses

- From March 2020, a $1,500 per fortnight payment known as JobKeeper was paid to all employees of eligible businesses, including full time, part-time and casuals (if employed for more than a year) and including employees who may have been stood down or retrenched because businesses were unable to open. Over 4 million workers received JobKeeper support by July;
- small businesses could claim a 100% depreciation allowance for investment in equipment (actually in place since 2011, but extended several times);
- cash payments to business based on wage and salary tax withheld and notified in business activity statements (BAS) payments); and
- wage subsidies for apprentices.

Support for households

- two $750 payments to pensioners and other welfare recipients;
- early access to superannuation (by application);
- a temporary $550 coronavirus supplement to JobSeeker recipients;
- a child care relief package; and
- a $25,000 grant to home owners for new building or substantial renovations (HomeBuilder).

The cost of these measures to the end of August 2020 exceeded $250Bn. In addition, states funded $13Bn in measures such as payroll tax relief and support for sectors such as tourism.

Source: MYEFO, media releases.

This led to reduced trading hours, especially in the service and entertainment sectors. In early 2020, the government introduced a significant 'stimulus package' to limit the impact of the virus on businesses and employment. Some of the key measures are shown in box 12.1. The forecast budget deficit for 2020-2021 was nearly $200 billion – 10 per cent of GDP!

Australia - Government net debt as a % of GDP

Year	*(% to GDP)*
2006	0
2007	-2.2
2008	-3.4
2009	-0.9
2010	3.7
2011	6.4
2012	10.2
2013	10.4
2014	13.1
2015	15.1
2016	18.3
2017	18.3
2018	18.6
2019	19.2
2020	24.8
2021	28.6
2022	22.5
2023 (f)	*23.0*
2024 (f)	*25.8*
2025 (f)	*27.4*
2026 (f)	*28.5*

Source: : Budget 2022-23 Budget Paper No 1: Table 10.4.

Fiscal policy outlook 2023 - 2025

Budgets tend to go into deficit during economic downturns, and usually return to balance or surplus over a period of 5-6 years. As at late 2022, however, the Budget has been in deficit for 14 years, and is forecast to remain that way for another decade. The deficits have added, year-on-year, to result in significant (by Australian standards) government debt. Net debt as a proportion of GDP stood at 22.5% of GDP in June 2022. Many other countries are, for various reasons, in a 'worse' position.

A number of events have impacted on the nation's ability to 'balance its budget' in recent years. With the onset of the pandemic, the government implemented stimulus measures larger than those applied in the GFC in 2008. The Russian invasion of Ukraine in February 2022 brought further disruption and tension around energy and food supply worldwide, quite apart from the considerable human cost of war. Finally, Australia has seen a series of severe flood events in the eastern states.

Each of these events has fed inflationary pressures. The October Budget forecast that inflation in Australia would peak at 7.7 per cent in late 2022. In the main, rising prices are the result of the 'supply-side' problems mentioned above. The policy responses, however, appear to have focussed on the demand side. Admittedly, policy makers have faced a dilemma. On the one hand, public debt is a threat to the economy because it must be repaid (with interest) in the future. Interest payments on debt are forecast to cost as much as the NDIS by 2026-2027! This suggests that 'budget repair' (reducing deficits by increasing revenue and cutting spending) should be a priority.

Government net debt as a % of GDP

Country	*2018*	*2022*
Japan	156	237
Italy	118	150
US	78	107
France	87	98
Canada	28	89
UK	78	81
Germany	41	60
Netherlands	43	48
Switzerland	20	41
Sweden	5	35
Australia	19	23

Source: : Trading Economics, 2022

On the other hand, real wages have not increased. Household budgets have been stretched by rising electricity, gas and food costs. Workers living in outer suburban areas have seen their transport bills rise. Rents and mortgages have risen – with interest rates rising about two percent over the course of 2022, monthly repayments on a 25-year $500,000 loan have gone up by $650.

The 'orthodox' view of fiscal policy is that governments and the public they serve have to 'live within their means'. In other words, governments should only spend as much as they have been able to raise from taxation revenue, or the sale of government bonds ($892bn of which were on issue at October, 2022). Contrary to the traditional view is the modern monetary theory (MMT) view that deficits are government sector 'red ink' that supports private sector 'black ink'. Used properly, deficits produce both growth in the future, and the capacity to absorb themselves (pay off debt). Properly applied, government deficits and debt can help achieve objectives currently on Australia's agenda, such as a fully-funded National Disability Insurance Scheme (NDIS); renewal of aging infrastructure; quality aged care; renewable energy; decarbonising the economy and diversifying Australia's economic base. A timely reminder of the difficulty the government faces in dealing with the economic problem!

Worksheet

1. What are the three budget outcomes? Are the outcomes the same as policy 'stances'?
2. How are government bonds used to finance a deficit?
3. In what ways could a government use funds from a budget surplus?
4. Explain how government revenue and expenditure automatically change when the economy is in a boom?
5. Suggest three specific measures the government could use to 'increase government expenditure' or 'decrease revenue' to boost spending in a sluggish economy.
6. Explain the meaning of the term 'cyclically balanced budget'.
7. Using either Keynesian (aggregate expenditure) or aggregate demand / aggregate supply models, illustrate the intended effect of the measures taken in 2014–15 Budget on the level of economic activity.

8. Using the alternative type of model to the one you used in question 7, explain the intended effect of the 2020–21 Budget on the level of economic activity.
9. Distinguish between the structural and cyclical components of the budget.
10. The extent to which crowding out actually occurs has been the subject of much debate among economists for many years (and in any case it probably varies from time to time). What factors might determine the extent of any 'crowding out'?
11. Draw up a table which summarises the strengths and weaknesses of fiscal policy.
12. Refer to figure 12.7. To what extent do budget outcomes over the period of the graph reflect business cycles in the Australian economy?
13. The 2020–21 Budget predicted medium term budgets deficits and rising debt. How might the debt be repaid?

Fiscal policy case study: 1991–92 Budget

The data in the table below shows a selection of Australian economic indicators for the period 1984-85 to 1992-93. Note all data refers to 'percentage change on previous year'.

Economic indicators: 1984-85 to 1992-93					
Year	a	b	c	d	e
1984-85	2.1	12.2	4.3	6.5	3.0
1985-86	3.4	4.5	8.4	2.0	4.3
1986-87	-0.3	-1.0	9.3	0.1	2.8
1987-88	2.8	14.5	7.3	8.8	3.0
1988-89	2.3	13.1	7.3	5.4	3.9
1989-90	2.8	-3.0	8.0	1.4	3.8
1990-91	-0.9	-11.5	5.3	-0.3	-0.6
1991-92	2.5	-6.3	1.9	-0.7	-1.9
1992-93	0.3	9.2	1.0	1.9	0.1

Key to columns:
[a] = Retail trade (% change on previous year)
[b] = Private gross fixed capital formation (% change on previous year)
[c] = CPI (annual percentage change)
[d] = Industrial production volume (% change on previous year.
[e] = Employment (% change on previous year)

1. Graph each column a to e, using a line graph and a single set of axes.
2. Refer to columns a and b. Which of these indicators is more volatile (features greater fluctuation)? Suggest reasons for the volatility.
3. Is there any evidence in the table that employment is a lagging indicator?
4. The 1991-92 recession was described by the then Prime Minister, Paul Keating, as "the recession we had to have". Find evidence from the data that there was an inflationary gap/ boom in the late 1980s.
5. Had you been the Treasurer in 1990-91, what budgetary stance would you have taken? Provide some examples of changes you could have made in the Budget which would have delivered your result. Model your budget stance using either a Keynesian or AD/AS framework.
6. The 1990-91 Budget forecast a small surplus. Over the course of the year, actual outlays rose by 6.8%, and revenue fell by 4.7% compared to the previous year. Use the data provided to suggest reasons for the difference between the forecast and actual figures.
7. The Treasurer at the time was John Dawkins (ALP). Dawkins announced a $13.4 billion Budget deficit in 1992-93 - equivalent to 3.3 per cent of GDP (compared to the 1983-83

Budget deficit of 4.1 per cent of GDP (1983-84 being the previous recession). Why is it important to look at the size of the budget result as a percentage of GDP?

8. Using the data, describe one 'beneficial result' that the recession of 1991-92 brought for the Australian economy.
9. The budget balance as a proportion of GDP was 0.4% in 1989-90; 1.8% in 1990-91; -2.4% in 1991-92 and -3.3% in 1992-93. To what extent does this indicate a structural deficit? (Hint: distinguish between the terms 'cyclical deficit' an 'structural deficit').

Budget 2022-23

The text below is an edited excerpt from Statement 1 of Budget Paper 1, 2022-23 (October).

Economic and Fiscal Outlook

The global economic environment has sharply deteriorated. Exacerbated by a global energy price shock, inflation has risen rapidly across advanced economies and, in many countries, is at levels not seen in decades. Central banks have lifted interest rates quickly in response, constituting the fastest synchronised monetary policy tightening in the inflation targeting era. The combination of these factors is expected to slow global economic growth in 2023 to 2.75 per cent. The risk of recession across major advanced economies has risen and China's growth outlook has weakened.

While Australia has withstood the pandemic well, it is not immune to the intensifying global challenges and risks. Domestic disruptions including the recent floods will test our resilience further. While the economy is forecast to grow by 3.25 per cent in 2022–23, the weaker global outlook, high inflation, cost-of-living pressures, and higher interest rates are expected to see growth slow to 1.5 per cent in 2023–24. Annual inflation is expected to peak at 7.75 per cent in late 2022, before moderating gradually to 3.5 per cent by June 2024 and returning to the Reserve Bank's inflation target by 2024–25.

In line with the weaker outlook for growth, the current tightness in the labour market is forecast to gradually ease over the coming years. While labour demand is expected to soften alongside slower growth in 2023–24, employment growth is forecast to remain positive. The unemployment rate is forecast to rise to 4.5 per cent by the June quarter of 2024 but remain below pre-pandemic levels. Workforce participation is expected to ease from recent record highs but remain structurally higher than projected, expanding the supply capacity of the economy.

While some household groups have built up savings buffers over recent years, others are expected to come under greater pressure. Many indebted households will be more significantly impacted by higher interest rates. Low-income households are also expected to be more heavily affected as essentials such as housing costs and energy make up a larger share of their household expenses, and these are expected to rise. The Government's targeted cost-of-living relief, indexation of government allowances and pensions and the larger than usual minimum wage increase provided by the Fair Work Commission will help to provide relief for many households.

1. From figures 10.2, 11.1, 12.7 and 13.8 of this book, determine the rate of economic growth, unemployment rate, inflation rate, and cash rate at June 2022. Alternatively, use ABS and RBA web sites.
2. List the factors in the economic environment that have 'deteriorated'. Choose one of them and explain how this would be expected to effect government revenue or expenses.
3. The first paragraph mentions the term 'budget repair'. Given the information in later paragraphs, suggest what the 'repair' involves.
4. Draw an AD/AS model that shows how the series of deficit budgets over the period 2020-2023 would be expected to impact on real GDP, employment and income.
5. What factors were driving the cost of living upwards? What budgetary (fiscal) measures could the government use help low-income households overcome cost of living increases emerging during the recovery from the pandemic.

6. Fiscal Policy Case Study - current year

Major newspapers such as The Australian Financial Review and The Australian publish Budget supplements in the days after the Budget is handed down in Federal Parliament. Obtain a copy to help answer the following questions. Also access the government's Budget web site.

1. Write the latest revenue and expenditure totals alongside figure 12.1, and use the data to construct a new column/s for the current year/s on figure 12.7. Is the budget in deficit or surplus? Is the Budget contractionary, neutral or expansionary, in your opinion?
2. At Budget time, what are the current rates of growth, inflation and unemployment? Has the Australian economy expanded or contracted in the period since the last Budget. Provide two pieces of evidence.
3. Give three examples of discretionary measures announced by the Treasurer to affect the current level of aggregate demand (i.e. short term demand management measures).
4. Give three examples of discretionary measures announced by the Treasurer which support longer term, 'supply side' initiatives (perhaps related to the workforce, productivity, environment or climate change).
5. There may be an article in the supplement about budget 'winners and losers'. Provide two examples of households, businesses or sectors classified under either title.
6. From reading about the Budget, describe the economic challenges faced by the current government.

Multiple choice questions

Choose the best alternative in the following questions.

1. In an economy where the level of aggregate expenditure was falling, the following automatic stabiliser would come into operation.
   a. Taxation revenue would rise, cutting household spending.
   b. Welfare payments would rise, increasing household spending.
   c. Taxation revenue would fall, causing reduced government spending.
   d. Discretionary government spending would be expected to rise.

2. Budget outcomes are affected by cyclical and structural factors. Cyclical factors refer to:
   a. the impact of the business cycle on government revenue and expenditure.
   b deliberate policy decisions which allocate funds to areas of government responsibility.
   c. the need to redistribute income from rich to poor in periods of unemployment.
   d. changes in the demand for labour in the economy.

3. Balanced budgets:
   a. are effective stabilising tools at all phases of the business cycle.
   b. have a stabilising effect on economic activity because expenditure is always governed by revenue received.
   c. may have a destabilising effect on the economy because they have no impact on aggregate expenditure.
   d. may have a destabilising effect on the economy if they make booms higher and troughs deeper.

4. If the actual budget surplus is greater than the forecast budget surplus, this would suggest that:
   a. the government has made policy changes to reduce spending since the budget.
   b. the actual level of economic activity is lower than that forecast at budget time.
   c. tax receipts have fallen during the year.
   d. the actual level of economic activity is higher than that forecast at budget time.

5. Which combination of factors best explains why the actual budget surplus may be larger than the planned surplus?
   - i An unexpected increase in the terms of trade.
   - ii An unexpected decrease in unemployment.
   - iii An unexpected increase in tax avoidance.
   - iv An unexpected natural disaster.

   a. i and ii.
   b. i and iii.
   c. ii and iii.
   d. ii and iv.

6. If a government budgets for a surplus and there is an unexpected increase in the level of economic activity, which of the following is likely to occur?
   a. There will be an increase in tax revenues and a decrease in the budget surplus.
   b. There will be a decrease in tax revenues and an increase in the budget surplus.
   c. There will be an increase in tax revenues and an increase in the budget surplus.
   d. There will be a decrease in tax revenues and a decrease in the budget surplus.

7. A contractionary Budget is:
   a. one in which revenue exceeds expenditure.
   b. expected to reduce the level of aggregate expenditure in the private sector, as well as moving the government budget more towards surplus.
   c. one in which the net surplus is smaller than that recorded for the previous year.
   d. one in which more revenue is raised from taxation measures.

8. Which of the following is the best example of discretionary fiscal policy?
   a. An increase in personal tax revenue due to wage growth.
   b. An increase in Jobsearch payments due to higher unemployment levels.
   c. An increase in spending on infrastructure during an economic contraction.
   d. A fall in company tax receipts in a recession.

9. The forecast Budget deficit in Year 1 was $10 million. Over the course of the year, economic activity improved. Actual revenue increased by $10 million, and actual expenditure fell by $2 million. The Budget for Year 2 forecasts a surplus of $5 million. On this information, the Year 2 Budget is:
   a. in deficit.
   b. expansionary.
   c. contractionary.
   d. balanced.

10. 'Crowding out' may occur when:
    a. the government borrows from overseas sources to finance its budget deficit, thus causing depreciation of the exchange rate.
    b. the budget is in surplus, so the government is out of the market for private sector funds.
    c. interest rates fall in line with a government deficit.
    d. the government borrows to finance its budget deficit, thus increasing the competition for loanable funds throughout the economy .

Data interpretation

The table below shows economic indicators for a hypothetical economy .

Year	CPI	Unemployment rate	Interest rates (cash rate % p.a.)	Index of manufacturing activity
1	105.0	7.6	5.50	108
2	108.3	7.4	6.25	112
3	112.5	7.0	6.75	115
4	117.2	6.2	7.50	125

a. Calculate the inflation rate, and the percentage change in manufacturing activity between Years 3 and 4. [2 marks]

b. Use the information in the table to draw conclusions about the state of the economy over the four year period. [4 marks].

c. Describe the fiscal policy measures that would be appropriate for Year 4. Explain how you expect they will impact on the level of economic activity? [4 marks].

Extended responses

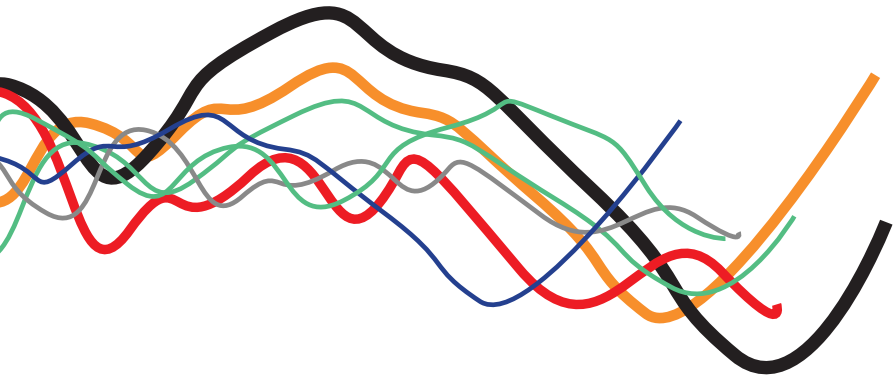
Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer. Some questions refer to concepts developed in other chapters.

1. a. Distinguish between automatic and discretionary stabilisers. [8 marks]
   b. Explain, using examples, how automatic stabilisers operate in an economic expansion. [12 marks]

2. a. Identify reasons why the actual budget outcome at the end of the year could show a greater surplus than had been forecast. [10 marks]
   b. Explain how a Budget deficit can increase the level of economic activity in a recession? Is it certain that the deficit will boost economic activity? [10 marks]

3. In an economic boom, the government would traditionally announce contractionary policy measures such as increased taxation and reduced government expenditure. Describe these measures and explain their effect on aggregate levels of consumption and investment. [20 marks]

4. Discuss the merits and weaknesses of the traditional fiscal policy measures which would be applied in the contraction phase of the business cycle. [20 marks]

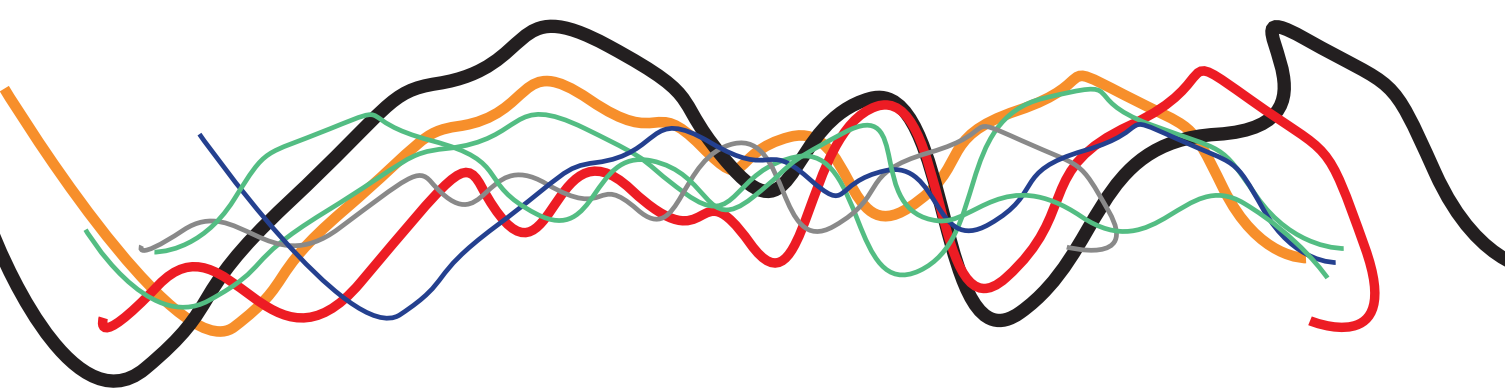


13

Monetary policy

Chapter concepts

- *the concepts of monetary policy and the cash rate*
- *circumstances under which the RBA may change the cash rate*
- *how monetary policy affects the level of economic activity i.e. the transmission mechanism*
- *the concepts of expansionary, contractionary and neutral monetary policy stances*
- *the impact of different monetary policy stances on the level of economic activity*
- *strengths and weaknesses of monetary policy*
- *contemporary monetary policy stances in Australia*



Introduction

Monetary policy is the second of the demand management policies that are used to influence aggregate demand, inflation and employment. To understand how monetary policy works in Australia, we first investigate the nature of financial markets and the role of interest rates.

The financial sector

Financial markets are the intermediary between savers and investors, or lenders and borrowers of funds. A range of financial institutions – banks, building societies, finance companies, merchant banks and credit unions – serve this intermediary role. They are termed financial intermediaries because they 'mediate' or come between people who have surplus funds and those who want to borrow funds.

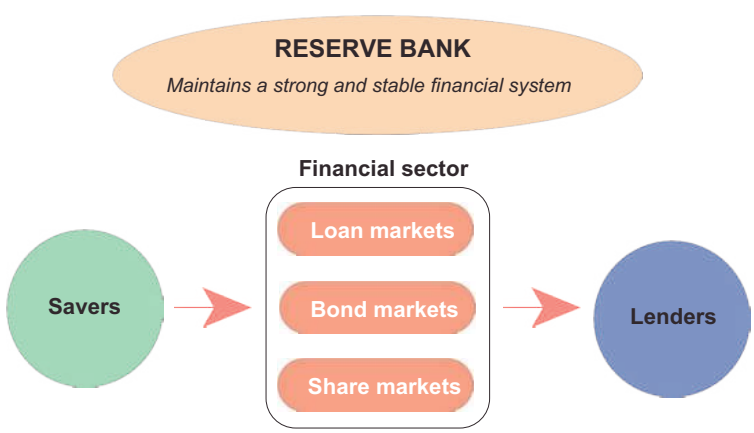
There are three main types of financial markets:

- loan markets – in which business firms borrow money to purchase assets and capital equipment, and households borrow to fund their housing mortgage, buy consumer durables and pay for holidays. Banks, finance companies and credit unions are part of the loan market;
- bond markets – in which firms and governments sell bonds to raise finance. A bond is also known as a fixed interest security; and
- share markets – in which firms obtain finance by issuing new shares through the stock market.

A well-functioning financial sector is critical to the economy's health because of it provides essential financial services to both households and firms. Money and credit facilitates transactions between buyers and sellers, and enable savings to be

Figure 13.1 The financial sector

Financial markets are essential to channel funds from savers to lenders to facilitate investment.



converted into investment. Investment is a key ingredient in promoting economic growth and increasing living standards over time. The adage that 'money makes the world go round' is very pertinent.

In an advanced economy, money performs three key functions:

- a means of exchange – money is used for purchasing goods and services;
- a unit of measurement – money measures and compares prices, incomes and asset values; and
- a store of value – money can be saved and used for future transactions.

A stable financial system is a key ingredient in ensuring sustainable economic growth. A crisis such as the failure of financial institutions can quickly lead to a major economic recession, as occurred in global financial crisis (GFC) of 2008-09.

An important role for the government is to ensure the stability of the financial system. In most countries this was the original reason for the creation of a central bank. In Australia, the central bank is the Reserve Bank of Australia (RBA). In the United States, the central bank is called the Federal Reserve Bank, and in the United Kingdom it is known as the Bank of England. In each of these countries, the central bank is responsible for the maintenance of overall financial stability, and the administration of monetary policy.

The Australian Securities and Investment Commission (ASIC) and Australian Prudential Regulation Authority (APRA) also play a role in financial regulation.

Interest rates

Interest rates represent the price of credit – a payment from a borrower to a lender for the use of funds. A household taking out a loan at 7 per cent interest rate per annum will pay $7 in interest for every $100 borrowed. Likewise, interest rates represent the return for saving surplus funds.

Interest rates can also be thought of as the opportunity cost of money, in the sense that holding money forfeits the return that could have been earned by depositing the money in an interest-bearing account.

The interest rate in a particular market is the price that equates the supply and demand of funds. Savers determine the supply of funds while borrowers determine the demand for funds. Because a large proportion of transactions in our economy rely on credit and borrowing, changes in interest rates can have a significant effect on the level of spending and economic activity.

It is important to distinguish between nominal interest rates (the headline or published rates) and real interest rates. The real interest rate is the nominal rate minus the rate of inflation. For example, if the nominal interest rate is 7 per cent and the expected inflation rate is 2 per cent, then the real interest rate is 5 per cent. The real rate of interest is an important influence in economic decisions

Interest rates on loans vary because lenders need to be compensated for different levels of risk - the chance that a borrower will default on repayments. The risk is influenced by the time over which a loan is taken (longer periods imply greater risk); whether the loan is secured against an asset (such as property); and the 'quality' of the loan.

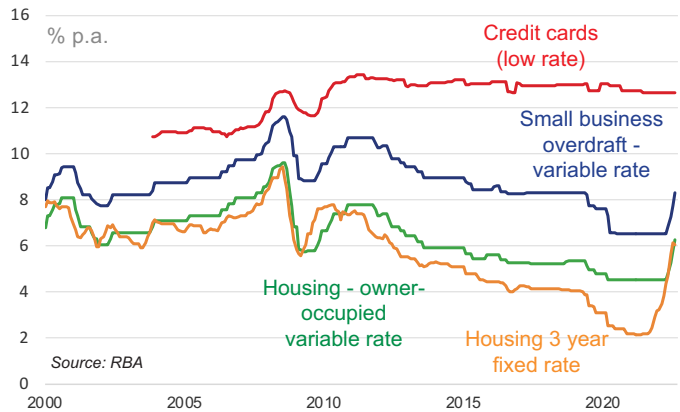


Figure 13.2 Selected interest rates for borrowers: 2000-2022

involving borrowing and saving. The real rate of interest is a measure of how much borrowers actually pay and how much lenders receive in terms of purchasing power. As we would expect, borrowers prefer low real interest rates, while savers and lenders prefer high real interest rates.

There is usually a positive 'margin' between interest rates and the rate of inflation to preserve a positive return for lenders. To maintain this margin, nominal interest rates rise when inflation rises.

As illustrated in figure 13.2, interest rates vary across various types of loans. This is because lenders need to be compensated for different levels of risk they take on when lending funds. That risk is influenced by the time over which a loan is taken (longer periods imply greater risk); whether the loan is secured against an asset such as property or other collateral; and the credit record of the borrower. Note that low rate credit card interest rates are the highest of the small selection of loans in figure 13.2 because they are unsecured loans to individuals.

The objectives of monetary policy

A key factor in determining the level of interest rates is monetary policy. The objectives of monetary policy, as defined in the Reserve Bank Act (1959) are:

- the stability of the currency (price stability or low inflation);
- the maintenance of full employment (low unemployment); and
- the economic prosperity and welfare of the people of Australia.

The Reserve Bank of New Zealand pioneered inflation targeting in 1989. Most advanced economies now set an explicit inflation target.

These objectives are somewhat broader than those of central banks in most of the advanced economies, which focus primarily on price stability. The RBA adopted an 'inflation-targeting' focus in 1993, after previous approaches to monetary policy had not delivered acceptable price stability and macroeconomic outcomes. The RBA target is to achieve an inflation rate between 2-3 per cent, on average, over the course of a business cycle.

Inflation is regarded as a risk to the economy because it:

- erodes real income (spending power);
- leads to higher interest rates, creating a disincentive to private sector borrowing and spending.
- decreases a country's international competitiveness;
- increases uncertainty;
- encourages investment in non-productive assets; and
- undermines the value of the currency.

Figure 13.3 shows Australian inflation data (on a year ended at quarter basis) between 2019 and 2022. The CPI is the 'headline rate' that summarises price movements across all classes of household expenditure, and is the measure most often referred to by the media. The headline rate can be adjusted to estimate an 'underlying' or 'core' rate of inflation. Some goods have volatile prices. Fruit and vegetable prices, for example, exhibit seasonal volatility. Retail petrol prices are volatile because they reflect movements in the world oil price and changes in the exchange rate. Removing these volatile components from the headline rate helps to estimate the core rate of inflation.

The Reserve Bank calculates 'weighted median' and 'trimmed mean' measures of inflation. These procedures eliminate outlier groups at both the top (highest rates of price change) and bottom (lowest rates) of the CPI price series, and thus produce an estimate of the 'underlying' rate of inflation (the average of the trimmed mean and weighted median measures).

Figure 13.3 Measures of inflation: 2019 – 2022

Year ended	Headline CPI % p.a.	*excluding volatile items %*	Weighted median %	Trimmed mean %
Mar 2019	1.3	*1.3*	1.4	1.6
June 2019	1.6	*1.5*	1.3	1.5
Sept 2019	1.7	*1.9*	1.3	1.5
Dec 2019	1.8	*1.7*	1.3	1.5
Mar 2020	2.2	*2.1*	1.6	1.7
June 2020	- 0.3	*0.4*	1.2	1.2
Sept 2020	0.7	*0.9*	1.2	1.1
Dec 2020	0.9	*1.5*	1.4	1.2
Mar 2021	1.1	*1.4*	1.3	1.1
June 2021	3.8	*3.1*	1.5	1.6
Sept 2021	3.0	*2.5*	2.1	2.1
Dec 2021	3.5	*2.6*	2.4	2.6
March 2022	5.1	*4.0*	3.0	3.7
June 2022	6.1	*5.3*	4.2	4.9
Sept 2022	7.3	*6.7*	5.0	6.1

Source: RBA Measures of Consumer Inflation, accessed November 2022

The Reserve Bank's inflation target is between 2 and 3% over the business cycle. Underlying measures of inflation provide a more accurate view of core inflation than the 'headline' CPI rate.

Australia is not the only country to have adopted inflation targeting as the guiding objective for monetary policy. New Zealand, Canada, the United Kingdom, and Sweden have also done so. The importance of announcing, and pursuing, an inflation target lies in influencing the expectations of firms and households. Since implementing inflation targets, inflation in this group of countries has fallen. In Australia, the RBA credits inflation targeting for keeping inflation low and in promoting a satisfactory rate of economic growth.

Keeping inflation low also helps to achieve the second objective – the maintenance of full employment – because it promotes business confidence and encourages investment, which underpins employment growth. Full employment is synonymous with the 'natural rate' of unemployment, currently estimated to be around 4 per cent for Australia. The natural rate does gradually change over time due to changes in the structure of the labour market and changes in government policy. In the 1980s for example, the natural rate of unemployment was above 6 percent. It has declined over time, probably because the labour market became more flexible. The Reserve Bank believes that by achieving the objectives of price stability and full employment it can achieve the third objective of economic prosperity. Prosperity refers to rising living standards over time, usually measured as an increase in real GDP per capita. Keeping the economy at full employment and maintaining low inflation will promote long term economic growth and rising living standards.

Monetary policy and the cash rate

Monetary policy refers to actions taken by the Reserve Bank of Australia (RBA) to influence aggregate demand, employment and inflation in the economy. The Interbank Overnight Cash Rate (Cash Rate) is the main policy tool. The RBA announces a cash rate target, then uses open market operations as necessary to achieve that target in the interbank market. The market is made up of banks and a small number of other financial institutions, collectively known as approved deposit-taking institutions (ADIs). These institutions create the demand for funds in the interbank market, and the RBA controls the supply of funds.

Monetary policy is reviewed on the first Tuesday of each month, when the nine–member RBA Board meets with bank staff to analyse key domestic and international economic indicators such as economic growth; inflation; employment growth; unemployment; household earnings and savings; and the exchange rate. Board meetings are also informed by the regular discussions RBA staff hold with business people.

Economic conditions, and decisions taken at RBA Board meetings are summarised in a media release on the meeting date, and discussed in detail in Board minutes released two weeks after each meeting.

Should the bank decide to change the cash rate target, a public announcement is made at 12.30pm, and the target rate is implemented from the next day. Changes to the cash rate target are generally made in small amounts, often 0.25 percentage points (25 basis points).

The way the target rate is implemented in the market is a complex topic. Banks keep 'exchange settlement accounts' (ESA) at the RBA in order to settle their day-to-day transactions. The daily demand for cash in ESA accounts rises and fall as banks meet their transactional obligations to each other, and banks either borrow from the bank, or increase their exchange settlement deposits with it, as necessary. The RBA supplies enough funds to maintain liquidity in the market through daily auctions, using repurchase agreements ('repos'), government bonds and foreign exchange swaps. These 'market operations' ensure the cash rate target is met from day to day.

Monetary policy stances

As shown in figure 13.4, the RBA cut the cash rate target several times between 2015 and 2020, reaching just 0.10 per cent, where it stood for a year and a half. This was the lowest cash rate in Australian history. Rates rose rapidly after May 2022 in response to rising inflation.

Sometimes, the media uses the terms 'restrictive' or 'tight' when describing contractionary policy, and 'accommodative' or 'easy' when referring to expansionary policy.

In general terms, an upward cash rate movement over a period of time is described as a 'contractionary' monetary policy stance, and a downward movement is an 'expansionary' stance.

A benchmark that is sometimes used to help understand the monetary policy stance at any point in time is the 'neutral rate'. The neutral rate is the 'real policy rate' that is neither expansionary nor contractionary. The term 'real policy rate' refers to the nominal cash rate adjusted for inflation – the current cash rate minus the underlying inflation rate in the last quarter. The RBA acknowledges that "gauging the level of the neutral rate is challenging in practice because it cannot be directly observed and must instead be inferred from the data" (RBA. Monetary Policy Meeting Minutes, July, 2022). Thus, any estimate needs to be treated with caution. The concept of a neutral rate is acknowledged as an 'academic exercise'. It is useful for assessing the stance of monetary policy at any point, but there is no direct way of observing or calculating the rate.

Figure 13.4 : Cash rate targets 2015–2022

Date of change	Cash rate target	Date of change	Cash rate target
4 Feb 2015	2.25	3 November 2020	0.10
6 May 2015	2.00	3 May 2022	0.35
4 May 2016	1.75	7 June 2022	0.85
3 Aug 2016	1.50	5 July 2022	1.35
4 June 2019	1.25	2 August 2022	1.85
2 July 2019	1.00	7 September 2022	2.35
1 October 2019	0.75	3 October 2022	2.60
19 March 2020*	0.25	1 November 2022	2.85

** There were two decisions in March 2020: - reducing the cash rate to 0.5% on March 3, then 0.25% on March 19. Source: RBA*

The cash rate target in Australia fell between 2015 and 2020, reflecting weakness in the economy after the mining boom, then the onset of the COVID-19 pandemic. The cash rate has risen in 2022 to counter inflationary pressures.

Reserve Bank research papers estimated a neutral rate between 3 and 4 percent over the period 1990 – 2007, after which it has declined steadily and may have been around 0.5 per cent at the start of 2020 due to the long period of slow growth after the GFC. At the time of writing (late 2022), the neutral rate would have risen somewhat because inflation is rising. As at the November RBA Board meeting, the real policy rate was negative because the cash rate is 2.85 per cent, and underlying rate of inflation is around 5.5 per cent. This would imply that monetary policy is still expansionary.

But owner-occupier households with a mortgage may not share that opinion – interest rates on housing loans rose from around 2.8 per cent in April 2022 to 6 .4 per cent in November 2022!

Illustration - a contractionary stance

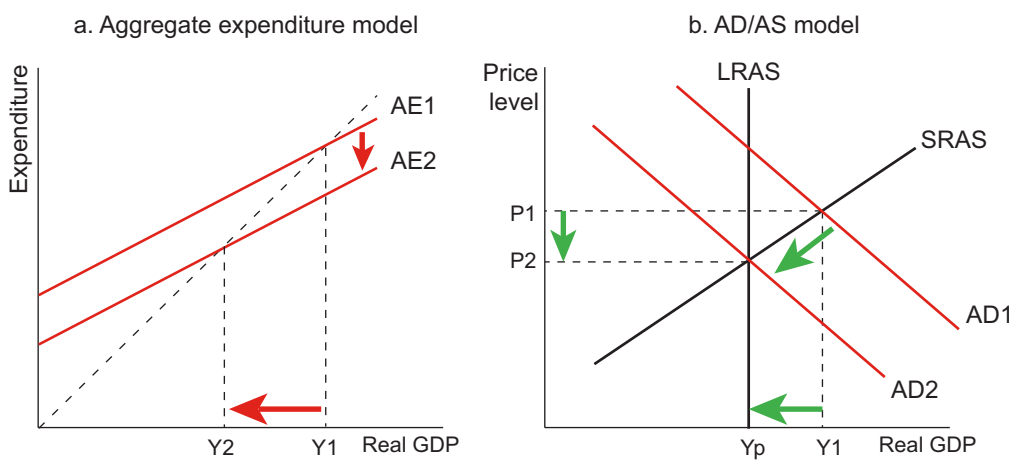
The impact of contractionary monetary policy is illustrated in figure 13.6, using both the aggregate expenditure and AD/AS models. In the Keynesian model, higher cash rates reduce aggregate expenditure and the equilibrium level of income falls from Y1 to Y2. In the AD/AS model, assume economic activity was initially operating beyond its potential (at Y1) and the price level was P1. A tight monetary stance shifts the AD curve to the left, reducing both the rate of growth and the rate of increase in prices.

The transmission mechanism

How do changes in interest rates affect the level of economic activity? It is important to realise that when the RBA changes the cash rate, other interest rates

Figure 13.6 Contractionary monetary policy

The Reserve Bank will use contractionary monetary policy (raising the cash rate) when
- *inflation is above the target range (> 3%);*
- *the economy appears to be growing too fast (> 3.5 – 4%); and*
- *unemployment is below the natural rate (< 4 %);*



(such as bank bill rates; deposit rates; mortgage rates; business loans and credit cards) also move, although the amount of change can vary, and there may be a time lag after changes in cash rate targets.

As previously discussed, the cash rate is the interest rate on unsecured overnight loans between banks. It is near risk-free. All other interest rates are higher than the cash rate to compensate lenders for the risk associated with the type of loan, and a time premium that compensates the bank for lending over longer periods – such as a twenty-five year housing mortgage. A change in the cash rate usuakllky flows through to other rates because financial institutions adjust the risk/reward profiles of their portfolio.

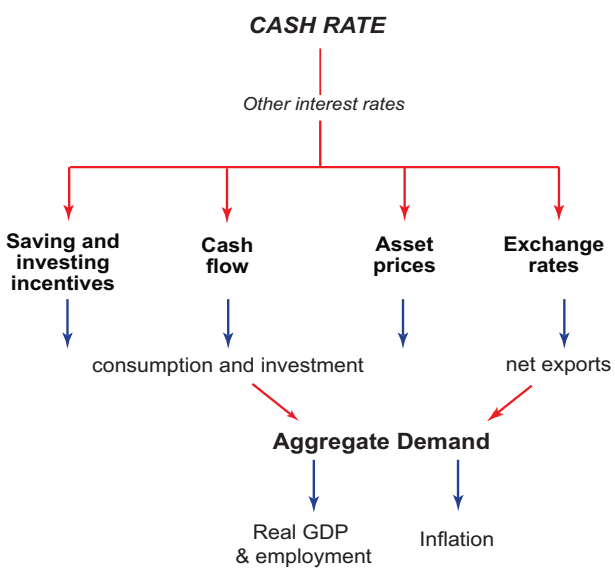
As illustrated in figure 13.5, changing interest rates flow through to aggregate demand because they influence:

- incentives for decisions to save, borrow or invest;
- the cash flow of households and firms;
- asset prices and perceived wealth; and
- the exchange rate.

We will follow these transmission channels, assuming once again that the monetary policy stance is contractionary (see figure 13.6).

Firstly, changes in interest rates have important effects on households' decisions to save or borrow, and firms' decisions to invest. Rising interest rates increase the incentive to save because higher rates deliver higher interest payments. Higher rates also increase the opportunity cost of spending – if it chooses to spend, a household forgoes the opportunity to save surplus funds in an interest–earning

Figure 13.5 The transmission mechanism



The four transmission channels explain how a change in the cash rate can eventually bring about changes in the level of aggregate demand, and hence output, employment and prices.

Other things being equal, reducing the cash rate would also see reduction in other interest rates, and increase aggregate demand over time by reducing the incentive to save; increasing household and business cash flows; increasing the prices of alternative asset classes such as shares; and placing downward pressure on the exchange rate, making exports more competitive overseas.

deposit. Businesses often borrow to invest, so a rise in interest rates will reduce the demand for business loans because of a lower potential return on investment.

Another way to understand the transmission is to understand how higher rates affect the cash flow of households and firms. Households that are 'net savers' will benefit from higher interest payments, whereas 'net borrowers' will have to meet larger monthly repayments on their loans. Most firms are net borrowers, so rate increases leave less free cash to pay expenses, expand production or increase employment.

Rising interest rates make the ownership of alternative financial assets such as shares and property seem less attractive because the relative returns of those assets declines. If asset prices decline, or rise at a slower rate, so does the 'on-paper' wealth of households with property holdings and/or share portfolios. The perception of falling wealth tends to lead to a fall in household discretionary spending (a negative wealth effect), and could reduce the equity households can offer when approaching a bank for a loan.

As discussed in chapters 6 and 7, changes in interest rates impact on exchange rates, because financial capital is highly mobile. If Australian rates are above overseas rates, capital inflow will increase demand for the currency and lead to an appreciation of the AUD. Other things being equal, a higher dollar will reduce aggregate demand because:

- the competitiveness of exports in overseas markets suffers as overseas residents pay more for the products they buy;
- imports become cheaper for Australian households; and
- import-competing firms in Australia have to compete with those cheaper imports.

The four transmission channels explain how the two panels in figure 13.6 work. Tighter monetary policy reduces the pressure on prices, and cuts aggregate demand, and therefore output and employment.

Strengths of monetary policy

Changes in policy interest rates are a powerful influence on the level of spending in the economy. The greatest strength of monetary policy is its flexibility. The RBA Board meets on a monthly basis (except in January) to assess the state of the economy, so the decision and implementation time lags for monetary policy are short compared with fiscal policy.

Interest rate decisions can be made without authorisation by Parliament, which adds to policy flexibility. As an independent authority, Reserve Bank monetary policy decisions are independent of political bias.

Monetary policy has proven to be effective in the control of high levels of aggregate demand and inflation because higher interest rates are a direct influence on household budgets and business cash flow.

Another strength relates to the important link between interest rates and the exchange rate. Changes in interest rates affect the interest rate differential with other countries, which affects movements in financial capital. A cut in interest rates, for example, will lead to a fall in capital inflow. This will reduce the demand for the currency and lead to depreciation. Net exports will be stimulated as prices fall on overseas markets, and imports should fall as prices rise. Thus an expansionary monetary policy (reducing interest rates) will not only increase consumption and investment, but also increase net exports. The effect of monetary policy on net exports, via the exchange rate, is an important part of the transmission chain.

Finally, the transmission routes for monetary policy are a little different than they are for fiscal policy. Interest rates affect every sector of the economy, and people tend not to see the policy as particularly aimed 'at them'.

Weaknesses of monetary policy

Both fiscal and monetary policy suffer from time lags:

- the recognition lag – the time taken to recognize trends;
- the decision lag – the time taken to make a policy decision; and
- the action or effect lag – the time taken for policy decisions to have an effect on aggregate demand and the economy.

The recognition and decision lags are relatively short because the RBA Board meets monthly and its decisions are informed by recent data and information gained from interviews with business. The effect lag, however, is thought to be quite long, because the transmission chain from the policy to the impact on aggregate demand is indirect – through other interest rates and then the saving/borrowing incentive, cash flow, asset price and exchange rate channels. Fiscal policy works more directly as changes in government spending or taxation can affect aggregate demand as soon as policy is passed into law.

Monetary policy is less effective in a contraction or trough – low interest rates don't seem sufficient to stimulate private spending when economic conditions are pessimistic. Economists liken expansionary monetary policy to 'pushing on a piece of string'. Two of the four transmission mechanism channels are responsible for this weakness. Businesses don't necessarily react to lower costs of borrowing if they are not confident about economic prospects when aggregate demand is low. This explanation is pertinent to the Australian case in recent years. Investment was low despite record low interest rates. Likewise, asset prices are influenced by many factors apart from the interest rate, especially expected future income that can be earned from an asset. This is influenced by confidence about the future. During the early months of the pandemic, fiscal policy did more of the 'heavy lifting' required to stimulate aggregate demand.

Monetary policy is regarded as a 'blunt' policy instrument. Unlike fiscal policy, monetary policy cannot be used selectively to target particular groups or sectors

in the economy. Changes in interest rates affect all sectors of the economy right across the country. The Reserve Bank cannot raise interest rates in Western Australia to curb a booming economy, yet leave rates unchanged in the rest of Australia. Similarly, the Bank cannot exclude a particular sector such as the car industry from a rise in interest rates. Monetary policy is a 'one size fits all' type of policy. Falling rates are bad for net savers such as retirees, but good for borrowers.

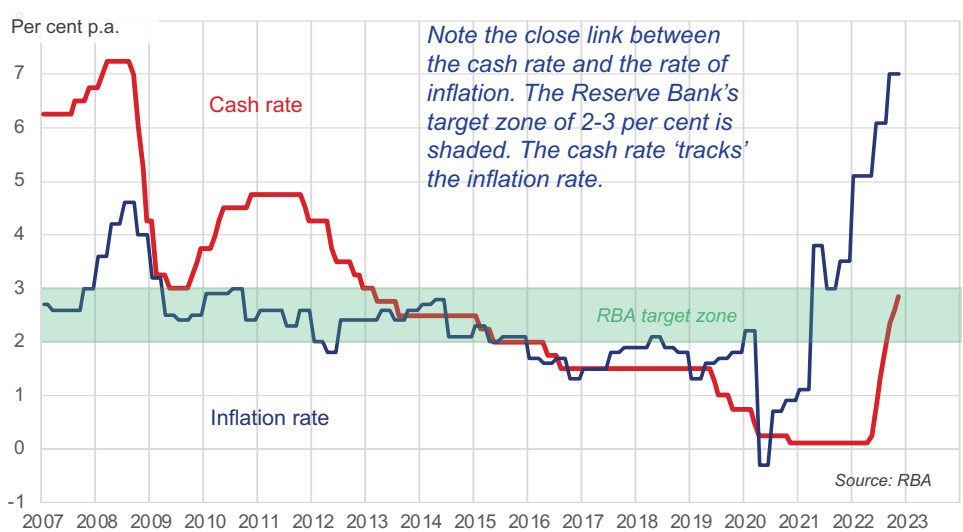
Recent monetary policy in Australia

This section reviews Australian monetary policy in recent years, starting with the Global Financial Crisis (GFC). As illustrated in figure 13.7, the strong economy and inflationary pressure had driven cash rates to 7.25 per cent by August, 2008. The rapid onset of the GFC saw the RBA cut cash rates from 7.25 per cent to 3 per cent over just nine months in 2008–09. The continuing mining boom helped economic recovery after the GFC, and cash rates started to rise again in mid-2009, reaching 4.75 per cent in late 2010.

Economic growth through most of the 2010s was sluggish, and inflation was at the lower end of the RBA target range. The target cash rate fell below three per cent in 2013, then below two percent in 2016, and below one percent in July 2019 (see figures 13.4 and 13.7). At this point the real policy rate was negative. Despite monetary stimulus, growth remained low. RBA monetary policy media releases from 2014-2019 mentioned consistent themes: moderate growth; spare capacity; and the need for interest rates to support aggregate demand.

In theory, lower interest rates over this period would have been an incentive for household and business borrowing, and a disincentive for saving which, other things being equal, would have flowed through to stronger economic activity

Figure 13.7 The cash rate and inflation



as rising prices and wages. In practice, however, expansionary monetary policy was impotent. Is there an explanation? Why doesn't the economy work the way textbooks predict?

One possible reason is the existing level of debt in the private sector. In common with other countries, Australian households increased their borrowing from the mid–1990s to the mid–2000s: real interest rates were attractive, there was easy access to finance, and booming property prices held the prospect of capital gains. Over the decade, the household savings rate fell and indebtedness increased. Household debt trebled from about 40 to 120 per cent of GDP over a fifteen year period, and the average mortgage debt reached the mid $300,000s. Australia's 'debt preference' changed significantly with the onset of the GFC, however. The crisis and associated uncertainty saw households and businesses take on less risk and pay down their debts, often cutting spending in other areas.

A second reason why low rates did not stimulate economic activity relates to wages and earnings. Wage growth over the decade was subdued, even as the official unemployment rate approached its natural rate, when we would usually expect rising demand for labour to bid up its price. Australians do not appear to be changing jobs as much as they did, perhaps feeling some degree of 'employment uncertainty'. Although the official unemployment rate was low for much of the period (4.5 to 5.5 percent), underemployment was high. Excess capacity in the labour market meant that firms were able to find workers and that those in a job were less likely to bargain for wage rises.

Thirdly, Australia's exchange rate was comparatively high over the early part of the decade, driven by the terms of trade (high commodity prices) and higher interest rates than other countries (causing capital inflow). A high AUD helps importers, but makes exports less competitive on world markets. In Australia's case, this may have counteracted low interest rates and slowed growth.

Just prior to the pandemic, financial markets became subject to tighter credit controls. In late 2019, the Royal Commission into the Banking, Superannuation and Financial Services Industry recommended greater prudence in bank lending practices. This meant loans were more difficult to obtain and potential borrowers had to be 'better qualified' – not only having higher deposits, but able to satisfy proof of income and spending. Prospective borrowers are now required to pass a 'stress test' that shows they would be able to afford mortgage repayments if interest rates rose by three per cent in the medium term!

Finally, continued low interest rates act as a signal to businesses and households that the economy is not doing well. The incentive to borrow at low rates may be counterbalanced by perceived higher risks and uncertainty. Economic conditions appeared to improve globally during 2019, with higher growth rates, small rises in inflation and increased industrial production. Indeed, in February 2020 the Governor of the RBA, Phillip Lowe, stated that the Australian economy had reached a gentle turning point, with growth expected to pick up from an average rate of 2 per cent over 2018-19 to 2.75 per cent in 2020 and 3 per cent in 2021.

The disruptions associated with the COVID-19 pandemic ended that possibility! After some initial uncertainty about the impact of the virus on the economy, the RBA announced further expansionary policy measures in March, 2020. Firstly, the conventional instrument of monetary policy (the cash rate) was reduced from 0.75 to 0.1 per cent – a record low for Australia. Secondly, for the first time, the RBA introduced elements of 'unconventional' monetary policy.

Unconventional monetary policy

In March 2020, the RBA announced that it would commence using other instruments, in addition to the cash rate, "to lower funding costs and support the supply of credit" (RBA, 2020). The instruments introduced were:

- quantitative easing (QE);
- a term funding facility to deposit-taking institutions (TFF);
- forward guidance; and
- changes to interest rates on exchange settlement accounts by authorised deposit-taking institutions (ADIs).

Governments issue (sell) bonds to finance their spending, especially when growth is slow and the budget is in deficit. Government bonds are a 'defensive asset', typically purchased by investors and institutions seeking security, capital preservation and regular returns. They balance the riskier asset classes, like shares and property.

In Australia's case, quantitative easing (QE) referred to RBA purchases of assets (mainly government bonds) on the 'secondary market'. This increased the demand for bonds, and thus their price. But when the price of a bond rises, its effective yield falls, which is why QE supports lower interest rates (see box). From March to September, 2020, the RBA purchased $63 billion worth of bonds, targeting their price in order to achieve a target rate (yield) of around 0.25 per cent on 3-year Australian Government Securities (AGS) – the same as the cash rate at the time. In buying government bonds from banks and pension funds the RBA was effectively pumping cash into the economy. It is important to realise, however that bond buying did not mean the RBA was printing money, or financing the government deficit, because the bond purchases were made on the secondary market and normal conventions still applied – the issuer of the bonds (the government) must make interest paymenst to bondholders, and repay the bonds in full at maturity (between 3 and 10 years).

The RBA also announced a $90 Bn Term Funding Facility (TFF). This facility provided three-year funding for approved deposit-taking institutions such as banks at a fixed interest rate the same as the cash rate (then 0.25 per cent, later 0.1 per cent). The objective was to provide financial institutions with greater confidence about their access to funding, and to lower their funding costs, which could be passed on as lower household and business borrowing costs. The facility closed to new drawdowns on 30 June 2021.

Other unconventional policy measures could have been used by the Reserve Bank. The cash rate could have been set below zero – a negative interest rate. At some level, however, negative interest rates would encourage people to withdraw their money from deposit–taking institutions, which is the opposite if what is required if households and firms need those institutions to create credit.

The point of applying these unconventional instruments was to stabilise the financial system during the pandemic by ensuring access to funding and reducing its costs.

At its November 2020 Board meeting, the RBA lowered the cash rate to from 0.25 per cent to 0.1 per cent, and extended QE by targeting the quantity of bonds it would purchase – announcing a plan to buy $100 billion of longer–dated (5–10 year maturity) Commonwealth and State government bonds over a six month period. The Board announced its expectation that the new lower level of interest rates would be in place for an extended period (three years) and that it would not increase the cash rate until actual inflation was within the 2–3 per cent target range, with evidence of wage growth and a 'tighter' labour market.

Although the pandemic was the first time in which unconventional measures have been used in Australia, other countries had previously adopted such measures. The Bank of Japan adopted quantitative easing in 2001. In the United States, the Federal Reserve injected over $US 2 trillion over three rounds of QE during the GFC (lasting until 2014). Similarly, the Bank of England had several rounds of QE, most recently to address uncertainty over Brexit in 2017.

Policy tightens in recovery - 2022.

In 2022, pressures on the price level emerged and the inflation rate rose to a level

Bond prices and yields – the mechanics of Quantitative Easing.

Consider an investor held $100,000 worth of November 2026 Treasury Bonds on which the coupon payment (interest rate payable until maturity) is 1%, or $1000 every year. The bond-holder thus receives regular income payments, and the initial investment is returned in 2026.

The objective of the bond purchase program (QE) was to support lower interest rates across the board. To do so, the RBA entered the secondary bond market, which increased demand and drove up the prices that bondholders would receive if they sold. Perhaps our bondholder could get $105,000 - a capital gain! The new owner, in this case the RBA, would then receive the $1000 coupon until maturity. But now the coupon payment is a lower proportion of the purchase price ($1000 / $105,000 = 0.0095 or 0.95%). The effective rate of return (or yield) in the bond market has now fallen by 5 'basis points'.

Because the RBA bought large numbers of bonds, they were able to lower effective yields to the cash rate, and ensure there was ample 'cheap money' to help the economy recover from the COVID period. Over nearly two years, the RBA bought over $280 Bn of government bonds of various maturity dates. The 'forward guidance' aspect of policy was to ensure the market that the bond buying would continue as long as necessary - initially the RBA specified 2024, but in fact the bond purchase program ceased in February 2022.

Monetary Policy Decision, May 2022

At its meeting today, the Board decided to increase the cash rate target by 25 basis points to 35 basis points. The Board judged that now was the right time to begin withdrawing some of the extraordinary monetary support that was put in place to help the Australian economy during the pandemic. The economy has proven to be resilient and inflation has picked up more quickly, and to a higher level, than was expected. There is also evidence that wages growth is picking up. Given this, and the very low level of interest rates, it is appropriate to start the process of normalising monetary conditions.

The resilience of the Australian economy is particularly evident in the labour market, with the unemployment rate declining over recent months to 4 per cent and labour force participation increasing to a record high. Both job vacancies and job ads are also at high levels. The central forecast is for the unemployment rate to decline to around 3½ per cent by early 2023 and remain around this level thereafter. This would be the lowest rate of unemployment in almost 50 years.

The outlook for economic growth in Australia also remains positive, although there are ongoing uncertainties about the global economy arising from: the ongoing disruptions from COVID-19, especially in China; the war in Ukraine; and declining consumer purchasing power from higher inflation. The central forecast is for Australian GDP to grow by 4¼ per cent over 2022 and 2 per cent over 2023. Household and business balance sheets are generally in good shape, an upswing in business investment is underway and there is a large pipeline of construction work to be completed. Macroeconomic policy settings remain supportive of growth and national income is being boosted by higher commodity prices.

Inflation has picked up significantly and by more than expected, although it remains lower than in most other advanced economies. Over the year to the March quarter, headline inflation was 5.1 per cent and in underlying terms inflation was 3.7 per cent. This rise in inflation largely reflects global factors. But domestic capacity constraints are increasingly playing a role and inflation pressures have broadened, with firms more prepared to pass through cost increases to consumer prices. A further rise in inflation is expected in the near term, but as supply-side disruptions are resolved, inflation is expected to decline back towards the target range of 2 to 3 per cent. The central forecast for 2022 is for headline inflation of around 6 per cent and underlying inflation of around 4¾ per cent; by mid 2024, headline and underlying inflation are forecast to have moderated to around 3 per cent. These forecasts are based on an assumption of further increases in interest rates.

Source: RBA Monetary Policy media release, 3 May 2022 (excerpt)

above the RBA target zone (see the extract from the May 2022 RBA Board meeting announcement above). A number of factors contributed to inflationary pressures. The pandemic brought interruptions to supply chains, so firms' costs of production rose and delivery times were pushed out. China continued to impose lockdowns in cities affected by COVID as at late 2022. Recovery from the pandemic released the savings that people had been unable to spend, so there was growth in demand globally, supported by the stimulatory fiscal and monetary policies that had been in place around the world. The invasion of Ukraine by Russia caused significant disruptions in global markets (especially in Europe) for energy and food.

In Australia, the cash rate rose from 0.1 per cent in April 2022 to 2.85 per cent (as at November, 2022). This was a historically rapid rise in the rate, but in line with others around the world as central banks seek to control inflation (see sidebar).

The RBA announced that the cash rate is again the main element of monetary policy. The Bank ceased its bond purchasing program in early 2022, and announced it would allow its bond holdings to expire at maturity, rather than selling them on the secondary market. The RBA also announced it was watching for signs

of increasing wage pressures that should emerge as recovery from the pandemic has driven the unemployment rate to 3.4 percent – a level not seen in sixty years. The tight labour market is complicated by the fact that there are still fewer arrivals of foreign workers.

Central Bank	Country	Policy rate November 2020 (% p.a)	Policy rate November 2022 (% p.a.)
Federal Reserve	USA	0.25	4.00
Bank of England	Great Britain	0.10	2.25
Peoples' Bank of China	China	3.85	3.65
Bank of Canada	Canada	0.25	3.75
European Central Bank	Europe	0.00	1.25
Bank of Japan	Japan	-0.10	-0.10
Swiss National Bank	Switzerland	-0.75	0.50

Source: global-rates.com. and RBA Accessed November, 2022

Worksheet

Read the chapter to answer the following questions.

1. Outline the role of the financial sector.
2. Explain why a stable financial system is important to the economy.
3. What do interest rates represent? What is the cash rate?
4. Distinguish between nominal and real interest rates.
5. List the three objectives of monetary policy.
6. Distinguish between the headline and the underlying rate of inflation.
7. Explain the meaning of an 'expansionary stance' in monetary policy.
8. Briefly describe the four channels in the monetary transmission mechanism.
9. Explain the influence that changing interest rates have on the AUD exchange rate.
10. List three key strengths, and three weaknesses, of monetary policy.
11. Provide three reasons why low interest rates may have failed to lift economic activity in Australia over the past few years.
12. Why was quantitative easing (QE) used during the COVID pandemic period?
13. Suggest three reasons why inflation pressures emerged in 2021-2022.
14. Why does rising inflation put upward pressure on interest rates?
15. Interest rates on Australian home mortgages increased from about 2% to 6% over the course of 2022. How would this increase affect aggregate household consumption.

Data interpretation

Refer to the table over, which shows economic indicators for a hypothetical economy over a three year period. Q1 refers to the first quarter of a year.

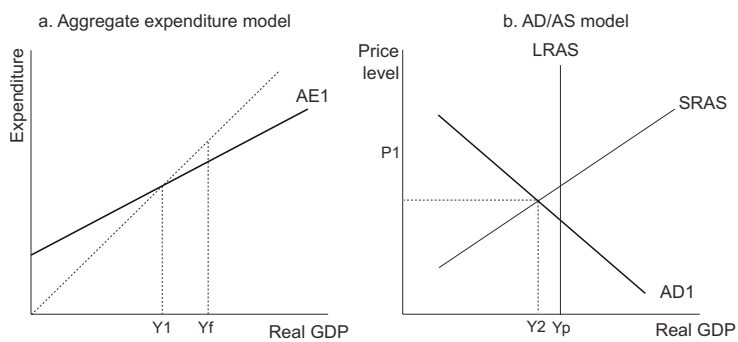
1. Prepare a graph which compares and contrasts the cash rate, economic growth rate, unemployment rate and inflation rate for the 12-quarter period shown. Choose the scale and type of graph carefully. Suggest reasons for any relationships you note between the rates graphed. Describe the general 'state of the economy' over the three-year period.
2. The cash rate column has not been completed for the last year of the period. Suggest the monetary policy stance that should have been adopted by the central bank of this hypothetical country (assume it follows an inflation-targeting regime for setting policy).

Prepare a media release which explains the policy stance the bank has undertaken in either the first quarter of Year 2, or the final quarter of Year 3. For your chosen quarter, describe economic conditions, then explain how the monetary policy stance would be expected to impact on levels of economic activity, prices and employment in subsequent periods.

Year	Real GDP % change Y on Y	Headline inflation rate %	Unemploy-ment rate %	Index of industrial activity	Terms of trade index	Cash rate %
Q1, Year 1	3.0	3.3	5.7	112	100.9	3.25
Q2, Year 1	2.8	3.0	6.0	106	96.0	3.25
Q3, Year 1	2.6	2.6	6.2	100	92.9	3.00
Q4, Year 1	2.3	1.8	6.2	95	91.5	3.00
Q1, Year 2	2.3	1.5	6.2	92	89.1	2.25
Q2, Year 2	2.0	1.5	6.3	90	85.1	2.00
Q3, Year 2	2.6	1.3	6.8	85	83.0	2.00
Q4, Year 2	2.8	1.7	6.7	91	80.3	1.75
Q1, Year 3	3.0	1.3	6.4	94	78.6	
Q2, Year 3	3.1	1.0	6.1	96	80.5	
Q3, Year 3	3.3	1.9	5.9	104	83.7	
Q4, Year 3	3.5	2.9	5.6	109	88.0	

Monetary policy

Refer to the diagram below. In panel A (aggregate expenditure model) the economy is initially located at income level Y1, the full employment level is Yf. In Panel B (AD/AS model) the economy is in short run equilibrium at income Y2, potential GDP is given by Yp.



1. In panel a, if the economy is at income level Y1, what problem is the economy experiencing? What type of monetary policy should the Reserve Bank employ: tight or easy? What would be the impact of this policy on the aggregate expenditure curve? Explain the effect on real GDP and employment.
2. In Panel b describe the position of the economy at income level Y2. Is the economy in a deflationary or inflationary gap? Would inflation or unemployment be a bigger problem in this economy? What type of monetary policy should the Reserve Bank employ, and how will that policy impact on the economy?
3. Use the diagram in panel b to explain the effect of the Reserve Bank's policy. Which curve will shift and in which direction?
4. Describe how an increase in the cash rate would be transmitted to the level of aggregate demands.
5. Is monetary policy more powerful when the economy is in a boom or in a trough of the business cycle. Why?

RBA media release

Refer to the extract from the October, 2022 monetary policy media release below. The full release can be found on the RBA web site.

Monetary Policy Decision, October 2022

At its meeting today, the Board decided to increase the cash rate target by 25 basis points to 2.60 per cent.

The Board is committed to returning inflation to the 2–3 per cent range over time. Today's increase in interest rates will help achieve this goal and further increases are likely to be required over the period ahead. The cash rate has been increased substantially in a short period of time. Reflecting this, the Board decided to increase the cash rate by 25 basis points this month as it assesses the outlook for inflation and economic growth in Australia.

As is the case in most countries, inflation in Australia is too high. Global factors explain much of this high inflation, but strong domestic demand relative to the ability of the economy to meet that demand is also playing a role.

A further increase in inflation is expected over the months ahead, before inflation then declines back towards the 2–3 per cent range. The expected moderation in inflation next year reflects the ongoing resolution of global supply-side problems, recent declines in some commodity prices and the impact of rising interest rates. Medium-term inflation expectations remain well anchored, and it is important that this remains the case. The Bank's central forecast is for CPI inflation to be around 7¾ per cent over 2022, a little above 4 per cent over 2023 and around 3 per cent over 2024.

The Australian economy is continuing to grow solidly and national income is being boosted by a record level of the terms of trade. The labour market is very tight and many firms are having difficulty hiring workers. The unemployment rate in August was 3.5 per cent, around the lowest rate in almost 50 years. Job vacancies and job ads are both at very high levels, suggesting a further decline in the unemployment rate over the months ahead. Beyond that, some increase in the unemployment rate is expected as economic growth slows.

Source: RBA Monetary Policy media release, 4 October 2022 (excerpt)

1. Explain why the RBA Board decided to increase the cash rate target by 25 basis points. When the decision was announced, the Australian stock market's main indicators such as the All-Ordinaries Index rose. Is this what you would expect? Why might the market have reacted as it did?
2. What is the Bank's forecast for CPI inflation in 2023 and 2024. Why is inflation expected to "moderate" over that period?
3. Write a short article for your local newspaper to summarise the change in the cash rate, the reasons behind the decision, and the possibly impact on households and businesses in your local economy.
4. In the second paragraph, the Bank states that "further increases are likely to be required over the period ahead". What message is this statement sending to 'the markets'?
5. Use and AD/AS model to show how the policy announced in the media release would impact on economic activity, prices and labour market. Make sure your 'starting point' (which you might label as Y1) reflects economic conditions at the time.
6. Read two or three monetary policy media releases from the RBA web site. Outline the features that they have in common. Note: further policy details can be found in the Monetary Policy Minutes for each month.

Multiple choice

Choose the best alternative in the following questions.

1. The Reserve Bank of Australia is responsible for
   a. controlling the cash rate and the inflation rate.
   b. administering both monetary policy and fiscal policy.
   c. controlling the cash rate and the exchange rate.
   d. administering monetary policy and maintaining financial stability.

2. If the rate of interest on bank loans is 3%, the expected rate of inflation is 2%, and the economic growth rate is 2.5%, then the real rate of interest on bank loans is
   a. -0.5%
   b. 0.5%
   c. 1%
   d. 5%

3. According to the Reserve Bank Act, what are the Reserve Bank of Australia's main monetary policy objectives?
   a. Price stability and full employment.
   b. Price stability and a reduction in national debt.
   c. Full employment and an increase in national savings.
   d. Low inflation and a high rate of economic growth.

4. Conventional monetary policy is conducted using:
   a. government spending.
   b. quantitative easing (QE).
   c. the cash rate.
   d. the 90 day bank bill rate.

5. In recent years, low interest rates have failed to stimulate the economy and increase the rate of inflation. This is most likely because:
   a. tighter credit controls were introduced after the Hayne Royal Commission.
   b. households and businesses have become more risk averse.
   c. consumers do not react very much to interest rate increases.
   d. households and businesses have taken on more risk.

6. Contractionary monetary policy is most likely to be used when:
   a. inflation is high, unemployment is low and consumer spending is high.
   b. inflation is low, unemployment is high and consumer spending is low.
   c. inflation is high, unemployment is high and consumer spending is low.
   d. inflation is low, unemployment is low and consumer spending is high.

7. If economic indicators suggest that output is lower than full employment output, _____ monetary policy could be used to _____ aggregate demand and _____ unemployment.
   a. expansionary; decrease; increase.
   b. contractionary; decrease; increase.
   c. expansionary; increase; decrease.
   d. contractionary; increase; decrease.

8. The economy is experiencing inflation and the Reserve Bank decides to pursue a tighter monetary policy. Which set of actions would be most consistent with this policy?
   a. Creating a shortage of funds in the cash market to lower the cash rate.
   b. Creating a shortage of funds in the cash market to raise the cash rate.
   c. Creating a surplus of funds in the cash market to lower the cash rate.
   d. Creating a surplus of funds in the cash market to raise the cash rate.

9. A newspaper headline reads "RBA cuts rates for the 2nd time this year." This indicates that the Reserve Bank is most likely trying to
   a. increase the value of the Australian dollar.
   b. reduce inflationary pressures in the economy.
   c. stimulate the economy.
   d. slow the rate of economic growth.

10. Suppose the Reserve Bank lowers the cash rate. Arrange the following events in the order which they will occur:
   i. short-term interest rates fall.
   ii. unemployment rate falls.
   iii. household cash flow increases.
   iv. aggregate demand increases.

   a. i – ii – iii – iv
   b. iv – iii – ii – i
   c. i – iiI – iv – ii
   d. i – iv – iii – ii

11. One type of unconventional monetary policy is quantitative easing (QE). In Australia, QE featured the RBA:
   a. selling government bonds to soak up excess cash in financial markets.
   b. buying bonds in the secondary market, resulting in lower yields on those bonds.
   c. printing money to encourage household spending.
   d. buying bonds in the secondary market, resulting in lower prices but higher yields on those bonds.

12. Over a period of a few months, a decrease in the cash rate by the RBA would most likely cause:
   a. a rise in business investment and the unemployment rate.
   b. a decrease in household spending on durable goods.
   c. a fall in the headline rate of inflation.
   d. a rise in household spending and business investment.

13. An increase in the cash rate is likely to lead to:
   a. a decrease in aggregate demand and a rise in asset prices.
   b. a decrease in aggregate demand and a depreciation of the exchange rate.
   c. an increase in aggregate demand and an increase in asset prices.
   d. a decrease in aggregate demand and an appreciation of the exchange rate.

14. Monetary policy is said to suffer from a relatively long effect lag. This refers to the fact that:
   a. it takes time for changes in the cash rate to change aggregate demand.
   b. changes in the cash rate can only be made at the RBA Board meetings.
   c. the RBA Board will only make changes to the cash rate after trends in the economy have become evident.
   d. the publishing of economic statistics often lags behind real trends in the economy.

15. Which of the following policy time lags is typically longer for monetary policy than for fiscal policy?
   a. Impact lag.
   b. Recognition lag.
   c. Decision-making lag.
   d. Implementation lag.

Extended responses

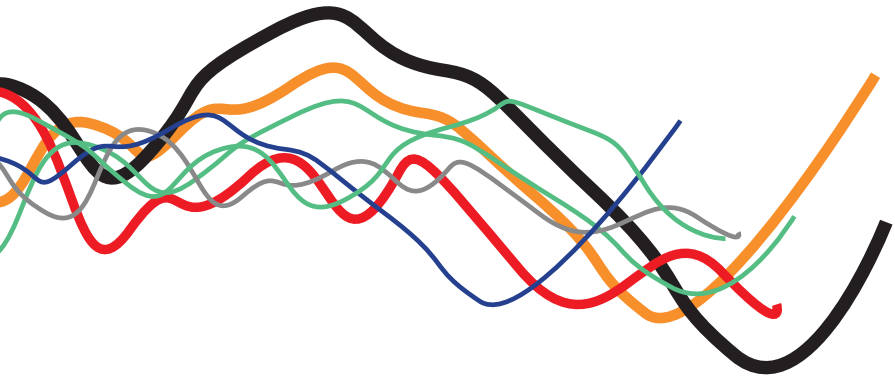
Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Define monetary policy and discuss its three economic objectives. [5 marks]
   b. Using an AD/AS model, explain how expansionary monetary policy effects output, employment and price levels. [15 marks]

2. Explain why the Reserve Bank would undertake contractionary monetary policy, and discuss the channels through which the policy would impact on economy. [20 marks]

3. a. Explain how the Reserve Bank of Australia (RBA) used conventional and unconventional monetary policy to stimulate economic activity in the pandemic period. [15 marks]
   b. Explain why expansionary monetary policy may not successfully meet the objectives of central bank policy-makers. [5 marks]

4. Discuss the strengths and weaknesses of monetary policy. [20 marks]

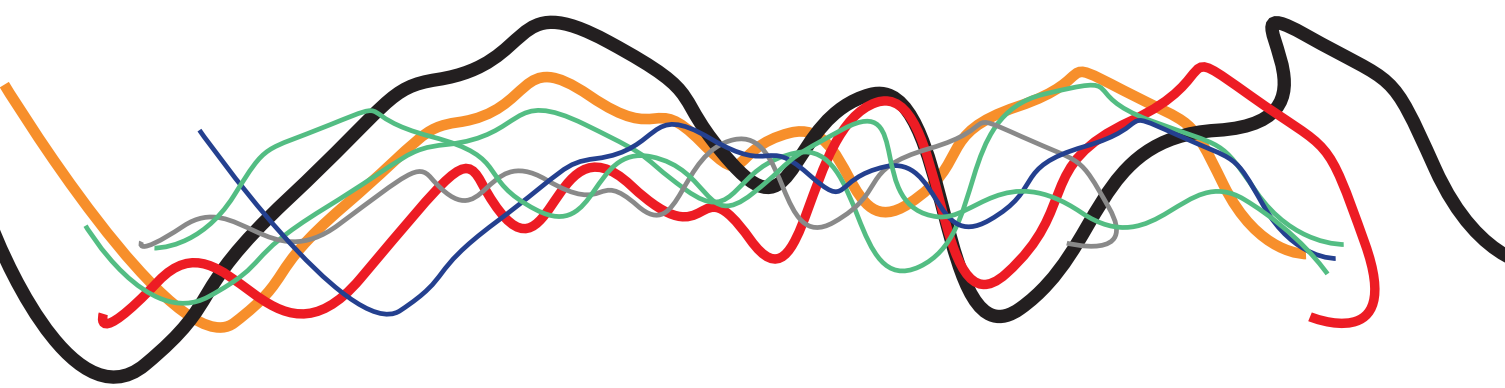


14

Structural change and productivity

Chapter concepts

- *structural change and its causes*
- *the effects of structural change*
- *the relationship between economic and structural change*
- *the concept of productivity*
- *the relationship between productivity and economic growth*
- *how recent government policies have promoted productivity and economic growth*
- *the impact of productivity on the achievement of macroeconomic objectives*



Structural change

An economy's 'structure' is best described as the framework of the economic system. The term describes the basic institutions and processes by which production and distribution decisions are undertaken. It includes the ownership of resources; the main economic institutions; the key sectors of the economy; its wealth; and the way the benefits of economic activity are distributed among stakeholders. The term 'structural change' describes the way these characteristics change over time. Consider some examples:

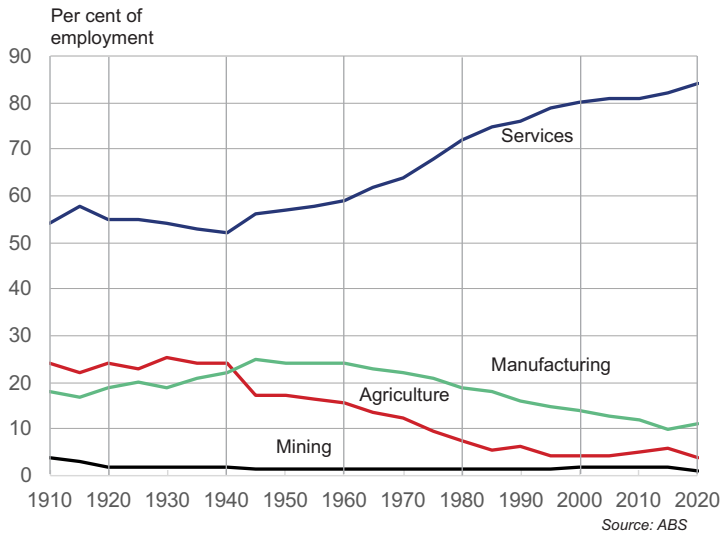
- bank customers used to visit a branch and use paper forms to make transactions (assisted by a 'teller') – now most customers use a computer or smartphone to do their banking;
- renewable sources now supply about 30 per cent of Australia's energy requirements;
- European Union countries have banned the sale of new cars powered by petrol or diesel engines by 2035; and
- the shift towards working-from-home during the pandemic may have long-term implications for the demand for office space in cities.

Each example reflects a change in the preferences of households and/or the production decisions of firms. Continuous changes such as these predict the growth and decline of products, firms, and even whole industries over time.

Most countries have followed a similar path of structural change over the very long term. Agricultural activities dominated economic activity and employed most people during the pre-industrial phase. The transition from an agricultural to an industrial economy was based on the ability to produce surplus food, freeing productive resources for other uses. As nations industrialised, they also urbanised. Manufacturing industries developed to make the products needed by people living in cities. As disposable incomes rose, consumers typically spent a greater share of their income on services (especially accommodation and food services, education and training, health care and social assistance). Service economies generally feature more complex supply chains, leading to growth in the business services sector (e.g. finance, marketing, legal services).

These gradual changes are typically reflected in historical patterns of employment and production in developed countries. As illustrated in figure 14.1, the proportion of the Australian workforce employed in agriculture declined markedly, especially after 1940. Manufacturing's share of employment peaked in the 1950s. The services sector, always the major employer, now employs more than 80 per cent of all workers.

Output shares describe a similar picture to the employment data. At its highest, manufacturing accounted for nearly 25 per cent of output, yet just 5 percent today. Just after the end of World War II, agriculture accounted for 35 percent of total output by value. It now accounts for 2 per cent. Services account for 78 per cent



Output share (% of GDP)		
	1980	2020
Agriculture	3.6	1.8
Construction	6.9	6.4
Manufacturing	13.3	5.1
Mining	4.4	8.3
Services	71.8	78.4

Figure 14.1 Sectoral employment share: 1910 - 2020

of output, up from 50 per cent in 1950. Mining, never a big employer due to its capital-intensive nature, accounts for 8 per cent share of output by value.

The causes of structural change

Structural change basically refers to the change in the distribution of output, income and employment in the economy over time. Many factors can play a role in this transformation:

- during their day-to-day activities, business firms react to the needs of their customers; strive to develop new products and services; invest in new equipment; train employees; develop networks with other firms, and perhaps even conduct research and development. Their objective is to make a profit and develop a competitive advantage over their rivals;
- buyer preferences change in response to technological change and price signals. For example, car buyers from the 1970s to the 2000s wanted improved fuel economy because the real price of fuel increased. In the last twenty years, many Australian households have installed solar energy, incentivised by the potential returns from selling power back in to the grid;
- demographic changes are important drivers of economic trends – the post World War II baby boom caused rapid population increase in the late 1940s and 1950s. Birth and death rates declined in later decades, and higher living standards brought improvements in life expectancy. Many developed economies now have a lower proportion of productive workers to support that aging population.

The business services sector

In Australia, the 'business services' sector now accounts for 25 per cent of gross value added, up from eight per cent in 1960. Business services refers to those businesses that provide assistance to other businesses, the largest ones being 'financial and insurance services', 'professional, scientific and technical services' and 'information, media and telecommunications'. So think of businesses associated with accounting; the law; marketing; ICT; insurance; recruitment; public relations; and leasing – together with new entrants like online publishing; internet service providers; and data centres.

Business services have become increasingly specialised, and often get their work because other firms prefer to 'outsource' tasks which are very knowledge or 'tech' intensive. Outsourcing of non–core activities to the business services sector should lead to a more efficient allocation of activities across the economy (higher productivity) due of specialisation and economies of scale, scope and experience.

Growth in the business services sector has had a significant effect on the labour market, both in terms of the number of people employed (now approximately 20 per cent of the workforce), but also on the types of jobs available and the skills they require.

Understanding which jobs are increasingly in demand and the specific skills they require is important so that the labour force can adapt to the evolving structure of the economy. Most of the jobs in demand in business services are classified as 'non–routine cognitive', which means they require knowledge and training in skills such as critical thinking; persuasion; originality; problem–solving; information analysis and effective writing. Could this be why students are encouraged to stay at school for longer?

- rapid economic growth in Australia's neighbouring countries has increased demand for Australia's traditional commodity exports, and brought more competition to many manufacturing markets. Rising incomes in the region have generated demand for a wide range of Australian services such as tourism; educational; financial; and other professional services;
- Information and communications technology (ICT) is an example of a disruptive influence on the structure of the economy. Since the 1990s, ICT has brought about a revolution in the way people and businesses communicate with each other, and access and process information;
- a wave of globalisation has seen economic activities expand across national boundaries, and markets and economic institutions have become more open, integrated and interdependent. The COVID-19 pandemic and other current geopolitical tensions may slow this trend, as they have exposed the 'fragility' of global supply chains. Many businesses were suddenly unable to rely on the dispersed, just-in-time supply chains they had previously used; and
- changes in attitudes and values are reflected in consumer preferences and production processes, some examples of which are the impact of conservation measures on recycling; smaller family units on the housing market; and concern about climate change (for example, de–carbonising energy and transport).

The impact of structural change

Structural change has positive and negative effects – change is rarely uniformly good (or bad). It also has different impacts on sectors of the economy; geographical areas of the country; and on groups of people within the economy.

Its effects also vary over time. Structural change tends to have positive consequences in the long term, although it usually carries adjustment costs in the short term. To illustrate, the Australian passenger motor vehicle (PMV) industry had five major on–shore producers a decade ago. The industry produced an excellent product, especially after lower import tariffs forced manufacturers to become more efficient and competitive. Changing consumer attitudes and the high Australian dollar in 2011–12 eventually brought the industry's demise, however. The short term impact included loss of jobs in the car plants and their backwards and forwards links (i.e. parts suppliers and vehicle distributorships). In the longer run, many skilled people employed in the PMV sector found new jobs (often better paid) and Australian consumers were able to buy cheaper cars produced overseas – an illustration of the Law of Comparative Advantage.

Commentators bemoaned the 'loss of Australian manufacturing', but this has been offset to some extent by the growth of knowledge-based manufacturing - software and application development; renewable energy; precision medical instruments and bionics. Such companies operate at smaller scale than a car plant, but they can be more adaptable and market-driven. About 20 percent of the goods exported from Australia are classified as 'high-tech', up from 14 per cent in 2007 (World Bank, 2022).

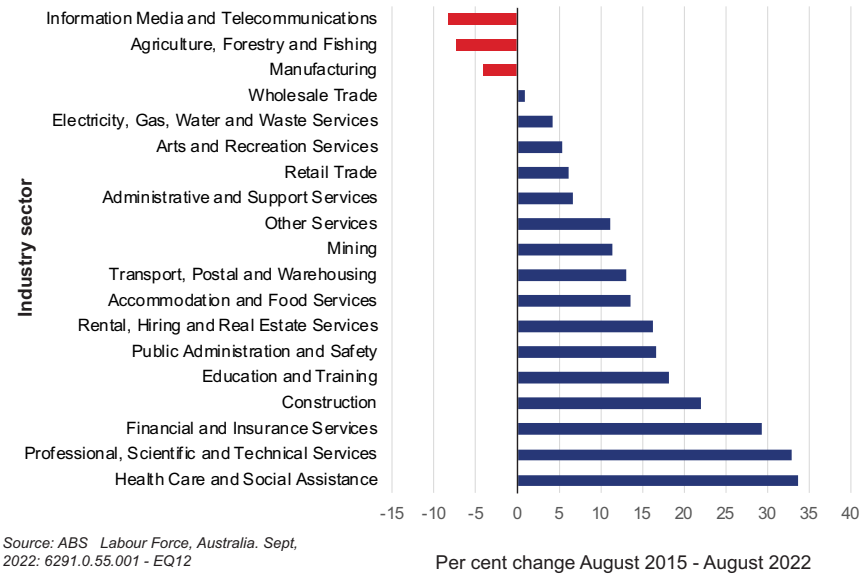
Structural change affects the labour force and employment, because the demand for labour is derived from the demand for goods and services. As figure 14.2 illustrates, employment fell in three sectors of the economy between 2015 and 2022, but grew strongly in others. The National Skills Commission estimates that 90 per cent of new jobs in the next five years will require post-school qualifications, mainly at Certificate III, Diploma and Bachelor degree level. Skills such as persuasion, problem-solving, critical thinking, written expression and originality are increasingly well-regarded in service-based sectors of the economy.

Structural change also has an impact on the way the land resource is used. Competitive forces have changed Australian agriculture, with the proportion of small firms concentrating on supplying local markets declining, and large scale enterprises focusing on international markets increasing.

Structural change and economic growth

Structural change and economic growth are co–related. The same forces that drive structural change are also drivers of growth. Economic growth also drives the process of structural change as higher per capita incomes lead to changing preferences. Australians spend less of their income on food than they did twenty years ago, and more on education, leisure and travel, for example.

Three Australian industries shed employment over the period August 2015 to August 2022. 90 per cent of new jobs in the next five years will require post-school qualifications.



Source: ABS Labour Force, Australia. Sept, 2022: 6291.0.55.001 - EQ12

Figure 14.2 Employment change by sector 2015-2022

In the short term, structural change can be disruptive. Workers in declining sectors of the economy find their skills are no longer in demand, and they may face long periods of unemployment unless they retrain. Sometimes, rapid development in one sector (such as the energy and commodity projects in the mining boom) attracts labour and capital resources and rewards them with higher incomes. Other sectors find it difficult to compete, and a two-speed economy can be the result.

It is important to note, however, that the benefits of structural change (including economic growth) eventually outweigh the adjustment costs that come with change. Few people would prefer to give up the gains in their living standards that result from living in a dynamic economy.

Productivity

The second part of the chapter addresses an important issue for the Australian economy – productivity. Productivity refers to the efficiency with which people or firms convert productive resources into outputs of goods and services.

The most common measure of productivity is labour productivity (LP) , which refers to the output produced per unit of labour input (usually hours worked). That is:

$$LP = Q/L$$

where LP = labour productivity; Q represents output, and L is the number of hours worked.

Simply put, labour productivity will rise if:

- more output can be produced for a given level of labour input; or
- less labour input is required to produce a given amount of output.

At the firm level, labour productivity is the value of output, divided by total hours worked. At the economy level, the Australian Bureau of Statistics (ABS) uses a measure called Gross Value Added. GVA is the value of output, less intermediate consumption of goods and services used in the production process. Labour productivity is thus calculated by dividing GVA by total hours worked.

Although we headline labour productivity, labour is just one of the inputs in the production process. Tradespeople such as electricians, plumbers and painters use skills developed during their apprenticeship and subsequent on-the-job experience. People in primary production manage crops and animals and increasingly apply sustainability techniques that ensure future viability. Doctors and dentists use highly specialised equipment to diagnose and treat disease, and maintain their knowledge and skills by reading research journals and attending training seminars. Logistics workers use computers and telecommunications equipment to determine the best schedule for the day's pick-ups and deliveries. In other words, the value of output produced during any 'eight hour day' isn't only due to hours worked, but also the stock of capital equipment, knowledge, skills and processes applied by workers.

Labour productivity can be separated into two components:

- capital deepening; and
- multifactor productivity (MFP).

Capital deepening refers to the accumulation of more capital equipment per worker – growth in the ratio of capital to labour (K/L). Over time, new equipment can be expected to embody better technology, so the machinery available is more 'fit-for-purpose'. Compare, for example, the output an office worker can generate with a computer or a typewriter! The number of 'hours worked' by capital is not directly observable, so ABS estimates are based on the stock of equipment used.

'Multi-factor' influences on productivity refer to all the 'other' changes in the quantity and quality of productive inputs not already captured by measures of labour and capital inputs. Such factors include:

- increases in human capital (the knowledge and skills of the workforce);
- research and development (R&D) activity;
- improvements in management practices (for example, inventory management, cost control, human resources management and staff development);
- innovation in products and productive processes; and
- competition in the economy, which promotes the entry of new innovative businesses and the exit of 'unproductive' ones.

Australian productivity performance

Figure 14.3 illustrates Australia's productivity performance between 2000 and 2021. Productivity data is compiled by the ABS using input–output and value–added data. The red line is labour productivity, as defined above: LP = Q/L. As discussed, labour productivity has two components – capital deepening (the blue section of the columns) and multifactor productivity (the green part of each column). In 2021, for example, labour productivity rose by 1.1 per cent – 0.9 per cent attributable to capital deepening, and 0.2 per cent attributable to rising MFP. The average annual increase in labour productivity over the whole period was 1.6 per cent. About 60 per cent of this was attributable to capital deepening, and the rest to MFP growth. Note that the contribution of either capital deepening or MFP declined in some years!

As the figure shows, annual productivity data is volatile. Measured productivity will tend to fall when economic growth is soft because output falls but firms tend to hold on to skilled labour because it is expensive to re-hire when the recovery occurs. In periods of strong growth, on the other hand, output rises and firms push harder to meet demand.

Measured productivity often lags its causes – in infrastructure and mining projects, for example, productivity drops when the infrastructure is being built, because inputs of labour and capital are high, but there is no revenue from the sale of output. After commissioning the plant, productivity increases rapidly because output rises and labour input falls. Weather and climate may affect agricultural productivity. During the recent eastern states drought in 2017–2019 (one of the worst on record) pastoral and crop production fell.

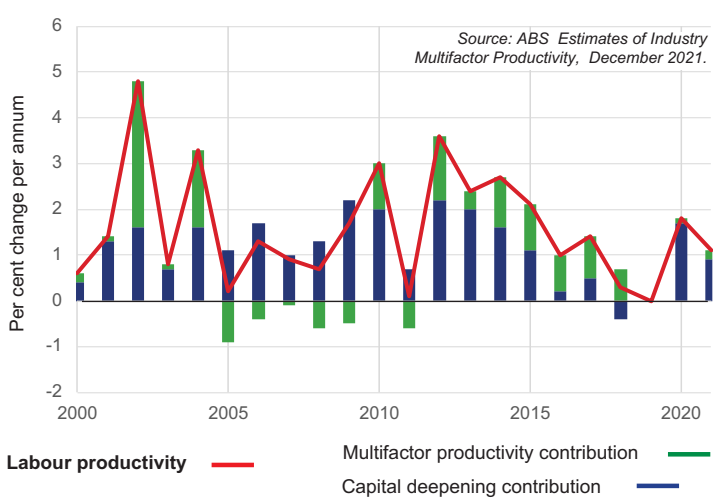
ABS data refers only to the 'market sector' – the education, health and public administration and safety sectors are excluded as many of their inputs and outputs are not sold at market rates.

Figure 14.3 Contributions to productivity growth 2000-2021

LP captures changes in the efficiency of labour due to capital deepening (increases in the ratio of capital to labour) and improvements in the quality of inputs or the efficiency with which they are combined (MFP).

The average increase in labour productivity in Australia over the whole period is 2.1% p.a. Note, however, the slower rate of increase since 2014.

Productivity trends are difficult to measure, and data is often subject to revision.



The 1990s is remembered as a period of booming productivity in Australia, with labour productivity increasing at an average 4 per cent p.a. Explanations for the 1990s productivity boom include:

- the opening of the domestic economy to competition in international markets after trade protection was dismantled;
- the efficiency improvements that information and communications technology (ICT) brought to finance, transport, wholesaling and communications sectors; and
- the dividend from the government's microeconomic reform policies in the 1980s (discussed further below).

Increases in labour productivity slowed in the 2000s. Slower productivity gains would have seen a fall in Australians' disposable income, except the terms of trade rose due to the demand for minerals and higher prices dragged up the value of output. The rise in the exchange rate that accompanied the mining boom also made imported inputs more costly.

Productivity performance improved in the early 2010s, due to strong sales of commodities (the payoff from years of capital deepening in the mining sector), and growth in financial services and construction sectors in response to lower interest rates.

In common with many developed countries, Australia's productivity performance was below par from 2012 to 2019, with MFP rising at an average of 0.8 percent and capital deepening at 1 per cent – meaning labour productivity rose at 1.8 per cent over the whole period. In 2018-19, labour productivity growth was zero.

The causes of the decline are subject to debate, but probably include:

- the continued effect of globalisation on the tradable sector of the economy, exposing it to more competition;
- a slower rate of technical progress and innovation – over time, there are less opportunities to make 'breakthroughs', in which case the rate of return to innovation is lower (either the costs of research are higher, or the revenue that can be earned is lower);
- climate change, because of an increasing frequency of adverse weather events; and
- macroeconomic factors – the effect of slower economic growth after the GFC; a build-up of debt making investors more risk–averse; the increased willingness of households to save; and the inability of low interest rates to stimulate growth, as discussed in chapter 13.

According to the Productivity Commission (2020), most of the slowdown was in the manufacturing; agriculture, fishing and forestry; and electricity, gas, water and waste services sectors.

Why should we care about productivity? A quote from Nobel laureate economist Paul Krugman is often used to highlight its importance:

> *"Productivity isn't everything, but in the long run it is almost everything. A country's ability to raise its standard of living over time depends almost entirely on its ability to raise its output per worker" [Krugman, P. (1992) Age of Diminished Expectations].*

Individuals perceive their standard of living as a combination of things, such as the ability to buy more goods and services, being able to access more public goods such as medical and education services, and to enjoy more leisure.

Targeting productivity growth is especially important in the light of recent trends and events in Australia:

- population growth has been low. Recall from chapter 11 that potential economic growth in any year is determined by population growth, workforce participation, and productivity growth. Over the last decade, average population growth has been about 1.6 per cent, and dipped to just 0.1 per cent in the first year of the pandemic. Lower population growth means a smaller base for economic growth in future years, so improving Australia's productivity is critical.
- The economy's Gross Value Added (GVA) rose by just 1.4 per cent over the three years 2019–2022 (it was negative in 2020 due to COVID). Australia has the 12th highest average income in the OECD, but ranks 5th in terms of hours worked per capita!
- Australia's standard of living has been supported for many years by the level of demand for our export commodities. Australians have enjoyed a 40 per cent increase in GDP per capita over two decades, but about one-third of that was due to the strong terms of trade that resulted from the mining boom. It is necessary to boost productivity to compensate for any possible downturn in the demand for Australian commodities, or the prices for which they trade.

Productivity is a means to an end – the way for advanced western economies to achieve a higher standard of living and prosperity. Over time and across countries, higher productivity is reliably associated with higher wages, higher consumption levels (see figure 14.4) and improved wealth indicators, such as health.

The drivers of productivity

So how is productivity growth achieved? In general terms, a number of 'drivers' underpin the ability to do more with less in the long term:

- investment in physical capital and infrastructure – machinery, equipment, buildings, communication and transport. Investment implies capital deepening – more capital equipment per worker;

Number of hours or work needed to purchase ...			
	1901	2000	2020
Rent 3 bed home	22	14	12
Bicycle	520	18	7
Number of minutes of work needed to purchase ...			
Rump steak	143	42	38
Antibiotics	*	18	9
Bread (loaf)	20	8	6

Source: Productivity Commission: What is Productivity?

Productivity growth has been the primary driver of increasing living standards for Australians. Over the period 1900 to 2020, labour productivity rose by a factor of eight (Productivity Commission). This suggests a worker can produce as much in one hour in 2020 as they could in a whole working day at the time of Federation in 1901. Increased labour efficiency is a result of the application of more capital equipment and more 'knowledge' (MFP) in the production process.

Figure 14.4 The labour cost of goods

- investment in human capital through education and training is a key driver of productivity because it increases workers' skill sets - their ability to use capital equipment, to be creative, to solve problems, and to implement innovations;
- research and development (R&D), invention and innovation – searching for and applying new technologies and ideas. There are three types of innovation: product, process and organisational, referring respectively to innovations in the nature of products and services; innovations in productive methods and processes; and the implementation of new methods in a firm's business practices, workplace organisation and relations with other firms in their supply chain;
- enterprise (management and entrepreneurship) combines other factors of production and is a crucial determinant of a firm's ability to become more efficient and deliver better service, recognise opportunities and adapt to market change improve operations;
- competition creates incentives to innovate and ensures that resources are allocated to the most efficient firms; and
- at economy-wide level, economic stability and institutional and social capability create a fundamental base for progress.

We should remember that the private sector dominates the economy – it is responsible for about three-quarters of the goods and services produced in Australia. For private firms, both small and large, the profit motive and the forces of competition are the main drivers of the innovations and investment that will lead to higher productivity. Firms strive to deliver better products to buyers at lower cost. Achieving this delivers the owners of capital (business owners and shareholders) higher profits. Firms that cannot continue to improve productivity will eventually become less competitive and exit the market, freeing resources for more productive use.

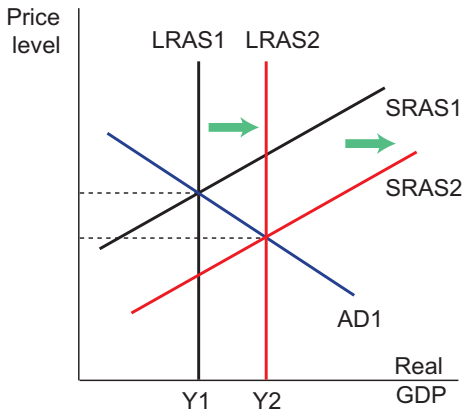
There are two reasons why investment in capital drives productivity. Capital equipment can be thought of as productive hardware used by labour to produce goods and services. One source of productivity over many years has been the increase in the stock of capital per worker (capital deepening). There are also improvements in capital quality, which refers to increasing the productive efficiency of capital items through specialisation and better technology. The term technology applies as much to ideas and methods as it does to physical equipment. When technological change is incorporated in some tangible way (i.e we can see the improvement in quality or operability) it is known as embodied technological change. But technological change is often less tangible – an innovative production process or marketing plan, for example. This is called disembodied technological change.

A significant factor influencing productivity at firm level is better management. This can include responding to changes in the market; developing the firm's work force; better use of ICT; attracting and retaining high quality people; and even promoting employee participation in decision making. The firm's 'corporate culture' is a significant driver of productivity. Culture is the pattern of behaving, feeling, thinking, and believing that ties all the individual elements of a firm together. Productivity and happiness tend to co-exist!

All of the above focus on delivering economic value – the ability to produce goods and services that satisfy consumer wants, at a price that covers the costs of production. In other words, households and firms share value created. Achieving this goal is not easy, however. Only about 40 per cent of Australian businesses make an attempt to measure their productivity – perhaps because it is a complex thing to measure, or because it has the potential for unpleasant and disruptive changes necessary to improve it!

Productivity and macroeconomic objectives

We would all like to see higher living standards and prosperity over time – improved value for money in the goods we buy; better access to services such as health care and education; more time for leisure; better environmental outcomes; more welfare support for disadvantaged people; and so on. Figure 14.5 uses the aggregate demand / aggregate supply framework to model the impact of improved productivity on economic growth. Rising productivity increases the capacity of the economy to produce goods and services, and /or lowers business costs. The model represents these as rightward shifts in both the short and long run aggregate supply curves, so the potential real output of the economy increases from Y1 to Y2. Other things being equal, productivity lead to higher rewards for labour (higher wages) business (profits) and government (taxes), so the AD curve would also be expected to shift to the right. The model suggests that a rightward shift of the aggregate supply curves will contribute to lower inflation, but this depends on how much the aggregate demand curve shifts as a result of the higher output and incomes that rising productivity delivered.



Increased productivity drives both the long run (LRAS) and short run aggregate supply curves (SRAS) to the right. The potential real output of the economy rises from Y1 to Y2. Note that increased efficiency reduces costs, so there is less upward pressure on the price level – other things being equal, rising productivity constrains inflation.

Figure 14.5 The macroeconomic impact of higher productivity

The concepts of productivity and efficiency are linked. Productivity growth is a measure of productive or technical efficiency – the ability to produce more output from a given unit of input. Alternatively, technical efficiency can be measured by the cost-effectiveness of an input.

Productivity is also related to improvements in allocative efficiency. The most efficient allocation of resources from society's point of view occurs when resources are allocated to their 'most valued uses' – those having the least opportunity cost. If all resources were allocated to their 'best use', output would be maximised. Interestingly, this suggests one way to increase productivity in Australia would be to shift labour out of low productivity sectors into mining!

A third interpretation of efficiency is dynamic efficiency – the ability of the economy to adapt to change over time, to innovate, to conduct research and development and to take advantage of new opportunities as they arise. Dynamic efficiency and economic growth are clearly related.

The notion of efficiency applies to firms, industries and the economy as a whole. A government white paper, "Australia in the Asian Century" (2012), suggested that Australia's real income per person could rise to about $73,000 by 2025 if productivity performance between 2012 and 2025 is about 0.5 percentage points higher than the 'business as usual' case. This would place Australia's GDP per person in the world's top 10, up from 13th out of 180 countries in 2011.

Productivity policy

In developed economies, governments are responsible for about a quarter of all output, providing public services, maintaining public institutions and building associated infrastructure. The development of public infrastructure is an important part of capital deepening. Government activity also influences MFP through the regulatory environment, redistribution of income and wealth, social and environmental policy and providing opportunities for people to participate

fully in society and work (recent examples of which are the National Disability Insurance Scheme (NDIS) and national standards in pre-school education).

Governments also influence productivity growth through policies and regulations that affect private sector investment and the functioning of markets. Government policy can help raise Australia's productivity performance if it:

- increases the incentives for the owners or managers of enterprises to make productivity-enhancing changes to the products they produce, or the way in which they are produced;
- reduces barriers to productivity-enhancing change; or,
- facilitates the movement of factors of production from existing uses to ones in which they can be combined in more productive ways.

These are examples of what is sometimes called 'supply-side' economic policy – policies that help to drive the long run potential output and income.

The Productivity Commission has an important advisory role to government that reports on:

- the productivity and economic performance of the economy;
- reducing unnecessary regulation;
- encouraging the development of efficient and internationally competitive Australian industries; and
- facilitating adjustment to structural change.

The next sections provide a summary of some of the developments and policies applied in recent years to promote productivity and economic growth in the Australian context.

The labour market and workplace relations

This is a controversial area, because there are ethical and community norms about the way in which a country treats its workers. Stakeholders (unions, government and business) have argued for thirty years about how to 'reform' the labour market to adapt to changes in the economy and the need for Australia to be competitive with the rest of the world. They often have quite polarised views about industrial relations matters. One perspective holds that the labour market should be relatively free of regulation to allow wages and conditions to change as market circumstances change. Alternatively, a free labour market could be regarded as potentially damaging for worker conditions and fair treatment.

For much of its history, Australia's labour market was highly regulated, with pay rates and conditions determined governed by industrial 'awards' (minimum pay regulations). The Prices and Incomes Accord of the late 1980s began the reform of wage-setting principles by tying wage rises to improvements in productivity and increased workplace efficiency. This led to a 'decentralisation' of the labour market and the onset of collective and enterprise bargaining.

In 2005, Workchoices legislation pushed the balance a little towards employers, loosening unfair dismissal laws, making it more difficult for workers to take strike action and reducing the influence of trade unions (by, for example, making it more difficult for union officials to enter work sites). In 2009, a Labor government replaced Workchoices with the Fair Work Act. The Fair Work Commission's functions include the setting and varying industrial awards, fixing the minimum wage, resolving disputes, approving enterprise agreements, and hearing claims for unfair dismissal. The Fair Work Act covers about 70 per cent of the workforce. It has a stronger emphasis on enterprise–based bargaining, underpinned by a National Employment Standards 'safety net' of minimum conditions covering conditions such as maximum number of hours in the working week; requests for flexible working arrangements; annual leave; long service leave; and notice of termination.

Awards are legally enforceable determinations made by federal or state industrial tribunals that set the terms of employment (pay and/or conditions), for workers in a particular industry or occupation.

Collective or enterprise agreements set the terms of employment (pay and/or conditions) for a group of employees in an enterprise or organisation. These agreements are usually registered with an industrial tribunal or authority.

The Fair Work Commission notes that its decisions can contribute to developing high performing workplaces and engaged employees. Workplace engagement is associated with a 'happier', more productive workplace and improved company performance. Workers who have the opportunity to use their skills, and who are motivated to do so, perform at a higher level than those who do not.

The labour market has become more fragmented in the last decade, as labour hire has increased; young workers are less attached to work that leads to a career; and a sizeable 'gig' economy has emerged where many workers are now contractors rather than employees. Work attachment is more likely to be short term in nature, with less access to benefits such as leave that feature in traditional full–time jobs.

Over the last ten years, the proportion of private sector employees covered by awards has increased, but enterprise agreement (EA) coverage has fallen. Union membership has declined over the long term – from 25 per cent to 15 per cent of employees, so workers are not as well represented as they were in the past. It is a fact that labour's share of gross national income (GNI) has fallen since 2004 (estimates ranging between four and six per cent). Wages have not risen at the same rate as productivity. Whilst this is good for business competitiveness and employment, this fall in income share has raised questions about how wages are determined and how they should be increasing to help cover the cost of living.

Most modern awards do not deal with issues relating to working from home, as many workers did due to COVID-19. To facilitate workplace flexibility, the FWC prepared a model Flexibility Schedule for potential inclusion in appropriate modern awards.

Taxation reform

A well-designed tax system raises revenue while recognising the core principles of:

- equity – the burden of tax is fair (vertically and horizontally);
- efficiency – the costs of tax collection are minimised; and
- simplicity – the system should be easy to understand and comply with.

A number of taxation reforms have taken place since the mid-1980s. The tax base was broadened with the introduction of a Capital Gains Tax on real (i.e. after inflation) gains made on the sale of assets (e.g. shares, investment property, business goodwill etc). The Goods and Services Tax (GST), introduced in 2000, was another broadening measure that added ten per cent to the purchase of goods and services (although not all categories). The tax system was simplified with the introduction of the PAYG (Pay As You Go) system and taxpayer self-assessment. Changes to tax brackets improved vertical equity (fairness across income levels) and addressed bracket creep (taxpayers being pushed into higher tax brackets as their income increased).

Treasury research from 2015 suggests Australia is relatively reliant on direct taxes (income and corporate tax) and less on consumption taxes compared to OECD and Asian economies.

Structural changes in recent years have raised a number of challenges for the tax system, examples being:

- the aging population means a lower proportion of working age people, reducing the tax revenue base;
- the growth of on-line transactions with overseas vendors may reduce GST revenue;
- business is now more mobile and can operate from overseas to benefit from lower corporate tax rates;
- the value of a business used to lie in its products, land and machinery. Intangibles such as patents, copyrights, brands, and trademarks are now important components of business value, but they are difficult to tax because it is hard to value and measure income created by those assets;
- new ways of transmitting payment, such as cryptocurrencies, are anonymous; and
- compliance complexity (for example the taxation of trusts)

These changes make it difficult to identify who should pay a tax; potentially reduce the revenue that the tax system can raise; and challenge the important role of the tax system in sharing the benefits of economic activity in an inclusive and fair manner.

The most recent significant review of the tax system was the 2008 'Henry Review', which recommended:

- concentrating revenue raising on four efficient tax bases: personal

income; business income; private consumption; and economic rents from natural resources and land, with other taxes to be abolished unless they had a specific purpose (e.g. tax on tobacco);

- configuring taxes and welfare transfers to support productivity, participation and growth;
- establishing an equitable, transparent and simplified personal income tax featuring a higher tax-free threshold (around $25,000), only two tax brackets, and a simplification of, deductions and offsets;
- increasing the efficiency of land and resource taxation; and
- a more open, understandable and responsive tax system.

Both Labor and Liberal governments have done little, however, to implement the recommendations of the Henry Review. Achieving tax reform is difficult – it is politically hard, and the process is not well understood by the general populace. The need for reform is pressing – the government budget will be in deficit for some time due to COVID-19, yet tax revenue is declining.

Trade liberalisation

A significant driver of productivity in a small economy such as Australia is its degree of openness to the outside world – the willingness to trade goods, services and ideas with other countries (refer to chapter 3). An open economy generates productivity gains because trade gives access to markets and spurs competition, innovation, and specialisation.

For many years, Australia used artificial protection methods such as subsidies, tariffs and quotas to protect domestic producers from overseas competition. As we saw in chapter two, protection transfers welfare from consumers to producers, limiting consumer choice and reinforcing inefficient operations.

Trade liberalisation measures introduced over the last thirty years mean Australia is now one of the least protectionist countries in the world. Businesses have been forced to become more efficient to compete with imports, and to become more export focused. Australia has gradually increased its trade focus (the proportion of GDP accounted for by exports and imports) and has become a stronger competitor in world markets by developing new sources of competitive advantage (e.g. the export of education services).

Since 2020, however, geopolitical tensions and the COVID-19 pandemic have disrupted the movement of people, resources and products. This may force many firms to adjust their supply chains to increase the proportion of local inputs.

Infrastructure policy

The term infrastructure generally refers to the underlying structures that support society and the economy. Some of these are 'hard infrastructure' – roads, water supply; electrical grids; ports; and telecommunications. Others are institutional

Infrastructure Australia - examples of priority list projects			
Region	Project name	Problem/category	Time frame*
National	Inland rail - Melbourne to Brisbane	Demand for freight movement to triple by 2050, but current rail transit times are slow, and much of the road route is single lane, double carriageway.	5 –10 years
National	Electric vehicle (EV) fast charging network	Establishing a network of fast-charging stations will help to overcome the 'access to charging facilities' barrier to EV adoption.	0 – 5 years
WA	Perth airport second runway	Passenger throughput expected to double by 2040, with FIFO worker and international hub growth.	5 –10 years
WA	Perth water security	Need to address challenges from climate change and aging assets that could lead to rising water bills, and lead to declining service quality and reliability.	0– 5 years

Source: Infrastructure Australia, 2022. A full list (about 170 projects) can be found at the Infrastructure Australia web site. Time frame refers to development and evaluation of a business case

or 'soft' infrastructure – the social security, education and health systems being good examples. Infrastructure is the basis of a productive economy. Effective transport systems, for example, enable people to get to work! Electricity powers the machines they use when they get there.

In 2017, an Infrastructure Australia audit sought submissions from governments, stakeholder groups and the community about Australia's infrastructure needs up until 2030. The result was a 'Priority List' including nearly 100 potential 'nation-shaping' projects worth around $55 billion. The 2022 update to this list included projects such as motorways to relieve traffic congestion in cities; bridge, rail and road programs to improve connectivity between regions; land purchases required for future transport corridors; and a number of water security initiatives.

The majority of projects will be funded by the various levels of government, with others funded by 'alliance funding' and public-private partnerships (PPP) – about ten per cent of all projects. In a PPP, a private provider constructs the project (often a road, railway or airport) and operates or maintains it to specified standards, paid for over time by revenue in the form of charges paid by the users, such as toll-roads or landing fees. PPPs enjoy a good reputation in Australia for delivering projects on time and within budget, possibly because the private sector has incentives to manage projects profitably.

Education and training policy

The knowledge, skills, competencies and attributes embodied in people are described in economics as human capital. There is a strong association between the stock of human capital and productivity for individuals, their workplaces and the economy as a whole. Human capital is developed by formal learning (attaining a certificate or qualification); informal learning (on-the-job training, work experience, mentoring); skills development in association with new technology; and the application of management and leadership skills to foster improvement over time.

There is a positive relationship between formal training and firm performance. Economic theory suggests that firms train employees if the return on their investment is higher than the costs of doing so. Training is likely to bring positive externalities to the firm, such as the ability of the firm to absorb new technology and expertise. Learning also has additional economy-wide benefits relating to health, lower crime rates, better parenting and social participation.

Evidence on formal learning and productivity suggests that additional years of education increase earnings, with higher returns for more specific skills. University graduates can earn $800,000 more than school-leavers over the course of their working lives! Two thirds of Australian have a post-school qualification, and about 60 per cent of the 15-24 years age group are enrolled in post-school study. The post-school education sector in Australia is very fragmented, which is a problem for consistent educational standards that equip graduates for a job. In 1995, Australia implemented an Australian Qualifications Framework (AQF) which has 10 qualification levels (from Certificate-1 to PhD) that describe what a student can achieve in terms of knowledge, skills and generic skills. The value of the framework, from a productivity perspective, is that it establishes and communicates standards benchmarks across the education and training sector.

In the schools sector, international tests suggest student results in mathematics and literacy have declined over the past decade, so government policy has tried to promote STEM (science, technology, engineering and mathematics) subjects; developed a national curriculum to try to promote consistency across states; and used NAPLAN tests to measure the progress of student achievement in schools across the country.

There has also been more focus on 'bottom-up' strategies to improve education outcomes, such as the establishment of a national education evidence–base to evaluate and communicate information about what works best to improve student learning in schools. The Productivity Commission also recommended the increased use of 'value–added' measures of school performance.

In 2022, the draft report of Review of the National School Reform Agreement (NSRA), a program started in 2018 to implement national reforms to lift education outcomes, found that increased funding to education over the period has had little impact on student outcomes.

Research and innovation

Research and development (R&D) and innovation are regarded as important levers in creating a more competitive economy. The direct benefits of R&D and innovation include new or improved products and services, increased sales revenue, reduction in the costs of production, gaining an advantage over competitors, and improved customer service. There are also considerable indirect benefits (spillovers or externalities), including a greater stock of human capital, creativity and sustainability, which make it appropriate for the government to support research and innovative activity.

Economists identify three categories of research:

- basic research (also called pure or fundamental research) which researches fundamental aspects of a field of knowledge without specific applications or products in mind. This type of research is more likely to be undertaken by universities or public sector bodies lie CSIRO, funded from the public purse.
- applied research, which looks at the practical applications of knowledge such as developing new products and processes; and
- experimental development, which describes research into new products and services for the market.

Innovation is distinct from R&D. Innovation is the implementation of a new or significantly improved product (good or service), process, new marketing method or a new organisational method in business practices or workplace organisation . Fifty-two per cent of business firms classified themselves as 'innovation active' in 2021, many in collaboration with other firms or partners. Historically, Australian firms are more likely to modify or adapt products or processes that already exist, although the sidebar notes some significant inventions (note that invention and innovation are not the same thing!).

Business expenditure on R&D (BERD) in 2020-21 was about 0.9 per cent of GDP (against the OECD average of 1.67 per cent), but firms in the services sector spend more on R&D than their overseas counterparts. The top three fields of research were information and computing technology; engineering and bioengineering and clinical sciences. The main sectors were ICT, manufacturing and commercial services. Small firms are not as active in R&D as large firms, but they do undertake innovation to improve day-to-day service delivery;

As a result, Australian innovation policy has moved to providing greater support to small business and services innovation in digital technologies (including software and apps), reconfigured business models, branding and marketing, and new staff capabilities.

Innovation is often incremental in nature, but a series of small improvements often to leads to significant change over time. Innovation used to be regarded as something internal to companies, but is now recognised as a more open activity where businesses take deliberate steps to learn from their customers and their competitors ('open innovation').

Famous Australian inventions and innovations:

- stump-jump plough (1875)
- combine harvester (1882)
- electric drill (1889)
- surf lifesaving reel (1906)
- Vegemite (1922)
- electronic pacemaker (1926)
- Zinc Cream (1940)
- Hills Hoist (1945)
- School of the Air (1951)
- rotary lawn mower (Victa, 1952)
- black box flight recorder (1958)
- ultrasound scanner (1961)
- wine cask (1965)
- cochlear implant (bionic ear, 1978)
- Racecam (1979)
- the winged keel (1983)
- baby capsule (1984)
- spray-on-skin (1992)
- WiFi (1993)
- bionic eye (2009)

Source: IP Australia

Clearly, the government cannot mandate innovation, but has a range of programs that encourage 'an innovative mindset' and support innovative businesses with advice and tax incentives.

Deregulation and competition policy

An interesting story relating to growth and productivity in recent years has been Australia's transition from a 'protected' economy to a 'competitive' one. Beginning in the late 1970s, governments introduced a range of measures, collectively known as microeconomic reforms (MER) to reduce institutional and regulatory impediments to a more productive and efficient economy.

The Australian Competition and Consumer Commission (ACCC) administers the Competition and Consumer Act 2010 (previously known as the Trade Practices Act (1974). Essentially, the objectives of the Act are to:

- maintain and promote competition;
- protect the interests and safety of consumers, and support fair trading in markets affecting consumers and small business;
- promote the economically efficient operation of infrastructure; and
- undertake studies to support competition, consumer and regulatory outcomes.

Australia's third review into competition policy (the Harper Review, 2015) noted that many of Australia's markets have few participants with large market shares, and that challenges such as increasing competition from global markets, disruptive innovation, demographic changes and future work skills needing to be recognised. The review developed a number of competition principles:

- that markets should work in the long-term interests of consumers;
- to foster diversity, choice and responsiveness in government services;
- to encourage innovation, entrepreneurship and the entry of new competitors;
- to promote efficient use of infrastructure and natural resources; and
- to establish clear, predictable, and reliable competition laws.

The bulk of the Harper Report recommendations were passed as amendments to the Competition and Consumer Act in 2018 .

Recent examples of ACCC competition studies/inquiries include:

- an electricity market monitoring inquiry (ongoing until 2025)
- the 2020 report into bargaining power imbalances in the supply chains for perishable agricultural products; and
- an inquiry into regional mobile telecommunications infrastructure (ongoing until 2023).

Worksheet - structural change

Answer the following questions that refer to the first section of the chapter.

1. Define structural change.
2. Give three examples of structural change.
3. Outline the general pattern of structural change that occurs as a country develops.
4. Explain why the manufacturing sector accounts for less output as economic development proceeds.
5. Give two examples of 'price signals' and explain how they would cause changes in patterns of demand or supply.
6. Provide one example each of positive and negative impacts of structural change.
7. Outline the impact of structural change on economic growth.

Worksheet - productivity

Answer the following questions that refer to the second section of the chapter.

1. Define the term productivity.
2. Define labour productivity. Convert your definition into an 'equation', with a numerator and denominator.
3. Explain the meaning of multifactor productivity.
4. What factors explain the higher than average rate of increase in productivity in Australia in the 1990s?
5. Give three reasons to explain slower productivity growth in the last decade.
6. Suggest how two of the following could reduce productivity: low capacity utilisation; drought; government 'red tape'; transport congestion; lack of R&D; poor management.
7. What are the key drivers of productivity?
8. How important are day-to-day business activities in developing a more productive economy?
9. Explain the role of management in improving productivity.
10. Use an AD/AS model to explain the impact of improved productivity on the Australian economy.
11. List three examples of government policy measures implemented in the last ten years to improve productivity and economic growth.

Types of productivity

Bob is a painter employed by a decorating company. The firm invests in a new type of roller which it is claimed will hold more paint, allowing the painter to finish work more quickly. The roller costs $200. Tests show Bob can get 20% faster at painting ceilings, for which the firm charges $120 per hour. Using the roller requires some new skills, so Bob attends a half day training course which teaches him the appropriate skills. Bob's employer promotes its service heavily to prospective users, increasing its market share.

1. Define the term productivity.
2. Explain how capital deepening has contributed to higher productivity at firm level in this example.
3. Describe the 'residual' (or quality) factors that would have contributed to higher productivity in the decorating company.
4. Explain which type of productivity measure - labour or multifactor - would be easiest to calculate.
5. Describe the potential role of management in the promotion of labour productivity.

Structural change and employment

Refer to the data table to answer the questions below.

Changes in sectoral shares in employment, 1990 - 2020					
	Share of total employment (%)				Change in share (%)
	1990	2000	2010	2020	1990-2020
Agriculture, Forestry, Fishing	5.4	4.9	3.2	2.5	
Mining	1.3	0.9	1.6	1.9	
Manufacturing	14.6	12.1	9.0	7.1	
Electricity Gas Water & Waste Services	1.5	0.9	1.2	1.1	
Construction	7.7	7.8	9.0	9.1	
Wholesale Trade	5.5	4.5	3.9	3.0	
Accommodation & Food Services	5.7	6.8	6.8	7.2	
Transport, Postal & Warehousing	5.4	5.0	5.1	5.0	
Information, Media & Telecommunications	2.3	2.5	1.9	1.6	
Financial and Insurance Services	4.6	3.8	3.7	3.6	
Rental, Hiring & Real Estate Services	1.7	1.6	1.7	1.7	
Professional, Scientific & Technical Services	4.7	6.5	7.8	8.9	
Administrative & Support Services	2.1	3.5	3.4	3.4	
Public Administration & Safety	5.6	5.4	6.3	6.4	
Education & Training	6.8	7.1	7.7	8.6	
Healthcare & Social Assistance	8.1	9.3	10.9	13.8	
Arts and Recreation Services	1.3	1.6	1.8	1.9	
Other Services	4.6	4.6	4.1	3.8	

Trend data *Source: ABS 6291.00.5.003 Labour Force Australia Detailed Quarterly (Table 4)*

Questions

1. In terms of employment share, which were the three largest sectors of the Australian economy in 1990? Calculate the change in sector share over the period.
2. Which sectors exhibit growth, in terms of employment share? Which exhibit decline?
3. To what extent does the pattern shown in this data concur with the three 'stylised structural change facts' discussed in the section on structural change?
4. The volume and value of agricultural output actually rose many times during this period. Explain how output could have risen when employment shares fell.
5. Explain how this information could impact on the following economic decisions: the educational choices of young people; policy about the protection of local manufacturers; the provision of pubic infrastructure; and individuals intending to start a business.
6. Research: Access the 'My Next Move' section of the o.net database (see https://www.mynextmove.org). Browse the career types to determine the requirements of a several jobs of interest, and the 'job outlook' for that occupation (note – the o.net database refers to the United States labour market).

Multiple choice questions

Choose the best alternative answer to each of the following questions.

1. Structural change is an on-going process in the economy. It is explained by
   a. patterns of demand changing over time as new products emerge to replace old ones.
   b. invention and innovation bringing new technologies to productive methods.
   c. management seeking more efficient ways of producing good and services.
   d. all of the above.

2. Which of the following best describes the general pattern of structural change of economies as they develop?
   a. The growth in urban population increases the demand for food, so the proportion of employment in the agricultural sector rises.
   b. Manufacturing dominates agriculture, then services dominate manufacturing.
   c. Manufacturing industry declines when a country is able to produce surplus food.
   d. The service sector overtakes the manufacturing sector as the dominant sector .

3. The formula that best describes labour productivity at form level is
   a. labour productivity = Output volume / input volume.
   b. labour productivity = Cost of inputs / labour hours worked.
   c. labour productivity = Output volume / labour hours worked.
   d. labour productivity = Output increase / labour hours increase

4. Multifactor productivity is best described as:
   a. the contribution of capital deepening to increased output value.
   b. the amount of output produced per hour worked.
   c. the contribution to output growth made by factors unrelated to the quantity of labour and capital equipment.
   d. the contribution to output growth made by investments in human and physical capital.

5. In 2021, labour productivity increased 1.1% and multifactor productivity increased by 0.8%. Hence, the contribution of capital deepening to labour productivity was:
   a. -0.3%.
   b. zero.
   c. 0.3%.
   d. 1.9%.

6. Technical efficiency is best defined as:
   a. minimising the opportunity cost of resource use.
   b. employing current technology to improve productivity.
   c. allocating resources according to consumer preferences.
   d. producing at the minimum average cost level of output.

7. Recently, Australian innovation policy has moved toward:
   a. increasing BERD through subsidies.
   b. increasing the amount of research and development (R&D) that takes place in universities.
   c. supporting innovation in small businesses.
   d. encouraging business participation in applied research

8. Rising productivity would be expected to result in:
   a. higher levels of structural unemployment.
   b. an increase in the economy's potential output.
   c. pressure on the price level as business costs rise.
   d. lower levels of aggregate demand.

9. 'Lumpy' investment in large infrastructure projects such as mines, electricity generation or water desalination plants will, in the short term, result in:
   a. a short term fall in labour productivity because no output is yet being produced.
   b. a fall in labour productivity because there is no infrastructure available.
   c. a rise in productivity because the amount of capital equipment per worker increases.
   d. a rise in labour productivity because very few workers are required to run capital-intensive plants.

10. Which government body is currently responsible for resolving industrial disputes?
   a. The Australian Competition and Consumer Commission (ACCC)
   b. The Reserve Bank of Australia (RBA)
   c. The Fair Work Commission (FWC).
   d. The Productivity Commission.

Data interpretation

The table below shows the growth in productivity over a four year period.

Year	Labour productivity	Mulitfactor productivity
1	0.3	-2.0
2	3.0	0.4
3	2.2	1.0
4	1.9	0.1

a. In which years were total productivity growth highest and lowest? [2 marks].
b. Explain the concept of multifactor productivity, and why might it rise over time? [3 marks].
c. Calculate the capital deepening contribution to productivity for each year. Explain why capital deepening is important for productivity growth. [5 marks]

Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks .

1. Using a number of indicators, discuss the major structural changes that have occurred in the Australian economy over time. Discuss the factors were responsible for these changes? [20 marks]

2. Using the aggregate demand /aggregate supply framework, show how rising productivity and government-sponsored competition policy can increase the rate of economic growth and reduce the level of inflation. [20 marks]

3. Explain the role that THREE of the following might play in increasing the level of efficiency and competitiveness of the Australian economy:
   a tax reform;
   b. reducing road congestion;
   c. trade liberalisation; or
   d. improved management education. [5+5+5 marks]

Answers to multiple choice questions

Ch	Page	Answers
1	24	1d; 2d; 3d; 4d; 5b; 6c; 7c; 8d; 9c; 10c; 11b; 12b; 13a; 14b; 15b; 16a; 17b; 18b; 19d; 20d.
2	50	1c; 2c; 3d; 4d; 5d; 6b; 7b; 8a; 9c; 10c; 11c; 12c.
	55	1b; 2a; 3c; 4a; 5d; 6b; 7b; 8a; 9c; 10d; 11d.
3	65	1a; 2d; 3b; 4a; 5b; 6a; 7c; 8c; 9c; 10a; 11a; 12a; 13b; 14d.
4	85	1d; 2d; 3a; 4d; 5a; 6d; 7d; 8c; 9c; 10d; 11a; 12d; 13d; 14c; 15a.
	90	1b; 2a; 3a; 4c; 5a; 6c; 7c; 8a; 9c; 10d; 11a; 12c; 13a; 14a; 15b.
5	101	1d; 2b; 3b; 4b; 5d; 6c; 7d; 8c; 9b; 10b; 11a; 12a; 13b; 14d; 15c; 16c; 17d.
6	120	1c; 2b; 3c; 4b; 5b; 6d; 7b; 8b; 9d; 10b; 11c; 12d; 13a; 14d; 15d.
7	140	1b; 2b; 3b; 4c; 5d; 6b; 7c; 8d; 9c; 10c; 11c; 12a; 13d; 14 d; 15b.
	144	1a; 2c; 3b; 4d; 5b; 6c; 7b; 8a; 9c; 10a; 11b; 12c.
8	164	1c; 2b; 3c; 4b; 5d; 6d; 7c..
9	193	1c; 2b; 3d; 4c; 5d; 6b; 7b; 8c; 9a; 10b; 11c; 12b; 13b; 14a; 15c.
10	210	1b; 2a; 3c; 4c; 5c; 6b; 7b; 8a; 9a; 10b; 11d; 12c; 13c; 14d; 15c.
11	227	1a; 2c; 3d; 4c; 5b; 6b; 7c; 8b; 9a; 10b.
12	250	1b; 2a; 3d; 4d; 5a; 6c; 7b; 8c; 9c; 10d.
13	272	1d; 2c; 3a; 4c; 5b; 6a; 7c; 8b; 9c; 10c; 11b; 12d; 13d; 14a; 15a.
14	298	1d; 2b; 3c; 4c; 5c; 6d; 7c; 8b; 9a; 10c.

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