

Investigating Macroeconomics

8

Steven Kemp

Investigating Macroeconomics 8

Steven Kemp

Investigating Macroeconomics

8th edition

Steven Kemp

© Steven Kemp

ALL RIGHTS RESERVED

Copying for educational purposes

The Australian *Copyright Act* 1968 (the Act) allows a maximum of one chapter or 10% of this book, whichever is the greater, to be copied by any educational institution for its educational purposes provided that the educational institution has given a remuneration notice to Copyright Agency Limited (CAL) under the Act.

Copying for other purposes

Except as permitted under the Act (for example a fair dealing for the purposes of study, research, criticism or review) no part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without prior written permission. All inquiries should be made to the publisher.

First published	2010
Second edition	2012
Third edition	2015
Fourth edition	2017
Fifth edition	2019
Sixth edition	2021
Seventh edition	2023
Eighth edition	2025

TACTIC PUBLICATIONS PTY LTD
PO Box 300 Bull Creek 6149
www.tacticpub.com.au
ABN 12 056 615 153

National Library of Australia
cataloguing in publication data

Kemp, Steven

Investigating Macroeconomics 8th ed

for secondary school students
includes index

ISBN 978-1-875313-68-6
Economics 330
Printed in Perth by Scott Print

Investigating Macroeconomics

8th edition

Steven Kemp B.Ec., Dip. Ed., M. Com.

Preface

This is the 2nd most important text you will read in your secondary education studies - the first was 'Discovering Economics' - which was the text written for the year 11 course in Economics for Western Australian schools. This text is for year 12 students and follows the recommended syllabus for the ATAR Economics course.

Why is Economics important? Because it is the fundamental force that lies behind politics, careers, incomes, spending, healthcare and even the environment.

Economics is pervasive in everything you do. It determines prices, interest rates and exchange rates and it ultimately determines a nation's prosperity.

When you study Economics you enter a special and privileged 'club'. You gain the 'knowledge' that separates the smart people from the ordinary!

I hope you enjoy your continued journey in your study of Economics.

I would like to extend particular thanks to Andrea Fitzpatrick and Sunila Singh for proof reading the text.

I would also like to thank my wife Julie for providing the beautiful artwork used for the cover of the text.

Steven Kemp
January 2025

Investigating Macroeconomics

8th edition

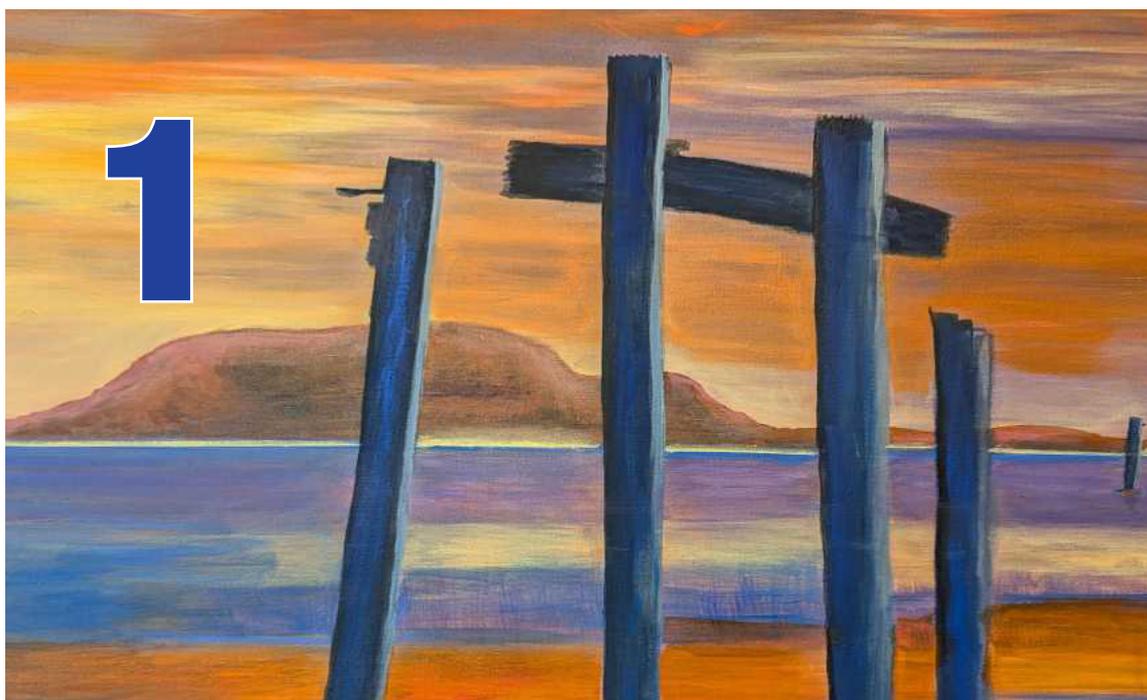
<i>Part 1</i>	<i>Australia and the Global Economy</i>	<i>Pages</i>
1	Australia's international trade	1
2	Free trade and protection	23
3	The balance of payments	55
4	The terms of trade	85
5	Exchange rates	101
6	Foreign investment	129
<i>Part 2</i>	<i>Macroeconomics and Economic Policy</i>	<i>Pages</i>
7	Macroeconomics and the business cycle	155
8	The aggregate expenditure model	181
9	Aggregate demand and aggregate supply	213
10	Fiscal policy	239
11	Monetary policy	267
12	Labour productivity	289

Chapter Contents

Chapter	Section	Page
1	<i>Linkages between economies</i>	2
	<i>The importance of international trade</i>	4
	<i>The composition of Australia's trade</i>	8
	<i>The direction of Australia's trade</i>	12
	<i>Australia's trade policy</i>	13
2	<i>Introduction</i>	24
	<i>The concept of absolute advantage</i>	25
	<i>The concept of comparative advantage</i>	27
	<i>Comparative advantage and the demand/supply model</i>	33
	<i>Protection</i>	37
	<i>Arguments for protection</i>	42
	<i>The benefits of trade liberalisation</i>	45
3	<i>The structure of the balance of payments</i>	56
	<i>Australia's balance of payments</i>	60
	<i>Trends in the current account</i>	67
	<i>The savings-investment gap</i>	71
4	<i>Introduction</i>	86
	<i>The terms of trade index</i>	86
	<i>Factors affecting the terms of trade</i>	89
	<i>Effects of changes in the terms of trade</i>	92
5	<i>The foreign exchange market</i>	102
	<i>The exchange rate</i>	105
	<i>The equilibrium exchange rate</i>	112
	<i>Effects of movements in the exchange rate</i>	115
	<i>The balance of payments and the exchange rate</i>	117
	<i>Recent trends in the Australian dollar</i>	119
6	<i>What is foreign investment?</i>	130
	<i>Foreign direct and portfolio investment</i>	132
	<i>Foreign investment and the balance of payments</i>	137
	<i>The benefits and costs of foreign investment</i>	138
	<i>Australia's foreign liabilities and foreign assets</i>	141

Chapter	Section	Page
7	<i>What is macroeconomics?</i>	156
	<i>The business cycle</i>	159
	<i>The business cycle - causes and turning points</i>	165
	<i>Economic indicators</i>	169
	<i>Australia's macroeconomic performance</i>	172
8	<i>Aggregate expenditure</i>	182
	<i>Factors affecting aggregate expenditure</i>	185
	<i>The concept of macroeconomic equilibrium</i>	192
	<i>The aggregate expenditure model</i>	192
	<i>The concept of the multiplier</i>	200
	<i>The impact of changes in aggregate expenditure</i>	205
9	<i>The aggregate demand curve</i>	214
	<i>The aggregate supply curves</i>	219
	<i>Macroeconomic equilibrium</i>	224
	<i>Changes in aggregate demand and aggregate supply</i>	225
	<i>The AD/AS model and the business cycle</i>	229
10	<i>The concept of fiscal policy</i>	240
	<i>The Government's policy objectives</i>	242
	<i>Budget outcomes - balanced, surplus or deficit</i>	246
	<i>Financing a budget deficit</i>	249
	<i>Automatic stabilisers and discretionary fiscal policy</i>	252
	<i>Expansionary and contractionary fiscal policy</i>	254
	<i>Strengths and weaknesses of fiscal policy</i>	259
11	<i>Monetary policy and the cash rate</i>	270
	<i>The economic policy objectives of the RBA</i>	271
	<i>Conventional and unconventional monetary policy</i>	275
	<i>The transmission mechanism</i>	277
	<i>Expansionary and contractionary monetary policy</i>	279
	<i>Strengths and weaknesses of monetary policy</i>	283
12	<i>The importance of long-run economic growth</i>	290
	<i>The concept of labour productivity</i>	292
	<i>The aggregate production function</i>	295
	<i>The factors affecting labour productivity</i>	297
	<i>Government policies to influence productivity</i>	299
	<i>Labour productivity and the AD/AS model</i>	301

Australia's International Trade



Key understandings

- *Australia's linkages between economies, including trade, investment, tourism and immigration*
- *the extent and importance of trade for the Australian economy*
- *the composition and direction of Australia's trade*
- *Australia's trade policy, including regional and bilateral free trade agreements*

Being an island nation, trade is vital to the Australian economy.

Why is trade - both exports and imports - important for the Australian economy? What does Australia export and import and who are Australia's main trading partners? These are the main questions that we seek answers for in this chapter.

Australia is an island continent situated in the southern hemisphere - relatively isolated from the major economic and population hubs of Europe, Asia and North America. Being an island, Australia has no land borders with any other country. Of the largest fifteen economies in the world (by GDP), only Japan shares this same characteristic. But what makes Australia unique is that it is the only economy in the largest fifteen to be located in the southern hemisphere. It is for this reason that trade is so vital for Australia's ongoing prosperity and economic development.

The Covid pandemic of 2020-21 was a very timely reminder of how we all live in an increasingly internationalised 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 economic shock such as a pandemic or a financial crisis can quickly spread from one country to another.

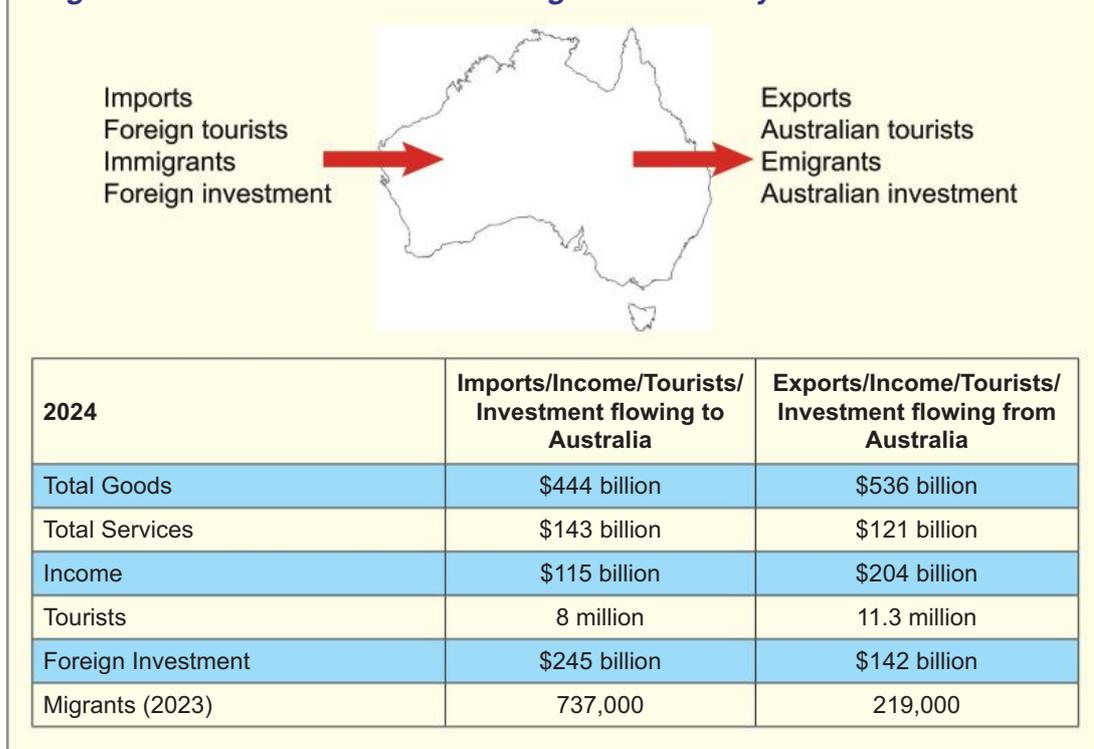
Australian firms and households are constantly involved in economic transactions with other economies. Some examples include Australian firms exporting iron ore, coal and education services. Australian consumers purchase cars from Korea, computers from China, iPhones from the United States and coffee from Brazil. Australia has also been a major recipient of foreign investment. The world has effectively become a global market enabling the rapid movement of goods, services, people, information and finance.

Linkages between economies

Exports contribute around 25% to Australia's GDP.

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 25 per cent of Australia's GDP and around 25 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, lithium and bauxite.

At the same time, Australia imports large quantities of capital goods, such as machinery, as well as motor vehicles and consumer goods. Just think how dependent you are on other countries for many goods we take for granted - the

Figure 1.1 Australia's links with the global economy

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.

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 2023, net migration to Australia was a record high of 518,000 which means that the population was boosted by over half a million people.

International tourism has grown in importance due to improvements in transport and communications and ranks fourth (after fuels, chemicals and automotive products) in world exports. For Australia, tourism (known as personal travel) is Australia's 6th largest export but is Australia's largest import. This means that more Australians travel overseas (11 million in 2024) than overseas tourists visit Australia (8 million in 2024).

The Australian economy has throughout its history relied on net foreign investment to supplement its domestic savings to help fund its economic development. This means that inflows of foreign investment into the Australian economy normally exceed outflows. During 2024, for example, foreign investment into Australia was \$245 billion, while Australian investment abroad was \$142 billion - a difference of over \$100 billion! Australia has a relatively small population and does not generate enough savings to fund its investment needs and therefore relies on the inflow of foreign investment. Much of the infrastructure, such as transportation systems and communication networks, to support industry is financed from overseas funds. The mining and resources sector would not have been developed without foreign investment.

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 - 12th largest exporter in the world
- international tourism - 11th largest exporter in the world
- fuels and mining - 4th largest exporter in the world
- education services - 4th largest exporter in the world
- financial services - 9th largest exporter in the world
- investment fund assets - 3rd largest in the world

The importance 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 the Australian economy.

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, zircon 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 around 48 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

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 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 \$2.5 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.

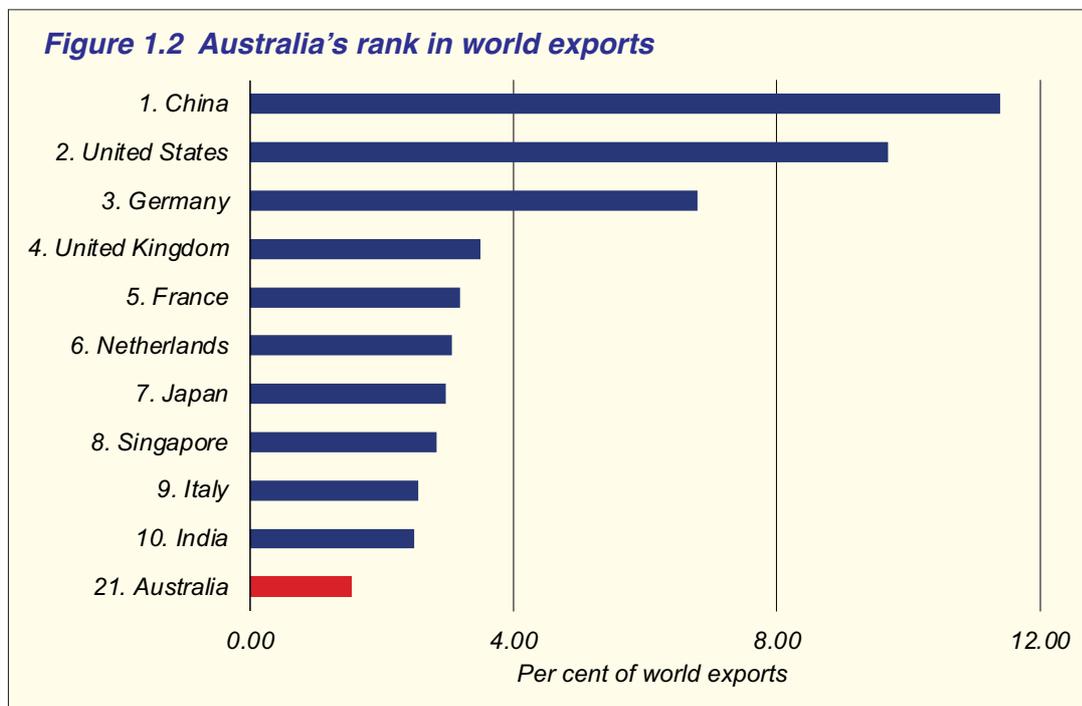
Trade is important because it can expand a nation's consumption possibilities by providing access to other countries' production through imports. Exporting increases a nation's production, while importing increases consumption. A country gains when it exports goods and services it can produce at a relatively 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 8 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, South Korea, Singapore and China.

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 2024, total trade had increased to nearly 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 11.5 per cent for China, the world's leading exporter (refer to figure 1.2). Australia is ranked 21 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. 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:

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

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, Brazil 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 and China do not need to rely on trade as much as a smaller economy such as Australia because their domestic markets are so large.

Australia's relatively low trade intensity can be partly explained by its geographic isolation. A notable Australian author, 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). 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.

Trade to GDP ratio	2023
Australia	48
Brazil	34
Canada	67
China	37
France	68
Germany	90
Italy	69
Japan	47
Netherlands	159
United Kingdom	66
United States	27
<i>World</i>	63

Source: World Bank

Australia's trade intensity has increased over time – from 34 per cent of GDP in 1992 to over 48 per cent in 2023.

Review

1. Describe four linkages between Australia and the global economy.
2. Outline three benefits of positive net migration for the Australian economy.
3. Why does Australia rely on the inflow of foreign investment?
4. Explain how consumers benefit from international trade.
5. Provide a reason for Australia's relatively low rank in world exports.

The composition of Australia's trade

Australia is a major exporter of commodities and an importer of manufactured goods.

Commodities - either rural or mining - have always dominated Australia's exports while manufactured goods have been our most important import category. For the past two decades the mining sector has been the 'king' of Australia's exports. Commodities such as iron ore, coal, natural gas and gold account for just over half of Australia's exports. That is an amazing fact! There would be very few economies that have such a concentration of exports in just a handful of goods. Prior to the mining boom, Australia was said to 'ride on the sheep's back' - signifying the importance of the agricultural sector. But today it could be said that Australia 'rides in the back of the iron ore truck'!

The composition of a country's trade will reflect its relative advantages in terms of its resource endowment. Traditionally Australia has been a major exporter of primary commodities. This is not surprising given Australia's large natural resources to population ratio and its substantial wealth in mining, energy and rural resources. Australia has historically enjoyed a relative cost advantage in the production of primary commodities - specifically rural and mining. Australia has been a leading world producer in wool, wheat and beef and a significant producer of iron ore, coal, natural gas, gold and bauxite.

Prior to the 1980s, agriculture (wool wheat and meat) was the mainstay of Australia's exports. But over the past few decades agriculture has declined in importance while the mining sector has exploded! The table below reveals the changes in Australia's key categories of exports since the 1990s. Commodity exports have increased from just over half of all exports in 1990 to 71 per cent in 2024. What is interesting is that the share of rural commodities has halved

	1990s	2000s	2024
Commodities	%	%	%
Rural	22	16	11
Mining (incl gold)	31	41	60
Total	53	57	71
Non-commodities			
Manufactures	24	21	11
Services	23	22	18
Total	47	43	29

over the same period from 22 per cent to just 11 per cent, while the share of mining has doubled from 31 per cent to 60 per cent.

What has driven this change?

The answer is - you guessed it - China. In fact, China is the answer to most questions regarding Australia's economy!

The rapid growth of China from 2000 onwards fuelled a major resources boom in Australia lasting for over 20 years. China emerged as the world's biggest factory supplying clothing, electrical appliances, cars and technology products to the rest of the world. China required vast amounts of iron ore, coal and more recently, natural gas to feed its hungry industrial sector and Australia became its number one supplier of these essential resources.

The growth of the mining sector in Australia meant that resources were diverted away from the manufacturing sector. Exports of manufactured goods as a share of the total declined dramatically from 24 per cent in 1990 to just 11 per cent in 2024. The share of services exports has also declined relative to mining, but it is not as significant. Normally services account for between 20 and 25 per cent of total exports. The current figure of 18 per cent is low due to the impact of the Covid pandemic which decimated the exports of both education and tourism - Australia's two most important service exports.

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

- a dramatic decline in rural exports
- a significant increase in mining sector (minerals & energy) exports
- a significant decline in manufacturing exports
- services exports have become larger than either rural or manufactured exports.

The broad composition of Australia's trade is illustrated in figure 1.3. The dominance of the mining and rural sector in exports is evident (71%), comprising mainly three commodities - iron ore, coal and natural gas. For imports the largest category is intermediate goods (33 per cent), consisting of refined fuels and processed industrial goods. Notice that most imported goods are manufactured goods - either in the form of consumer goods or capital goods (e.g. machinery for Australian industry). In contrast to exports, there are very few imported primary goods. The composition of our trade is a reflection of the structure of the economy. Australia has a very efficient and internationally competitive commodities sector - both mining and rural, while our manufacturing sector is smaller and relatively less efficient. Australia has a strong advantage in exploiting its natural mineral wealth and using its vast landmass for extensive agriculture.

Figure 1.3 Australia's composition of trade

EXPORTS - % share	2024	IMPORTS - % share	2024
Commodities	71	Consumption Goods	25
Rural	11	Motor vehicles	7
Minerals/metal ores	28	Clothing & footwear	4
Energy (coal & gas)	27	Capital Goods	18
Gold	5	Machinery	6
Total Manufactures	11	Intermediate goods	33
Services	18	Fuels (petrol)	10
Education	8	Services	24
Tourism	3	Tourism	11

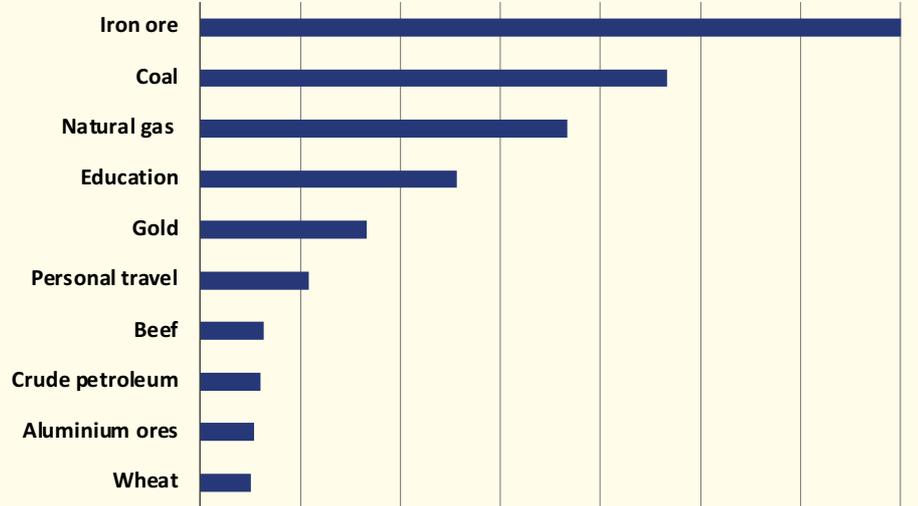
What are Australia’s main exports and imports? Figure 1.4 provides a ranking of the top ten exports and imports in 2024. It is not surprising to see that iron ore, coal and natural gas are at the top of the export table. These three exports account for nearly half of Australia’s exports. Notice that eight of the top ten exports are primary commodities. Two of the top 10 are service exports - education, ranked fourth and personal travel (overseas tourists), ranked sixth. Many people would be surprised to see education services ranked higher

Figure 1.4 Australia’s main exports and imports

EXPORTS

Per cent of total exports

0 3 6 9 12 15 18 21

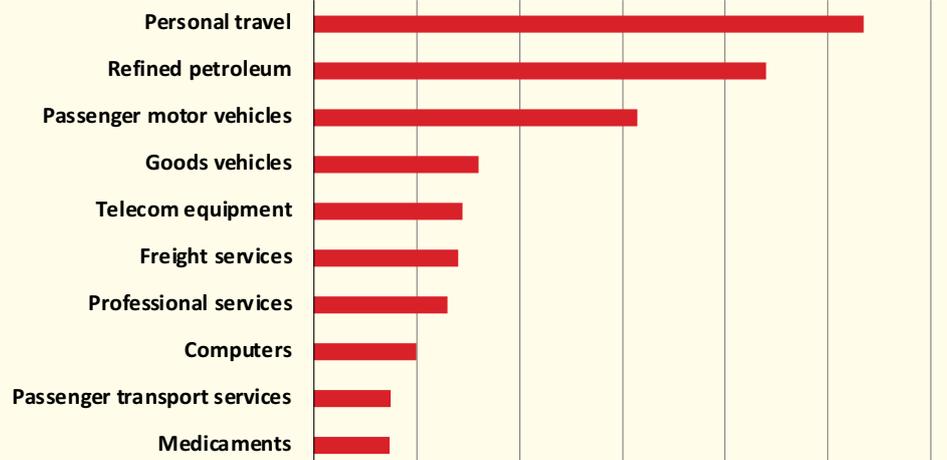


Iron ore, coal and natural gas account for half of all exports.

IMPORTS

Per cent of total imports

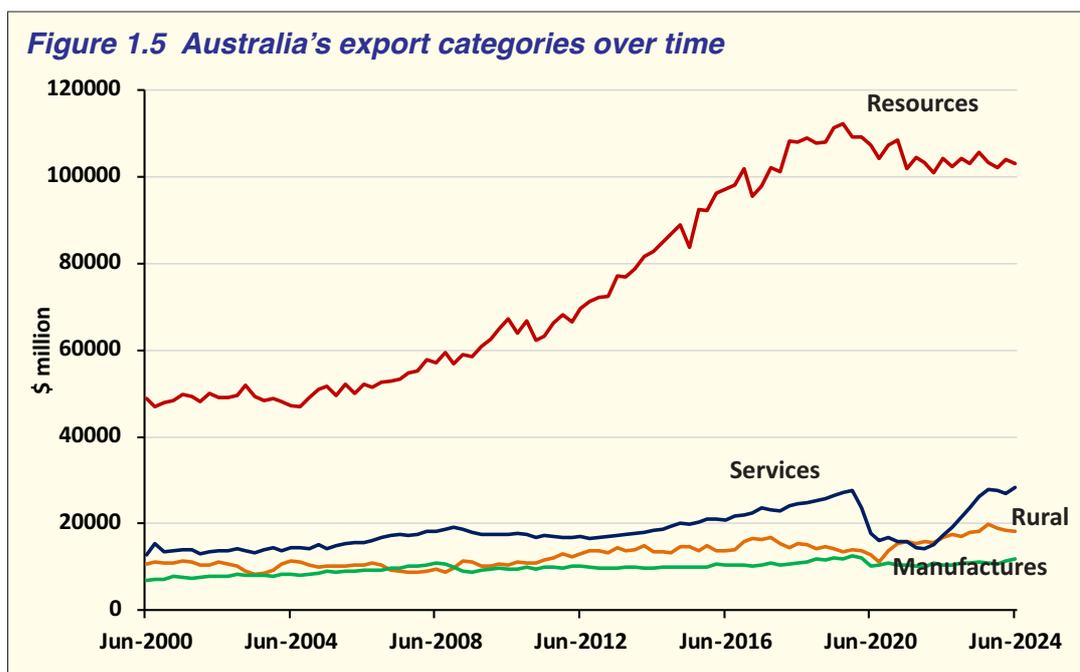
0 2 4 6 8 10 12



Manufactured goods dominate Australia’s imports.

than more traditional exports such as gold and beef. Figure 1.5 illustrates the growth in Australia's export categories since 2000. The graph clearly shows the increasing dominance of the mining resources sector.

Australia's most important imports are personal travel (Australian tourists travelling overseas), refined petroleum and passenger motor vehicles. Notice that five of these imports are services and five are manufactured goods. The most important import category is manufactured goods including motor vehicles, refined petroleum and telecom equipment. 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 mining 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.



Review

1. Identify Australia's most important export category and most important import category.
2. Outline the main reason for the growth in Australia's commodity exports.
3. State Australia's two largest exports and two largest imports in 2024.
4. Identify Australia's largest service export.

The direction of trade

There has been a significant shift in the direction of Australia's trade over time. This 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 1.5 shows Australia's ten leading trading partners. China has become Australia's largest trading partner - for both exports (33% share) and imports (20% share). It is important not to underestimate the significance of China's relationship to the Australian economy. Prior to 2000, a favourite saying amongst economists was that if the United States sneezed, Australia would catch a cold. This has now changed to: *"If China sneezes, Australia would catch pneumonia!"*

The top four countries - China, Japan, United States and South Korea account for over 50 per cent of Australia's total two-way trade. Notice that all nine countries shown in the graph are in the Asia-Pacific region. Japan is Australia's second most important export destination (13% share) while the United States is Australia's second most important import source (12% share). Since 2000, the share of Australia's exports to Asia has increased from 56 per cent to 80 per cent, while the share of imports from Asia has increased from 43 per cent to 56 per cent. The ascent of Asia in Australia's trade has meant that Europe has become less important - this is especially the case for Australia's exports. Since 2000, the share of Australia's exports to Europe has decreased from 15 per cent to just 7 per cent, while the share of imports from Europe has decreased from

Figure 1.5 The direction of Australia's trade



24 per cent to 20 per cent - a much smaller change. Notice that in figure 1.5, the European Union is second to China as an import source.

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 - Asia accounts for two-thirds of the global population. 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 lithium.

Australia's trade by region 2023 (per cent share)		
	Exports	Imports
Africa	1	1
Asia	80	57
America	7	16
Europe	7	21
Oceania	4	4

Source: DFAT

Australia's trade policy

Australia is a member of many international organisations such as the World Trade Organization (WTO), the G20, Asia-Pacific Economic Cooperation (APEC) and the Organisation for Economic Co-operation and Development (OECD). The purpose of participating in these organisations is to increase both trade and investment in order to promote Australia's long term economic growth and prosperity. Arguably the most important of these is the WTO, which was established in 1995 with the overall objective of helping member countries to use trade as a means to raise living standards.

Some of the key principles of the WTO include:

- **Non-discrimination** - a country should not discriminate between its trading partners, and it should not discriminate between its own and foreign products or services.
- **Opening trade** - Lowering trade barriers to encourage trade; these barriers include tariffs) and measures such as import bans or quotas.
- **Fair competition** - Discouraging "unfair" practices, such as export subsidies and dumping products at below normal cost to gain market share.
- **Protection of the environment** - The WTO permit members to take measures to protect not only public, animal and plant health but also the environment. However, members must not use environmental protection measures as a means of introducing discriminatory trade barriers.

A free trade agreement is an international treaty between two or more economies that reduces or eliminates barriers to trade.

The WTO's main activities are negotiating the reduction or elimination of barriers to trade (import tariffs) and agreeing on rules governing the conduct of international trade (e.g. anti-dumping, subsidies & product standards). In a perfect world there would be no barriers to trade. But in reality this is not the case. Many countries do impose barriers to trade, mainly for political reasons in order to 'protect' certain industries from foreign competition. But these barriers by reducing trade end up harming both economies. (Refer to chapter 2 for a more detailed analysis of trade barriers).

Despite the efforts of the WTO in promoting the benefits of open and free trade, it has been difficult getting all 166 member countries to reach consensus in lowering trade barriers. For this reason many countries have opted to participate in **free trade agreements** (FTAs) - either regional or bilateral. A bilateral FTA is an agreement between two countries, while a regional FTA involves more than two countries. FTAs are certainly favourable to increasing trade between the member countries by lowering or removing trade barriers. But at the same time, free trade agreements can be discriminatory and go against the '**most favoured nation**' (MFN) principle of the WTO. This principle is based on the idea that countries should treat all their trade partners equally. For example, if a country lowers its tariffs for one country, it should do the same for all other countries.

Free trade agreements can be attractive because it may be easier for a small group of neighbouring countries with similar concerns to agree on market opening in a particular area than to reach agreement in a wider forum such as the WTO. But free trade agreements also risk making it harder for countries outside the group to trade with those inside and may discourage further opening up of markets, ultimately limiting growth prospects for all. In this way a free 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.

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.

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

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 27 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 free trade agreements are 'trade creating' or 'trade diverting'. Removing trade barriers will help to increase the volume of trade between members – this is **trade creation**. But FTAs 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 free trade agreements have been effective in encouraging wider trade liberalisation.

DFAT points out that a practical advantage of free trade agreements is that they are quicker and easier to negotiate than multilateral agreements because fewer parties are involved. Australia has currently 18 free trade agreements with 30 economies. Of these, 14 are bilateral agreements and four are regional involving three or more economies. Three 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.

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 FTAs

- 1. New Zealand 1983**
- 2. Singapore 2003**
- 3. Thailand 2005**
- 4. United States 2005**
- 5. Chile 2009**
- 6. ASEAN 2010**
- 7. Malaysia 2013**
- 8. South Korea 2014**
- 9. Japan 2015**
- 10. China 2015**
- 11. Trans Pacific Partnership (TPP) 2018**
- 12. Hong Kong 2020**
- 13. Peru 2020**
- 14. Indonesia 2020**
- 15. Pacific Agreement on Closer Economic Relations (PACER) 2020**
- 16. Regional Comprehensive Economic Cooperation (RCEP) 2022**
- 17. India 2022**
- 18. United Kingdom 2023**

One of Australia's recent FTAs - the Regional Comprehensive Economic Cooperation (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 intra-regional exports by over \$US40 billion. In 2023, the Australia-United Kingdom free trade agreement entered into force, eliminating tariffs on over 99 per cent of Australian goods exports to the UK. Additionally, by 2028 all UK imports will enter Australia duty free, helping ease cost-of-living pressures for households and input costs for Australian business.

Review

1. **Identify Australia's four main trading partners.**
2. **Describe the change in the direction of Australia's trade since 2000.**
3. **Describe two key principles of the WTO trade framework.**
4. **Outline the purpose of a free trade agreement (FTA).**
5. **Define the concepts of trade creation and trade diversion.**

Historic free trade deal with the United Kingdom

The Australia-UK trade agreement (A-UKFTA) will deliver unprecedented benefits to Australian businesses and create new well-paying jobs. The agreement is a gold standard trade deal that delivers benefits for all Australians – including manufacturers, workers, farmers, tradies, innovators, families, and students. The United Kingdom is one of Australia's important trading partners, with exports worth \$13 billion in 2023, and imports worth \$18 billion.

With the entry into force of this comprehensive agreement, there will be no tariffs on over 99 per cent of Australian goods exports to the UK, opening up new export opportunities, including for the agriculture sector. This includes Australian exports of wine, short- and medium-grain rice, honey, nuts, and manufactured products such as auto parts, electrical equipment, and cosmetic products. Savings of approximately \$200 million a year will be made as tariffs on imports from the UK are eliminated. After five years, all UK imports will enter Australia duty free, helping ease cost-of-living pressures for households and input costs for Australian business. The FTA also provides a framework for professional bodies to agree to streamline processes to facilitate the movement of qualified professionals between Australia and the UK. This outcome will help address the skills shortage in Australia. (DFAT May 2023)

Questions

Describe how each of the following groups will benefit from the A-UKFTA:

1. *Australian exporters*
2. *Australian businesses*
3. *Australian consumers*

Chapter Summary

- Australia has developed important linkages with the global economy through trade (exports and imports), foreign investment, immigration and tourism
- A country's trade intensity is measured by the ratio of total trade ($X + M$) to GDP
- Australia's trade to GDP ratio has increased from 30% in 1990 to nearly 50% in 2024
- Australia has a low rank in trade intensity due to its geographic isolation
- Commodities dominate Australia's exports - accounting for 71% of total exports
- Iron ore, coal and natural gas account for half of the value of exports
- Manufactured goods dominate Australia's imports - accounting for nearly half
- Personal travel, refined petroleum and motor vehicles account for around 30% of total imports
- Australia's most important region for trade is Asia - accounting for 80% of exports and 56% of imports
- China is Australia's most important trading partner with 27% of total trade, followed by Japan (10%) and the United States (8%)
- Australia adheres to the principles of the World Trade Organisation (WTO) including non-discrimination, open and fair trade
- Australia has 18 free trade agreements with 30 economies - 14 of these are bilateral FTAs and 4 are regional
- Two important concepts concerning FTAs are trade creation and trade diversion

Chapter Review

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. mining.
 - 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. Mining exports have become more significant while rural exports have declined in importance.
 - c. Primary 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 relating to Australia's pattern of trade is correct?
 - a. Australia is the largest agricultural exporter in the world.
 - b. Clothing and footwear is the main import category.
 - c. Australia's major service export is education.
 - d. The value of primary goods exports is less than manufactured goods exports
7. 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.
8. 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.
9. 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.
10. Primary commodities account for approximately what proportion of Australia's exports?
 - a. 30%
 - b. 50%
 - c. 70%
 - d. 90%
11. Services account for approximately what proportion of Australia's exports?
 - a. 20%
 - b. 40%
 - c. 60%
 - d. 80%

12. The most important trading region for Australia is
 - a. East Asia.
 - b. South Asia.
 - c. Europe.
 - d. North America.
13. In 2024 Australia's largest import by value was _____ and largest export was _____ .
 - a. refined petroleum; natural gas.
 - b. personal travel; iron ore.
 - c. crude petroleum; coal.
 - d. passenger motor vehicles; education.
14. What would reduce the volume of international trade in the world economy?
 - a. A German bank providing a loan to a Nigerian company.
 - b. A Japanese car manufacturer establishing a factory in the Czech Republic.
 - c. The Canadian government introducing quotas on Malaysian electronics products.
 - d. The Swedish government granting aid to Somalia.
15. 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 the northern hemisphere.
16. Which of the following countries has the highest trade to GDP ratio?
 - a. United States
 - b. Japan
 - c. China
 - d. Australia
17. Which pair of sectors contribute most to Australia's export income?
 - a. Mining and Services
 - b. Mining and Agriculture
 - c. Services and Agriculture
 - d. Services and Manufacturing
18. Which of the following is the situation in which a nation shifts its international trade from nations outside a regional trade bloc to nations within the bloc?
 - a. Trade diversion
 - b. Trade deflection
 - c. Trade resilience
 - d. Trade creation
19. What is a likely effect of Australia signing a multilateral free trade agreement?
 - a. An increase in trade with non-member countries
 - b. An increase in tariff revenue for the government
 - c. An increase in long-run real gross domestic product
 - d. Lower levels of short-term structural unemployment

Data Analysis

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

Australia's trade with China 2023					
Exports	\$ billion	% share	Imports	\$ billion	% share
Iron ore	115.5	67.1	Telecom equipment	9.7	9.4
Natural gas	20.4	...	Computers	7.0	...
Crude minerals	18.6	...	Passenger motor vehicles	6.3	...
Education	11.4	...	Furniture, mattresses	3.8	...
Coal	9.2	...	Toys, games, sporting goods	3.34	...
Gold	6.4	...	Electrical machinery	3.1	...
Total exports	218.8	100.0	Total imports	108.1	100.0

China is Australia's largest trading partner in goods and services (valued at around \$327 billion in 2023), our largest export destination (\$219 billion), and our largest source of imports (\$108 billion). China buys around one third of all Australian exports, and is the top overseas market for many Australian goods and services. Australia buys 20 per cent of its imports from China. 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. Calculate the size of Australia's trade balance with China.
2. For both exports and imports, calculate the per cent share columns.
3. Describe the nature of Australia's exports to China.
4. Describe the nature of Australia's imports from China.

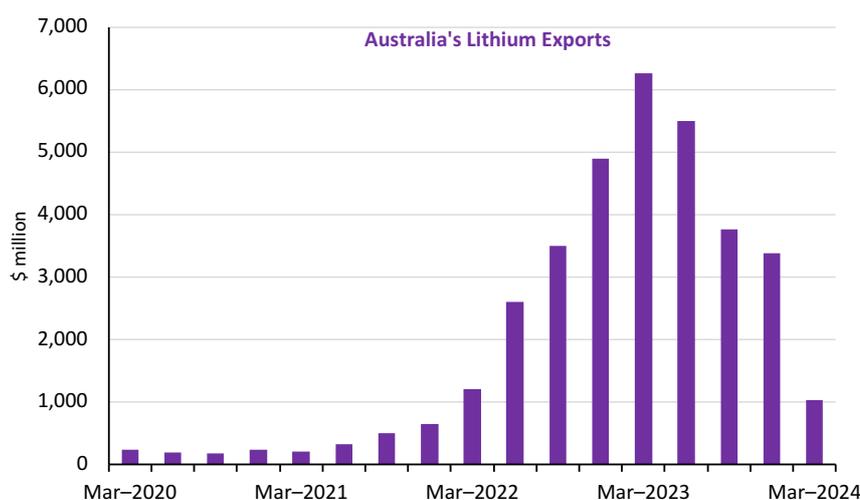
Articles

Australia 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 with most of it exported to China.

Questions - refer to the graph showing Australia's lithium exports

1. Why has global demand for lithium suddenly increased?
2. In which quarter did lithium exports first exceed \$1 billion?
3. Calculate the total value of lithium exports for the 2023 calendar year.



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 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. Lower tariffs 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)

Questions

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.

Extended response

1. Australia has important economic links to the global economy. Describe the nature of these links and discuss the importance of trade to the Australian economy. (15 marks)

In your response, include

- four linkages with the global economy
 - the composition of Australia's trade (exports and imports)
 - the direction of Australia's trade
 - the importance of trade to the Australian economy
2. (a) Explain why Australia pursues free trade agreements (FTAs). (7 marks)
- (b) Describe two benefits to both Australian producers and consumers of a free trade agreement. (8 marks)

Past exam questions

1. An argument against free trade agreements such as the European Union is that they can
- a. be harder to negotiate compared with multilateral agreements.
 - b. divert trade from a low-cost producer outside the trade agreement to a higher-cost producer within the trade agreement.
 - c. increase the trade intensity of member countries.
 - d. divert trade from high-cost producers within the trade agreement to lower-cost producers outside the trade agreement.
2. Which of the following statements about trade intensity is correct?
- a. A high trade intensity ratio leads to increased dependence on foreign investment
 - b. Australia's trade intensity is low in comparison to China and the USA
 - c. It measures the total value of imports and exports as a percentage of GDP
 - d. It indicates the impact of barriers to trade on the Australian economy

Multiple Choice Answers

Page 17: 1a; 2d; 3b; 4a; 5b; 6c; 7a; 8c; 9c; 10c; 11a; 12a 13b; 14c; 15d 16d; 17a; 18a; 19c

Page 22: 1b; 2c

Free Trade and Protection



Key understandings

- *the concepts of absolute and comparative advantage, including the sources of comparative advantage*
- *the gains from specialisation and trade using the D/S model, the PPF model and the concept of opportunity cost*
- *types of protection, including tariffs, subsidies, quotas*
- *arguments for protection*
- *the impact of tariffs and subsidies using the D/S model on trade, market efficiency and the macroeconomy*
- *the benefits of trade liberalisation*

Introduction

Specialisation and trade result in higher living standards.

Specialisation and trade are features of all modern economies. Why? Because through specialisation and trade, countries can increase their living standards and improve the economic prosperity of their residents. Any form of trade or exchange involves gains to both buyer and seller. This is true for trade between countries as well as trade between individuals. The exchange of goods and services is a necessary characteristic of a specialised economy. But 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.

International specialisation and trade 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.

Opportunity cost can be used to measure relative efficiency.

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 most efficient task – auditing – while employing another person to perform the other task. Jannik Sinner, from Italy, is currently the world number one tennis player. He may also excel at cooking pasta. Should Jannik divide his time between tennis and cooking? Of course not, Jannik is much better off by devoting his time to what he does relatively best – tennis – and pay someone to cook his favourite pasta. In other words Jannik's comparative advantage is in playing tennis.

At the international level, countries may also possess an absolute advantage and/or 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 concept 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 its resources (or produce the same quantity of output with fewer resources). 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 2.1 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

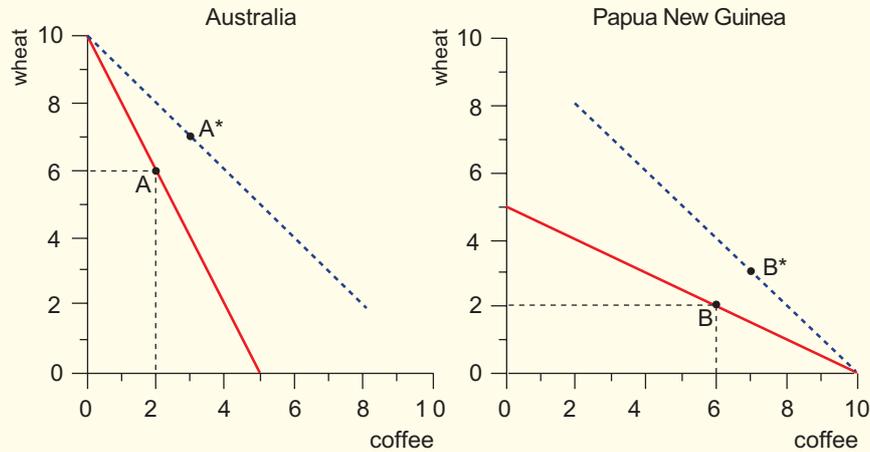
A country has an absolute advantage over another country in producing a good if it can produce a greater quantity of that good.

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.

Figure 2.1 Absolute advantage

Production possibilities			
Country	Wheat	or	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

One possible trading position is shown in the bottom table of figure 2.1. Australia may choose to keep 7 wheat and export 3 to Papua New Guinea in return for 3 units of coffee. In this case the rate of exchange would equal 1 unit of wheat to 1 unit of coffee. The 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 as it receives more than 0.5 units of wheat.

The rate of exchange is determined by the opportunity cost ratios.

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 - 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 concept of comparative advantage.

If countries specialise and then trade, they can consume above their PPFs.

The concept of comparative advantage

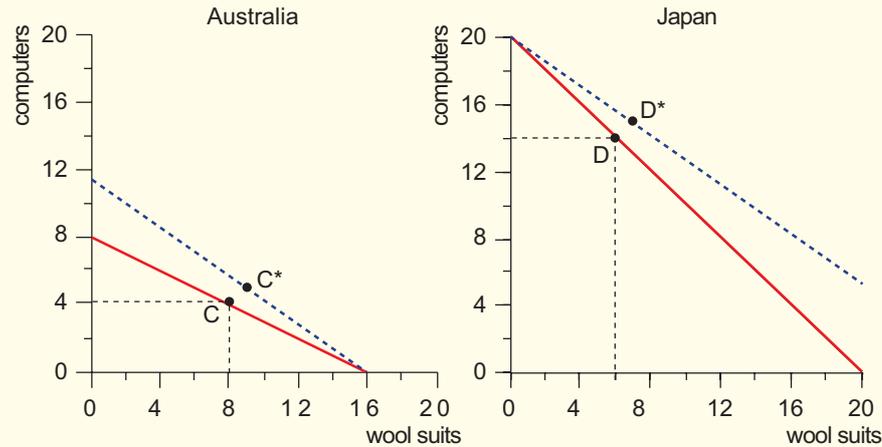
When a country has an absolute advantage in the production of both goods, its comparative advantage lies where its absolute advantage is greatest. The country that has no absolute advantage has a comparative advantage in the good where its absolute disadvantage is smallest. A country is said to have 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.

A country has a comparative advantage in producing a good if it can produce that good at a lower opportunity cost.

Figure 2.2 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 of both goods 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 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.

Figure 2.2 Comparative advantage

Production Possibilities				Opportunity Costs		
Country	Computers	or	Wool Suits	Country	1 computer	1 Wool Suit
Australia	8	or	16	Australia	2 wool suits	0.5 computer
Japan	20	or	20	Japan	1 wool suit	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

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. Wool suits is thus relatively cheaper to produce in Australia than in Japan. 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 2.2, 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 2.2, 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 2.3 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).

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

Comparative advantage is the basis for international trade - not absolute advantage.

Figure 2.3 The gains from specialisation

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	

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 using inputs

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

	<i>Bicycles</i>	<i>Computers</i>
<i>Country X</i>	30 hrs	20 hrs
<i>Country Y</i>	40 hrs	50 hrs

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 both bicycles and computers compared to Country Y.

But which country has the comparative advantage? Clearly we can see from the table that Country X's biggest advantage is in producing computers while country Y's least disadvantage is in producing bicycles. This means that Country X has a comparative advantage in computer production while Country Y has a

comparative advantage in bicycle production. Can we still use opportunity cost ratios? The answer is yes, but it is calculated differently. The formula to use to calculate the opportunity cost of bicycles compared to computers when using inputs is: the number of hours to produce a bicycle divided by the number of hours to produce a computer.

So in Country X the opportunity cost of 1 bicycle = $30 \text{ hrs}/20 \text{ hrs} = 1.5$

While the opportunity cost of 1 computer = $20 \text{ hrs}/30 \text{ hrs} = 0.67$

In Country Y, the opportunity cost of 1 bicycle = $40 \text{ hrs}/50 \text{ hrs} = 0.8$

While the opportunity cost of 1 computer = $50 \text{ hrs}/40 \text{ hrs} = 1.25$

Comparative advantage is still identified by who has the lowest opportunity cost. This means that Country X has a comparative advantage in producing computers while Country Y has a comparative advantage in producing bicycles.

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 labour or human resources, 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.

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

Country	Specialisation
<i>Australia</i>	<i>iron ore, coal, education</i>
<i>Brazil</i>	<i>coffee, sugar</i>
<i>Canada</i>	<i>wheat, timber</i>
<i>China</i>	<i>clothing, consumer goods</i>
<i>France</i>	<i>aircraft, wine</i>
<i>Germany</i>	<i>motor vehicles</i>
<i>Korea</i>	<i>ships, chemicals</i>
<i>Saudi Arabia</i>	<i>oil</i>
<i>Switzerland</i>	<i>watches, banking services</i>
<i>United States</i>	<i>arms & ammunition</i>

economically efficient for cultural or political reasons - the tradeoff is a lower level of national income and a lower standard of living. 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 labour 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. 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.

Review

The production possibilities for two countries Apland and Orland are shown below.

	Mangos		Sardines
Mangolia	6000	or	6000
Sardinia	2000	or	4000

1. Construct a production possibility curve for each country .
2. Which country has the absolute advantage in producing i. mangos ii. sardines?
3. What is the opportunity cost of producing mangos in both countries?
4. What is the opportunity cost of producing sardines in both countries?
5. Who has the comparative advantage in producing i. mangos ii. sardines?
6. If both countries decide to trade, within what range will the rate of exchange lie?
7. Complete the missing cells in the table.
8. As a result of specialisation and trade, these two countries are better off because they are consuming more mangos and sardines than before trade - mango production has increased by _____ units while sardine production increased by _____ units. (Check answers - p. 54)

Before specialisation	Mangos	Sardines
Mangolia	4500	1500
Sardinia	1000	2000
Total	5500	3500
After specialisation		
Mangolia	.....	....
Sardinia	.....	....
Total	.....	....
After trade (assume rate of exchange: 1 mango = 1.5 sardines)		
Mangolia	4800	1800
Sardinia	1200	2200
Total	6000	4000

Comparative advantage and the D/S model

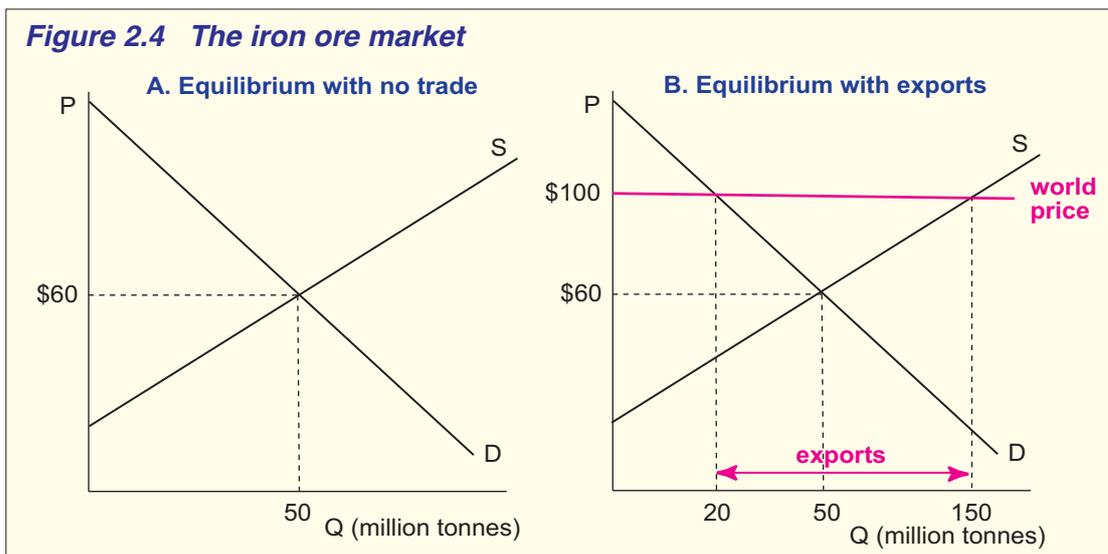
Comparative advantage and the gains from trade can also be illustrated using the model of demand and supply. A country will export a good or service if it has a comparative advantage in producing that good and it will import a good or service if it has a comparative disadvantage. For example, Australia has a lower opportunity cost in producing iron ore compared with China and therefore has a comparative advantage in iron ore. China can produce computers at a lower opportunity cost compared with Australia and therefore has a comparative advantage in computers. Australia can gain by exporting iron ore to China and importing computers from China, while China can gain by importing iron ore from Australia and exporting computers to Australia.

The model of demand and supply determines the relative price of a good. 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. If the domestic price is higher than the world price, then the country must be relatively less efficient at producing this good. In other words, it has a higher opportunity cost - a comparative disadvantage - and it will benefit by importing this good to the rest of the world.

A country will have a comparative advantage if the domestic price is less than the world price.

Exports

First consider the market for iron ore shown in figure 2.4. Panel A shows the domestic market for iron ore in Australia with no trade. The equilibrium price of iron ore is \$60 per tonne and 50 million tonnes are produced. Panel B shows



With exports, domestic producers gain more than consumers lose.

the market for iron ore with trade. The world price for iron ore is \$100 which is much higher than the Australian domestic price. This means that Australia has a comparative advantage in iron ore production. If Australian producers sell to the higher world price, quantity supplied increases to 150 million tonnes while quantity demanded falls to just 20 million tonnes. Exports will equal the difference between quantity demanded and quantity supplied - 130 million tonnes. 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.

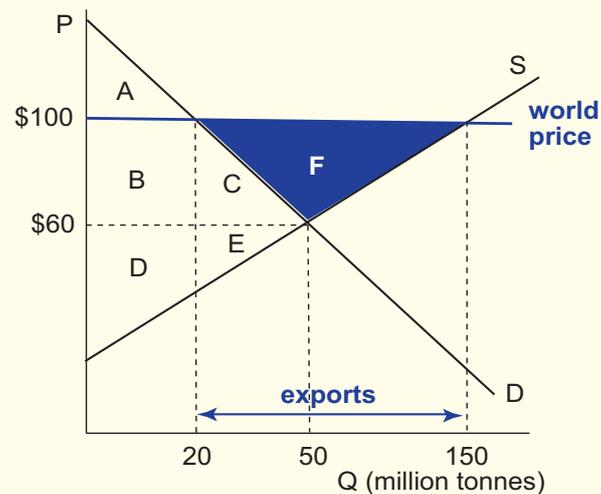
Imports

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

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 = 130,000 tonnes.

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.



for computer laptops shown in figure 2.6. Panel A shows the domestic market for computer laptops in Australia with no trade. The equilibrium price of a laptop is \$2500 and 50 thousand are produced. Panel B shows the market for computer laptops with trade. The world price for laptops is \$1500 which is much lower than the Australian domestic price. This means that Australia has a comparative disadvantage in laptop production.

If Australian consumers buy at the lower world price of \$1500, quantity demanded increases to 110 thousand while quantity supplied falls to just 10 thousand. Imports will equal the difference between quantity demanded and quantity supplied - 100 thousand. Notice that after trade, laptop consumers gain by buying more laptops at a lower price. However, laptop producers in Australia will lose because they sell a lower quantity and receive a lower 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 consumers of laptops gain more than laptop producers lose! Australia will be better off by importing - economic welfare will increase as a result of imports.

We can again use the concepts of consumer and producer surplus to show the welfare effects of exports using figure 2.7. Before trade, consumer surplus equals area A, while producer surplus equals the area B + C. After trade, consumer surplus increases to the 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.

A country will have a comparative disadvantage if the domestic price is higher than the world price.

With imports, consumers gain more than domestic producers lose.

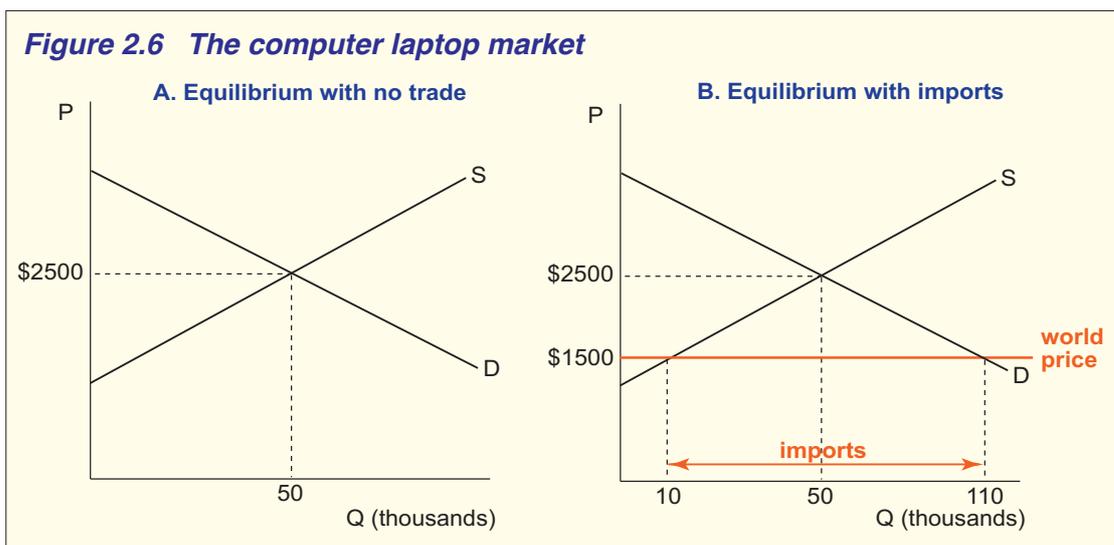
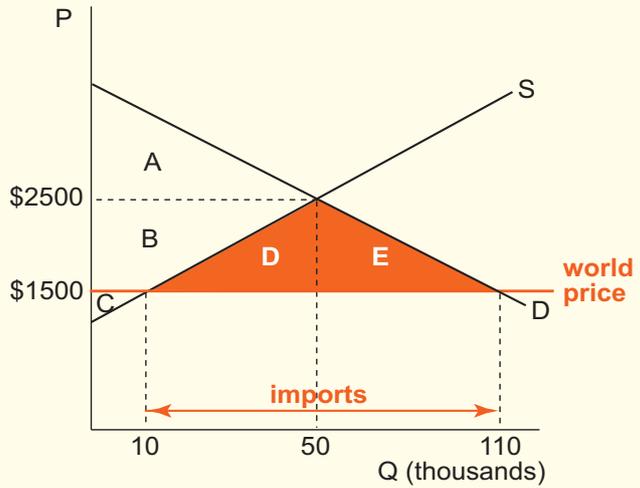


Figure 2.7 The gains from imports

If the world price for computers is below the domestic price for computers then Australia has a comparative disadvantage in producing computers and will import computers. Computer imports = 100,000. 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.



Review

1. In the market for an export

- The world price is _____ the domestic price
- Domestic qty supplied is _____ than domestic qty demanded
- Producer surplus _____ Consumer surplus _____
- Total surplus _____

2. In the market for an import

- The world price is _____ the domestic price
- Domestic qty supplied is _____ than domestic qty demanded
- Producer surplus _____ Consumer surplus _____
- Total surplus _____

3. When a country imports a good, the _____ to consumers is _____ than the _____ to producers.

- a. loss; larger; gain
- b. loss; smaller; gain
- c. gain; smaller; loss
- d. gain; larger; loss

4. If Australia imports toys, then the quantity of toys produced in Australia will _____ and the quantity of toys bought by consumers in Australia will _____.

- a. increase; increase
- b. increase; decrease
- c. decrease; increase
- d. decrease; decrease

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

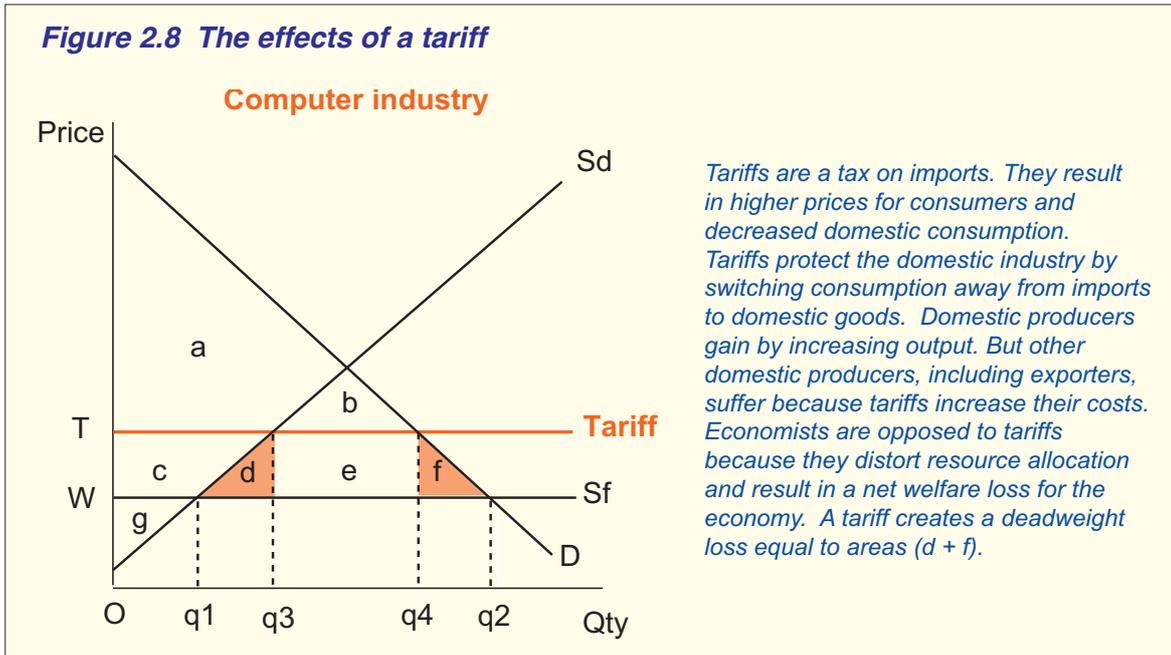
Tariffs are the most widely used protective measure. In Australia tariffs were frequently applied on imported motor vehicles and clothing and footwear. A tariff is simply a tax placed on an import. It is designed to increase the price of the foreign good or service so that the competing domestic good receives a price benefit. The tariff is also an important source of revenue for the government. Figure 2.8 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

A tariff is a tax placed on imports designed to increase domestic production and decrease imports.

between domestic production and demand - q_1q_2 - 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 - S_f 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 Oq_1 to Oq_3 , consumption contracts from Oq_2 to Oq_4 and imports are reduced to q_3q_4 . 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 (q_3q_4).

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 2.8, 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 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 2.8 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.

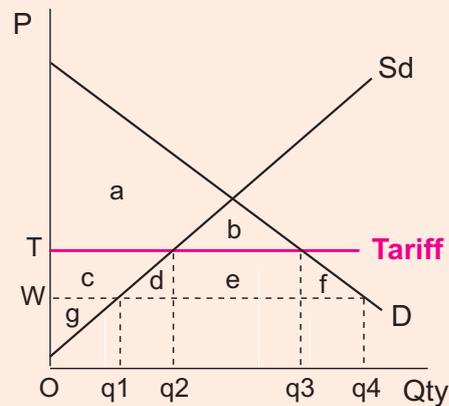
Review

1. If a tariff is placed on imports it will cause

- the world price line to _____
- imports to _____
- producer surplus to _____
- consumer surplus to _____
- total surplus to _____

2. Refer to the tariff model below to complete the missing values

	Before tariff	After tariff
Price		
Quantity consumed		
Quantity produced		
Imports		
Consumer surplus		
Producer surplus		
Govt revenue		
Deadweight loss		



Subsidies

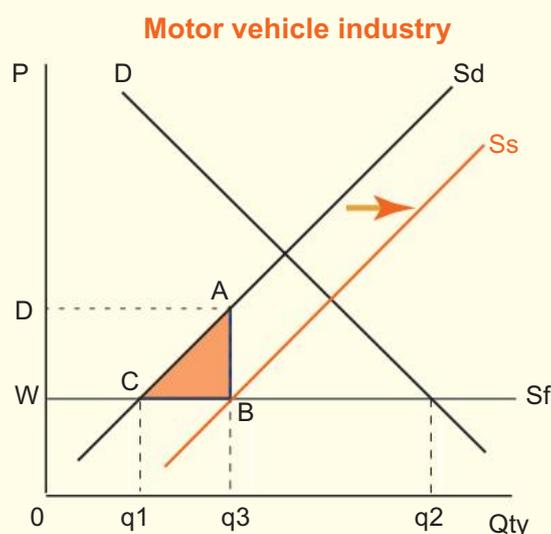
A subsidy is a payment to domestic producers by the government to increase their output.

Subsidies are grants or payments to domestic producers by the government. 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 2.9 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 Oq_2 , of which Oq_1 is locally supplied and q_1q_2 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 Oq_3 gaining a larger share of the market while imports are reduced to q_3q_2 . The aim of the subsidy is to reduce imports.

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.

Figure 2.9 The effects 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 S_s . Domestic production increases from q_1 to q_3 while imports are reduced to q_3q_2 . 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.



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 is 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 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.

Quotas

A quota is a limit on the quantity of a particular good that can be imported into a country. Quotas can be country-specific or global in scope. Quotas are reasonably common in agricultural markets (for example, the US constrains imports of dairy goods and sugar). Quotas, like tariffs and subsidies, were used extensively to protect Australia’s motor vehicle industry. The quantity of imports under a tariff system depends on the strength of demand. So quotas are more restrictive than tariffs because they control the absolute amount of the product imported.

Quotas have very similar effects to tariffs. They result in higher prices for both domestic and imported goods. Consumer surplus decreases because of the increased price and reduced quantity. Producer surplus increases because domestic suppliers gain from the larger market share. But the big difference with tariffs, is that quotas do not raise revenue for the government unless the quotas are auctioned off to importers. Quotas, like tariffs and subsidies, also create a deadweight loss in terms of a decrease in total surplus.

Quotas have the same effects as tariffs but they do not raise revenue.

Review

1. A quota is a

- a. quantitative restriction on an import imposed by the importing country.
- b. quantitative restriction on an import imposed by the exporting country.
- c. tax that is imposed on a good when it crosses an international boundary.
- d. trade barrier that does not harm domestic consumers of the good or service.

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 heavily 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. Most economists would argue that no protection is good protection, but there may be circumstances when a case can be made for temporary, short term 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.

Dumping occurs when a company or country exports a product at a lower price than what it sells domestically.

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!

An infant industry lacks the experience and size to compete effectively against established competitors abroad.

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.

The benefits of trade liberalisation

Trade liberalisation has been a major trend in the world economy since the creation of the World Trade Organisation (WTO). 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 WTO is the only global international organisation dealing with the rules of trade between nations. The WTO promotes trade liberalisation by helping to reduce or eliminate trade barriers and by discouraging ‘unfair’ practices such as dumping and export subsidies. Trade is vital to the world economy and the WTO tries to ensure that it flows smoothly and freely. The WTO promotes multilateralism - trying to persuade all countries to lower or remove their trade barriers together.

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. There is a strong positive correlation between trade and 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

Trade liberalisation is the process of reducing or removing trade barriers between countries.

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 significant effect on economic activity and living standards. One of the interesting results 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.

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 structural 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.

From July 2024, 'nuisance' tariffs will be abolished on a range of imported goods including toothbrushes, tools, fridges, dishwashers and clothing.

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

Benefits of 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
Openness to trade and investment is a major catalyst for economic growth

Chapter Summary

- *Through specialisation and trade, countries can increase their living standards and improve the economic prosperity of their residents.*
- *International specialisation is based on comparative advantage - not absolute advantage.*
- *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.*
- *Comparative advantage is determined by the quantity and quality of the nation's human, natural and capital resources, and by technological progress.*
- *The rate of exchange between two goods will lie between the opportunity cost ratios.*
- *When countries specialise and trade based on comparative advantage they enjoy a higher standard of living by consuming outside their production possibility frontier.*
- *Comparative advantage can be determined by comparing the domestic price of a good with the world price.*
- *If the domestic price is lower than the world price, then the country has a comparative advantage and should export the good.*
- *If the domestic price is higher than the world price, then the country has a comparative disadvantage and should import the good.*
- *A tariff is simply a tax placed on an import - it increases the price of foreign goods benefitting the protected domestic producers.*
- *Tariffs are inefficient because they create a deadweight loss - consumers lose, other domestic producers lose because the cost of imported components increases.*
- *A subsidy is a grant paid to protected domestic producers who compete with imports.*
- *A subsidy is inefficient because it creates a deadweight loss - the cost of the subsidy exceeds the benefit to protected domestic producers.*
- *The classic arguments for protection include: the infant industry, anti-dumping, diversification, national security (strategic industries) and increased employment.*
- *The WTO promotes trade liberalisation by helping to reduce or eliminate trade barriers and by discouraging 'unfair' practices such as dumping and export subsidies.*

Chapter Review

Multiple choice - free trade

1. 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'.
2. 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 3-7 refer to the following information:

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

3. 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.
4. 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.
5. 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.
6. 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.
7. For both countries to gain from trade, the rate of exchange 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.

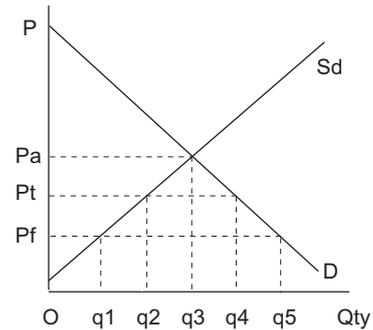
8. If a country specialises in producing goods it has a comparative advantage and then trades, it will be
 - a. producing inside its production possibility frontier.
 - b. consuming inside its production possibility frontier.
 - c. consuming outside its production possibility frontier.
 - d. producing outside its production possibility frontier.
9. 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
10. 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
11. Which of the following is not a basis for trade between two countries?
 - a. Different skill levels of the labour forces
 - b. One nation's absolute advantage
 - c. Economies of scale
 - d. Different capital stocks
12. The opportunity cost of producing one car in Germany is 12 tonnes of wheat, while the opportunity cost of producing one car in Canada is 20 tonnes of wheat. The two countries can gain from trade if the rate of exchange is
 - a. greater than 20 tonnes of wheat per car.
 - b. less than 12 tonnes of wheat per car.
 - c. between 12 tonnes and 20 tonnes of wheat per car, and Germany produces cars.
 - d. between 12 tonnes and 20 tonnes of wheat per car, and Germany produces wheat.
13. All of the following are sources of comparative advantage except
 - a. climate and natural resources.
 - b. relative abundance of labor and capital.
 - c. technology.
 - d. a strong foreign currency exchange rate.
14. When a country imports a good, the _____ to consumers is _____ the _____ to producers.
 - a. loss; larger than; gain
 - b. loss; smaller than; gain
 - c. gain; smaller than; loss
 - d. gain; larger than; loss
15. When a country exports a good, the _____ to consumers is _____ the _____ to producers.
 - a. loss; larger than; gain
 - b. loss; smaller than; gain
 - c. gain; smaller than; loss
 - d. gain; larger than; loss

Multiple choice - protection

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 below. A tariff of $P_f P_t$ is applied to the good.

4. The tariff boosts domestic production by
 - a. $q_1 q_2$.
 - b. $q_1 q_3$.
 - c. $q_2 q_4$.
 - d. $q_3 q_4$.
5. The tariff results in consumers paying _____ while imports would equal _____.
 - a. P_a ; $q_2 q_4$.
 - b. P_t ; $q_1 q_5$.
 - c. P_t ; $q_2 q_4$.
 - d. P_f ; $q_1 q_5$.



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.
12. When protection is used to encourage a growing domestic industry, which of the following arguments is being used?
 - a. The save domestic jobs argument
 - b. The national security argument
 - c. The anti-dumping argument
 - d. The infant-industry argument
13. If supporters of restrictions on imports argue that protection is needed to preserve a strategic industry; which of the following is being used?
 - a. Save domestic jobs argument
 - b. National security argument
 - c. Dumping argument
 - d. Infant-industry argument
14. Which two of the following arguments are most likely to be used to justify protectionism?
 - i. To protect high cost domestic industries
 - ii. To protect strategically important industries
 - iii. To protect industries which are still immature
 - iv. To maximise government tax revenue
 - a. i and ii
 - b. ii and iii
 - c. iii and iv
 - d. ii and iv
15. What is the infant-industry argument for protection from international trade?
 - a. Domestic firms must be protected until they gain a comparative advantage.
 - b. Any firm necessary in wartime must be protected.
 - c. Foreign producers selling below cost to drive domestic firms bankrupt must be stopped.
 - d. Domestic jobs must be protected from competition from low-paid foreign workers.

Articles to review

China imposed massive tariffs on Australian wine

In March 2021, China's government imposed tariffs of 116–218% on bottled Australian wine imports from Australia. 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 is 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 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. In March 2024, to the joy of Australia's wine growers, China removed its tariffs on Australian wine.

Questions

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. Describe the effects of China imposing a tariff on Australian wine exporters and on Chinese wine consumers.

Trump loves tariffs

In a recent forecast, the International Monetary Fund (IMF) has warned that the world economy could contract by the size of the combined French and German economies if there is a broad-based trade war between the world's major economies. It comes as concerns are heightened following the re-election of Donald Trump.

Trump says he plans to introduce a universal tariff of up to 20% on all imports into the US. He stated that "the word tariff is the most beautiful word in the dictionary". He thinks that tariffs will reduce imports and increase US production and employment and raise billions of dollars in revenue for the Government. But he forgets that other countries will do likewise in a tit-for-tat strategy which will hurt American exporters and reduce American income. Tariffs raise prices and increase costs for domestic producers. Ultimately consumers lose and economic growth slows.

Questions

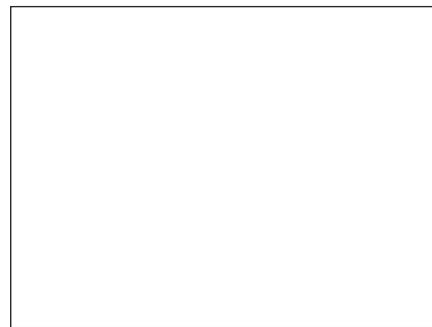
1. Why does Trump 'love' tariffs?
2. Explain why tariffs will reduce imports.
3. Explain why tariffs harm domestic consumers and slow economic growth.

Past exam questions

1. Using a demand and supply model, illustrate and explain the effects on consumers and producers of a country imposing a tariff on an imported good. (8 marks)

Consumers: _____

Producers: _____



2. Using an appropriate model, illustrate and describe the effects of a subsidy on domestic production, imports and market efficiency. (8 marks)



Extended responses

Answer each of the following questions in about 1 page of normal writing. Use economic models and examples where appropriate. Each question is worth 15 marks.

1. (a) Define protection and describe three arguments for protection. (7 marks)
 (b) Using a model, explain the impact of a tariff on trade and market efficiency. (8 marks)
2. (a) Use a PPF model to distinguish between the concepts of absolute and comparative advantage. (7 marks)
 (b) Describe four benefits of trade liberalisation. (8 marks)

Selected Answers

Review p.32

2. Mangolia has the absolute advantage in both goods
3. In Mangolia 1 mango costs 1 sardine; in Sardinia 1 mango costs 2 sardines
4. In Mangolia 1 sardine costs 1 mango; in Sardinia 1 sardine costs 0.5 mango
5. Mangolia has the comp. advantage in mangos; Sardinia has the comp. advantage in sardines
6. 1 mango will trade between 1 and 2 sardines
8. Mango and sardine production both increase by 500 units

Review p.36

1. above; greater; increases; decreases; increases
2. below; less; decreases; increases; increases
- 3d; 4c

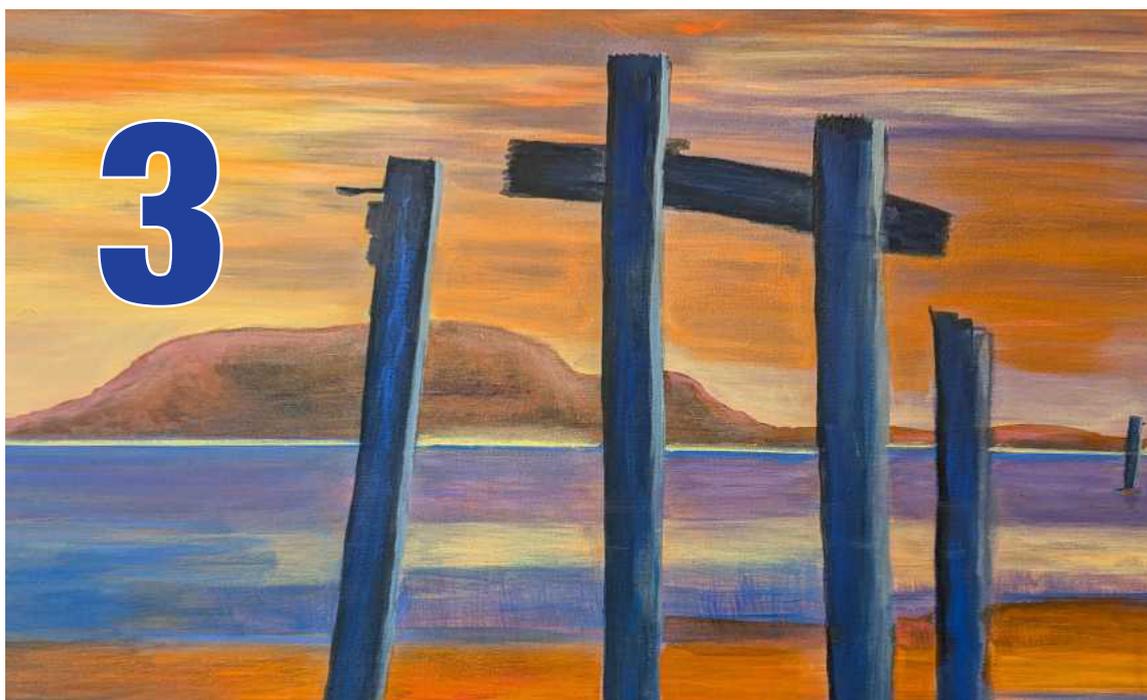
Review p. 39

	Before tariff	After tariff
Price	W	T
Quantity consumed	q4	q3
Quantity produced	q1	q2
Imports	q1q4	q2q3
Consumer surplus	a+b+c+d+e+f	a+b
Producer surplus	g	g+c
Govt revenue	-	e
Deadweight loss	-	d+f

Multiple Choice p.48: 1d; 2d; 3d; 4a; 5b; 6a; 7c; 8c; 9c; 10c; 11b; 12c; 13d; 14d; 15b

Multiple Choice p.50: 1b; 2a; 3c; 4a; 5c; 6b; 7b; 8a; 9c; 10d; 11d; 12d 13b; 14b; 15a

The Balance of Payments



Key understandings

- *the concept and structure of Australia's balance of payments*
- *the double entry system of recording transactions*
- *the reasons for Australia's current account balance in terms of the factors influencing the trade balance and the income balance*
- *the current account balance and the savings-investment gap*
- *trends in Australia's current account and financial account over the last ten years*

The structure of the balance of payments

The balance of payments is a record of all economic transactions between domestic and foreign residents.

The balance of payments is a 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 an important set of macroeconomic statistics for a country, describing its economic and financial relationships with the rest of the world. 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). The most common form of international transactions are for traded goods and services - exports and imports. But there are many other economic transactions that occur between the residents of one country and another. These 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 wages and dividend and interest payments associated with foreign investment
- transfers, such as foreign aid and funds brought by migrants and
- financial flows, such as foreign investment in shares and securities

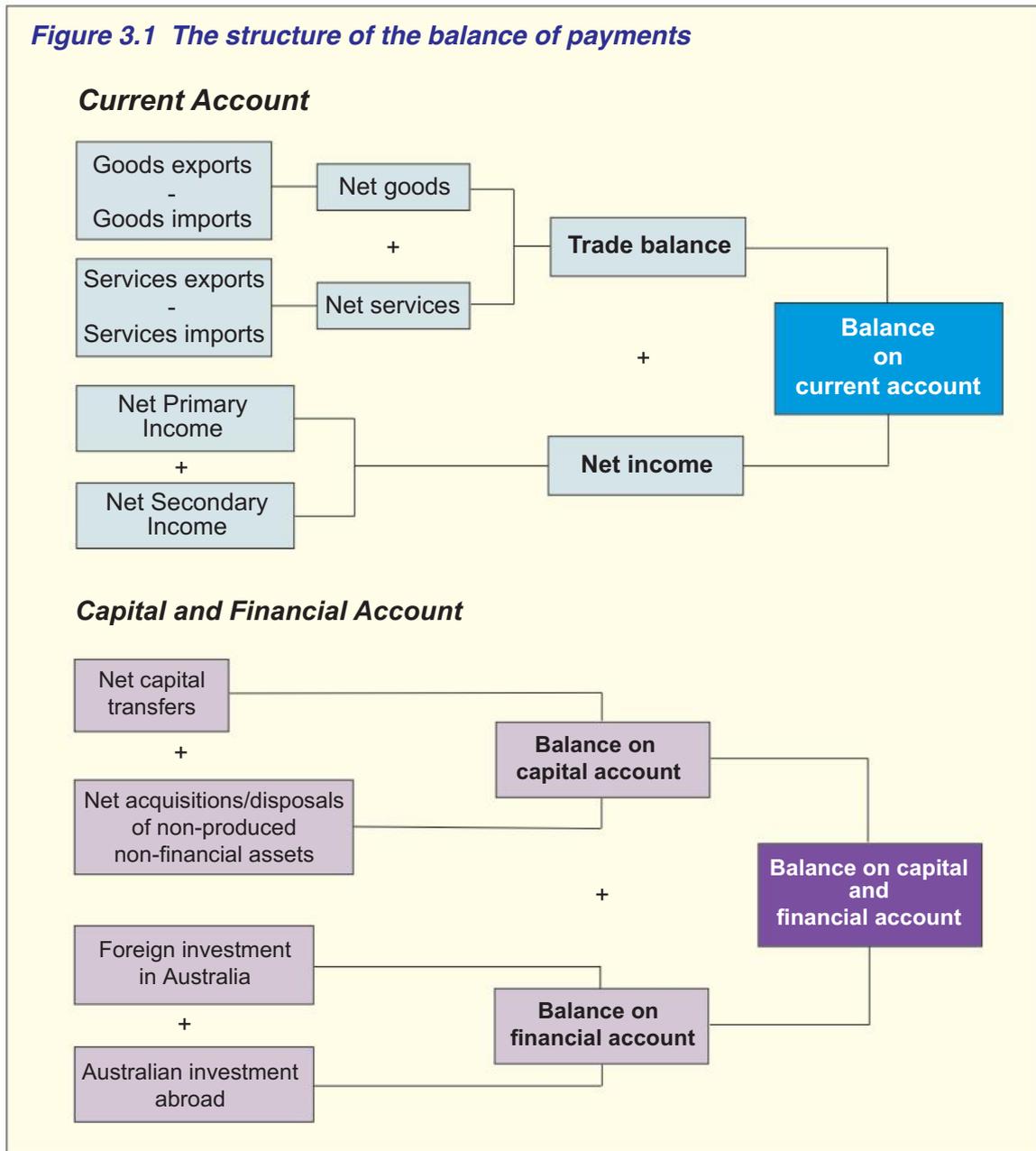
Whenever a transaction occurs involving any one of these categories between a resident of Australia and a non-resident, then it will be recorded in the balance of payments. The Australian Bureau of Statistics publishes the balance of payments statistics on a quarterly basis.

The balance of payments consists of the current account and the capital/financial account.

To help classify all the various economic transactions that occur between countries, the balance of payments is divided into two broad accounts - the **current account** and the **capital/financial account**. Figure 3.1 shows the structure of these two accounts. The current account is concerned with transactions involving trade in goods and services as well as income flows. This part of the balance of payments, especially the trade balance, is regularly reported in the media because it will affect the level of GDP in the economy.

The financial account records transactions that involve financial assets and liabilities - more commonly referred to as foreign investment. For example, if BHP purchases a mine in Brazil, then this increases Australia's financial assets. An asset is something you own. If a foreign resident purchases shares in an Australian company then this will increase Australia's foreign liabilities. A liability is something you owe. The capital account is rather small and insignificant and records financial transactions that do not affect income or production, such as the international transfer of trademarks and copyrights.

Figure 3.1 The structure of the balance of payments

**Key Points**

- *The balance of payments has TWO main accounts*
- *The current account records goods & services trade and income flows*
- *The financial account records foreign investment flows*

The double entry system

Every transaction in the balance of payments is recorded as consisting of two equal and opposite entries.

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. A **credit entry** (positive entry) is recorded when a transaction gives rise to a receipt by a domestic resident from a foreign resident, such as an export. But the actual payment of the receipt (the transfer of currency) will be recorded as a debit entry. Conversely, any transaction that gives rise to a payment by a resident to a foreign resident is recorded as a **debit entry**, such as an import. Again using the double entry system, the movement of currency that results from this transaction will be recorded as a credit.

To illustrate, imagine an Australian firm purchasing cars from Germany for \$AUD1 million and a Chinese firm purchasing iron ore from an Australian company (BHP) for \$AUD2 million. How will these transactions be recorded in Australia's balance of payments using the double entry recording system? Remember that imports and exports of goods are recorded in the current account while the movement of currency is recorded in the financial account.

The value of the imported cars will be recorded in the current account as a debit of \$1 million, while the payment of currency will be recorded as a \$1 million credit in the financial account because \$1 million of Australian currency is exported to Germany. When the Chinese firm purchases iron ore from BHP it will be recorded in the current account as a credit entry of \$2 million. This represents the value of the good exported. At the same time, the payment from China will be recorded as a debit of \$2 million in the financial account representing the import of currency. The table below shows how each of these transactions are recorded.

By convention, debit entries are recorded with a negative sign.

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 (\$3 million) will be exactly offset by the sum of all debit entries (-\$3 million). But each of the accounts can record either a deficit or a surplus. In the example above, the current account recorded a surplus of \$1 million, while the -capital and financial account recorded a deficit of \$1 million.

	Credit	Debit	Balance
Current Account	\$2 million (iron ore)	-\$1 million (cars)	\$1 million (surplus)
Capital/Financial Account	\$1 million (currency)	-\$2 million (currency)	-\$1 million (deficit)
Total	\$3 million	-\$3 million	0

Consider a different example where the transactions involve income and foreign investment rather than exports and imports. Suppose an Australian bank pays \$AUD3 million in interest associated with its overseas lending and a United States firm purchases \$AUD5 million of shares on the Australian stock exchange. 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 interest paid will be recorded in the current account as a debit of \$3 million, while in the financial account it will be recorded as a \$3 million credit, because \$3 million of currency is exported.

The sale of \$5 million of shares to a US firm will be recorded as a \$5 million credit in the financial account because the shares are exported while there will be a matching debit of \$5 million representing the import of currency. The table below shows how these transaction will be recorded in the balance of payments.

	Credit	Debit	Balance
Current Account		-\$3 million (interest)	-\$3 million (deficit)
Capital/Financial Account	\$5 million (shares) \$3 million (currency)	-\$5 million (currency)	\$3 million (surplus)
Total	\$8 million	-\$8 million	0

Notice that total credits (\$8 million) are offset by total debits (-\$8 million) so that the balance of payments balances. But in this example, the current account records a deficit of \$3 million, while the capital/financial account records a surplus of \$3 million. It is important to note that for every international transaction whether it be for goods and services, income or foreign investment, the offsetting transaction – the movement of currency – is always recorded in the financial account.

The offsetting transaction is always recorded in the financial account as a movement of currency.

Review (For answers - see p. 84)

- For each of the following transactions identify the type of transaction (good, service, income) and how the transaction would be recorded in Australia's balance of payments using the double entry system? (All figures are in \$AUD).
 - An Australian tourist spends \$5,000 on a trip to Bali
 - A student from China pay \$20,000 to Curtin University
 - An Australian firm pays \$30,000 interest on an overseas loan
 - A resident in Singapore imports \$8,000 of wine from Australia
 - An Australian superannuation fund purchases \$20m worth of shares in a Swedish company
- Dividends received from Australian holdings of foreign assets will be recorded as a _____ in the current account and a _____ in the financial account.

Australia's balance of payments

Figure 3.2 provides a breakdown of the components in the balance of payments for Australia for the past four quarters: September 2023 - June 2024. The overall balance of payments should always balance because every transaction is entered twice as both a debit and a credit. This means that the current account balance should be equal and opposite to the balance on the capital and financial account. For example if the current account balance was a deficit of \$10 million, then the capital/financial account balance would record a surplus of \$10 million. You will notice from figure 3.2 that the two balances do not sum to zero. This is because in practice errors occur in the recording and timing of certain transactions resulting in a discrepancy. For this reason the ABS adds a category called 'Net errors and omissions' to ensure that the balance of payments does balance.

The 'net errors and omissions' item ensures that the balance of payments balances.

Australia typically records a current account deficit and a capital/financial account surplus. This has been the case for most of Australia's history. The main reason is that Australia has traditionally relied on the inflow of foreign investment to supplement its domestic savings. This has resulted in Australia recording a large primary income deficit - payments of interest and dividends to service the foreign investment. Even though Australia often records a trade surplus, when added to the income deficit, the current account will record a deficit. Notice from Figure 3.2, that there have been recent quarters where the current account was in surplus. In these periods, the trade surplus exceeded the income deficit. Let's take a closer look at each of the components in each account of the balance of payments, beginning with the current account.

Australia normally records a current account deficit and a financial account surplus.

The current account

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

- 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 2024 amounted to \$130 billion. The dominance of mining exports is clearly evident - accounting for 72 per cent of total goods exports (refer to figure 3.3). Australia's largest mining exports are iron ore, coal, natural gas and gold. Goods imports totalled \$111 billion of which two thirds comprised capital & intermediate goods with consumer goods comprising

Around 72 per cent of Australia's goods exports are from the mining sector.

Figure 3.2 Australia's balance of payments

		\$ million (original)			
CURRENT ACCOUNT		Sep 2023	Dec 2023	Mar 2024	Jun 2024
Goods		21591	29607	21933	18946
	Credits	133830	141072	130909	130266
	Debits	-112239	-111465	-108976	-111320
Services		-8853	-4947	-1619	-6830
	Credits	30235	30780	31545	28572
	Debits	-39088	-35727	--33164	-35402
Balance on goods and services		12738	24660	20314	12116
Primary Income		-25820	-18125	-25441	-17647
	Credits	24897	24849	26000	26063
	Debits	-50718	-42973	-51441	-43710
Secondary Income		-482	152	-532	-727
	Credits	3304	3332	3364	3518
	Debits	-3786	-3180	-3896	-4245
Net Income		-26302	-17973	-25973	-18374
BALANCE ON CURRENT ACCOUNT		-13564	6687	-5659	-6258
CAPITAL AND FINANCIAL ACCOUNT		Sep 2023	Dec 2023	Mar 2024	Jun 2024
Capital Account	Net Capital transfers	-119	-130	-135	-157
	Net acquisition/disposal of non-produced, non-financial assets	-52	-16	181	52
Balance on capital account		-171	-146	46	-105
Financial Account	Direct investment	-2437	25701	16868	16887
	Portfolio investment	-6503	5020	-5766	53953
	Financial derivatives	8186	-36136	-8664	-32411
	Other investment	9430	-3599	9427	-27345
	Reserve assets	624	242	-2227	-1732
Balance on financial account		9300	-8772	9638	9352
BALANCE ON CAPITAL & FINANCIAL ACCOUNT		9129	-8918	9684	9247
Net errors and omissions		4435	2231	-4025	-2989

Source: ABS 5302.0

around 30 per cent. The goods trade account recorded a surplus of \$19 billion for the June quarter 2024.

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 fifth (22 per cent) the size of goods exports and are dominated by education and tourism. In June 2024, services exports amounted to \$29 billion. The largest proportion of this was travel which includes overseas tourists and students travelling to Australia. The export of education services has become an important industry for Australia and is now Australia's fourth largest export. In the June quarter, education exports totalled \$12 billion and for the 2024 financial year summed to over \$50 billion. Australia's services imports are around 30 per cent the size of goods imports. Australia normally records a net services deficit due to Australian tourists travelling overseas and freight costs. In June 2024, services imports amounted to \$35 billion - \$7 billion more than service exports.

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 financial capital).

Education is Australia's largest service export while outbound tourism is Australia's largest service import.

Figure 3.3 The current account

Goods June qrt 2024 \$ million	
Exports (credits)	
Rural	16577
Mining	93331
Manufacturing	19373
Other	985
Total	130266
Imports (debits)	
Consumer goods	-34603
Capital goods	-26691
Intermediate	-47884
Other	-2142
Total	-111320

Services June qrt 2024 \$ million		
	Exports (credits)	Imports (debits)
Transport	1811	-6698
Travel	17420	-16768
Business services	7883	-10162
Total	28572	-35402

Primary Income June qrt 2024 \$ million		
	Credits	Debits
Compensation of employees	645	-3459
Investment income	25417	-40251
- Equity	19740	-24634
- Interest	5677	-15617
Total	26063	-43710
Primary Income balance	-17647	

Compensation of employees is the payment of wages and salaries to workers who are employed in an overseas country and is relatively small compared with the flow of investment income. Investment income accounts for more than 95 per cent of all income transactions.

Australian residents receive income payments from overseas investments (credits) and make income payments to foreign investors (debits). There are two main types of investment income – dividend payments associated with ownership of shares (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 2024, Australia received \$25 billion of investment income from overseas countries, but paid out \$40 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.

Australia's large income deficit is due to the inflow of foreign investment.

The net balance in primary income for the June quarter 2024 was a deficit of \$17.6 billion. The net outflow of income in 2023-24 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 increase.

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 2024 was a deficit of \$0.7 billion.

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 2024, the goods and services balance was a surplus of \$12.1 billion while the income balance was a deficit of \$18.4 billion. This meant that the balance on current account was equal to a deficit of \$6.3 billion.

The Current Account	
	<i>Balance on Goods and Services</i>
+	<i>Net Income</i>
=	<i>Balance on Current Account</i>

Review

1. Define the balance of payments?
2. Identify the two accounts in the balance of payments?
3. Provide an example of a service export, a service import, an income receipt and an income payment.
4. Distinguish between a credit and a debit entry in the balance of payments.
5. Explain the double entry accounting system.
6. Describe the three main categories that comprise the current account?

The capital and financial account

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 both inward and outward foreign investment. Australia normally records a financial account surplus because for most of its history Australia has relied on a net inflow of foreign investment. 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 2024, 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. **Foreign direct investment** (FDI) 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 foreign

The financial account records transactions associated with foreign investment.

Figure 3.4 The capital & financial account

Capital Account June 2024		Financial Account June 2024	
	\$ million		\$ million
Net Capital transfers	-267	Direct investment	-6956
Net acquisition/disposal of non-produced, non-financial assets	56	Portfolio investment	42449
Total	-211	Financial derivatives	-1726
		Other investment	-51977
		Reserve assets	-462
		Total	-18672

investor obtains 10 per cent or more of the equity of a foreign enterprise, then this is deemed to be direct investment. Foreign direct investment can be thought of as investment into a country's productive assets. In the June quarter 2024, there was a net inflow of direct investment of \$7 billion.

Foreign portfolio investment (FPI) refers to financial investments made in securities, bonds and other financial assets. Foreign 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 since investment results in less than 10 per cent equity). In June 2024, there was a net inflow of portfolio investment of \$42 billion. This is fairly typical and reflects the attractiveness of the Australian economy to overseas investors. Other types of foreign investment include financial derivatives and reserve assets.

FDI is associated with investment in a country's productive assets, while FPI is investment in a country's financial assets.

The overall balance of payments must always sum to zero. This means that if the current account is in deficit, then the capital and financial account will be in surplus and equal to the current account in absolute value (plus any net errors & omissions). In the June quarter 2024, Australia's current account deficit was \$6.3 billion, the capital and financial account surplus was \$9.2 billion, which meant that net errors and omissions was -\$2.9 billion.

Balance of Payments	
	<i>Balance on Current Account</i>
+	<i>Balance on Capital and Financial Account</i>
+	<i>Net errors and omissions</i>
=	<i>0</i>

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.

Key Points

- *Over the past three years Australia has recorded large trade surpluses*
- *Australia's income balance always records a deficit*
- *Australia's current account normally records a deficit while the financial account normally records a surplus*

Review

1. *The table opposite records transactions between the country of Ecoland and the rest of the world. Calculate the following balances for the economy of Ecoland:*
 - balance on goods and services*
 - net income*
 - current account balance*
2. *What types of transactions are recorded in the financial account?*
3. *Identify the two main types of foreign investment.*
4. *Fill in the missing values for the table opposite - figures are in \$ millions (assume the balancing item is zero).*

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

Category	Year 1	Year 2
Goods exports	3000	1000
Goods imports	1500	2000
Net services	-500	....
Trade balance	....	-1300
Net primary income	-500	-1500
Net secondary income	250	....
Current account balance	....	-2600
Balance on capital and financial account	....	....

Trends in the current account

Figure 3.5 shows the trends in the various categories of the current account since 2015. The figures represent annual data. Notice that the current account balance has fluctuated from a deficit of \$78 billion in 2016 to a surplus of \$63 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 deficit of \$27.5 billion, whereas in 2023, Australia's goods balance was a record \$151 billion surplus.

The services balance normally records a deficit due to Australia's large imports of travel and transport services. This was the case for eight out of the ten years shown in figure 3.5. 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 (known as personal travel), such as Australians travelling to Bali, is also one of Australia's largest imports. Australia recorded a deficit in net services between 2015 and 2019. Between 2020-2021, net services recorded a surplus due to the travel restrictions imposed by the Australian government during the Covid pandemic. Notice that in the years after the pandemic, net services once again recorded deficits.

The net income category for Australia is always in deficit. This is due to the normal net inflow of foreign investment into the Australian economy. This means that income payments to foreign investors, in the form of dividends and interest, are usually much larger than income receipts from Australia's overseas investments. 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 six of the 10 years shown in figure 3.5.

Net income always records a deficit in Australia's current account.

Figure 4.5 Trends in the current account (annual data)

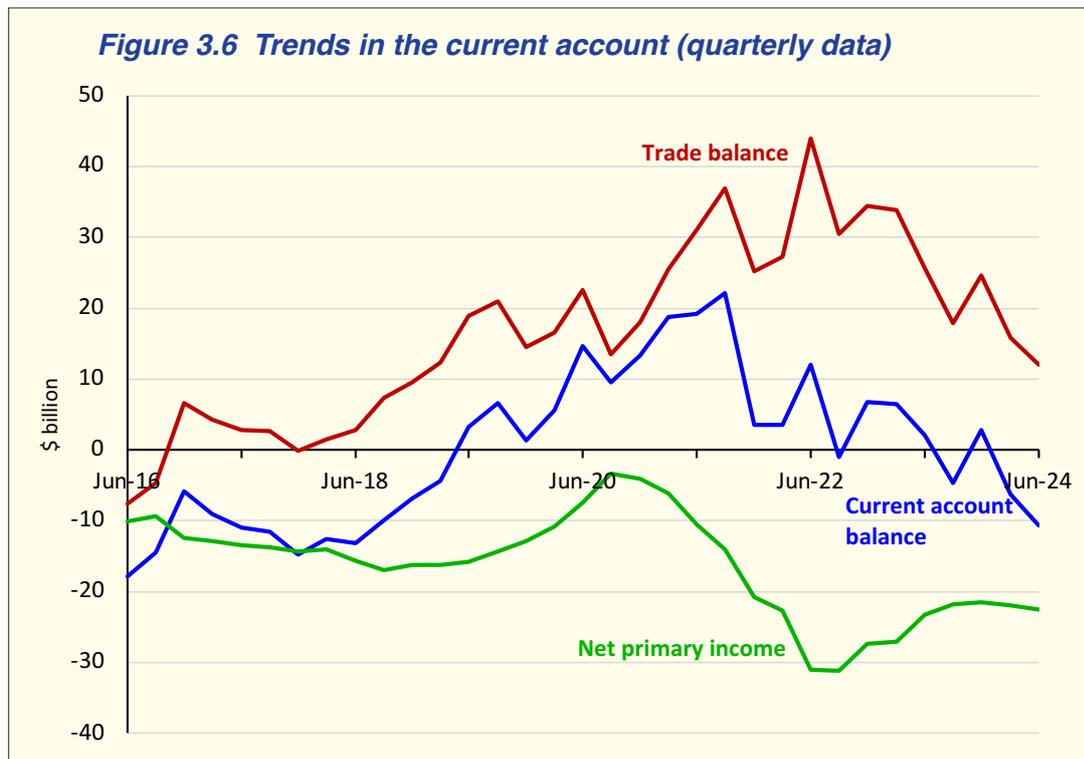
Year	Goods	Services	Trade balance	Primary income	Secondary income	Net Income	Current account
Jun-2015	-13507	-10507	-24014	-33173	-2846	-36019	-60033
Jun-2016	-27534	-10127	-37661	-39350	-613	-39963	-77624
Jun-2017	13584	-4526	9058	-48197	-1372	-49569	-40511
Jun-2018	12665	-6024	6641	-58143	-784	-58927	-52287
Jun-2019	53353	-5097	48256	-65535	-731	-66266	-18010
Jun-2020	70975	4275	75250	-44821	-1220	-46041	29210
Jun-2021	74427	14378	88805	-23004	-3338	-26342	62462
Jun-2022	143901	-10499	133402	-87842	-3477	-91319	42083
Jun-2023	150634	-26187	124447	-109561	-1551	-111112	13336
Jun-2024	92077	-22249	69828	-87033	-1590	-88623	-18794

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 2020-23 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. Combined with the significant fall in the income deficit, it resulted in large current account surpluses.

Figure 3.6 shows changes in the current account on a quarterly basis, rather than annual. The graph reveals a number of important characteristics:

- the trade and current account balance have a strong positive relationship
- the trade balance is generally more volatile than the income balance
- the trade balance fluctuates from deficit to surplus responding to changes in both domestic and global economic activity
- the income balance is normally in deficit due to Australia's reliance on foreign investment
- in 2019 Australia recorded its first current account surplus in over 50 years

In the period following the pandemic, the economy recovered strongly. As income and investment increased, imports grew. Combined with falling commodity prices, the trade balance began falling.



The primary income balance also fell due to higher company profits and outflows of dividends. By 2024, the current account balance returned to a deficit. What are some of the main causes driving the current account balance? It is important to analyse separately the factors that affect the goods and services (trade) balance and the factors that affect the income balance.

Factors affecting the trade balance

The trade balance is determined by changes in both exports and imports. The demand for our exports is determined by other economies. For example, our most important export markets are China, Japan and South Korea. If these economies expand then they will demand more of our exports - from both our mining and agricultural sectors - which will increase both the trade balance and the current account balance. This is a quantity effect. The opposite will happen if these economies contract. For example, if China's economy were to slow, then it is likely that Australia would suffer a recession because China is our dominant export partner.

The value of exports is also determined by changes in price. Remember that the largest category of Australia's exports are primary commodities. These include mineral and energy resources such as iron ore, coal, natural gas and gold as well as rural commodities such as wheat, wool and barley. Commodities account for around 85 per cent of Australia's goods exports. If global demand for commodities increases, then their price increases and this increases the value of Australia's commodity exports. So even if the volume of exports does not change, export values will rise from higher prices. The record trade surpluses in 2022 and 2023 were largely due to record **commodity prices**.

An increase in commodity prices will increase the value of Australia's exports.

The rate of economic growth in Australia can have an impact on the trade balance by affecting the demand for imports. 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. Increases in national income will increase household consumption, increasing the demand for imported consumer goods and services. So faster economic growth in Australia normally decreases the trade balance. When domestic 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.

An increase in domestic economic activity will increase imports which will decrease the trade balance.

Movements in the exchange rate can also affect the trade balance by changing the price of exports and imports. If the Australian dollar falls relative to other exchange rates - referred to as a depreciation, then Australian goods and services become cheaper for foreign buyers. At the same time, foreign goods and services will become more expensive for Australian buyers. So a depreciation of the Australian dollar (AUD) will tend to increase the trade balance because

Key Points - factors increasing Australia's trade balance

- *An increase in commodity prices will increase the trade balance*
- *An expansion in the world's major economies such as China, the United States & Japan will increase the trade balance*
- *An increase in domestic economic activity will increase imports and decrease the trade balance*
- *A depreciation of the AUD will increase net exports*
- *A decrease in Australia's inflation rate will increase net exports*

exports are likely to increase and imports will fall. An appreciation will have an opposite effect - causing the trade balance to decrease. Other factors that can affect the value of net exports are relative inflation and wage rates. For example, if Australia's inflation rate is higher than our trading partners, then Australia's goods and services will be less competitive causing a decrease in net exports.

Factors affecting the income balance

The income balance in the current account is normally less volatile compared to the trade balance. The income account consists of both primary and secondary income, but it is primary income which is by far the larger and more important of the two. While the trade balance can fluctuate between deficit and surplus, the income balance is always in deficit. This is because Australia traditionally relies on a net inflow of financial capital to supplement its domestic savings. This inflow of foreign investment has helped develop the economy, including the growth of the mining industry. 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.

If Australia's economy performs strongly then company profits will rise and this will increase dividend payments to overseas investors and cause the income deficit to widen. The growth in Australia's primary income deficit over time has paralleled the build-up in the stock of foreign investment. Much of the foreign investment into Australia is in the form of foreign debt. If world interest rates rise, then the interest repayments will increase and cause the primary income

Review

Explain the effect of each of the following on Australia's current account balance:

1. *An increase in Australia's commodity prices*
2. *A recession in Australia*
3. *A recession in China*
4. *A depreciation of the \$AUD*
5. *An increase in foreign investment into Australia*

deficit to increase. During the Covid pandemic years, 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 current account surplus.

The savings-investment gap

There are two ways of viewing a current account balance. Firstly, the current account balance is equal to the trade balance and the income balance between Australia and the rest of the world. A current account surplus will occur if a nation's exports and income received from overseas 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. For example, an increase in a country's inflation rate, relative to other economies, 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 3.7. Remember the current account balance is equal to the difference between exports and imports plus net income from overseas (NI). 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).

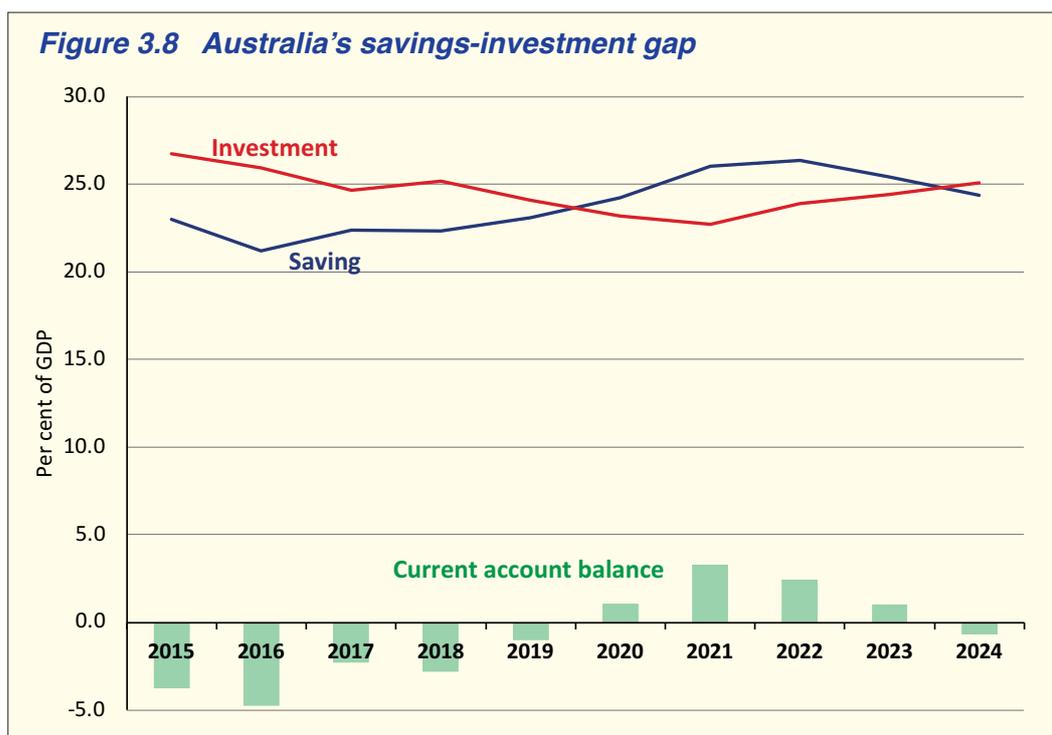
This is referred to as the country's '**saving – investment gap**'. What this means is that if a country's saving exceeds its investment ($S > I$), then it will have a current account surplus. If a country's investment is greater than its savings ($I > S$), then it will have a current account deficit. 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.

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

Figure 3.7 The $CAB = S - I$	
(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 (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 3.8 shows Australia's annual saving, investment and current account balance as a percent of GDP since 2012. Notice that between 2015 and 2019, Australia's investment exceeded its savings - in other words a negative savings-investment gap which resulted in current account deficits. For the period 2020-23, however, saving exceeded investment and this resulted in Australia recording current account surpluses.

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 (27 million), is usually not able to generate 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'.

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 3.9 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.

Is Australia a low saving nation? No – Australia's saving rate is similar to the average of the OECD economies.

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 country's savings and investment.

Figure 3.9 National savings and investment comparison

Country	National Savings	National Investment	Current Account Balance
Australia	23.4	24.8	-1.4
Canada	21.0	23.9	-2.9
European Union	24.5	21.9	2.6
Japan	27.9	25.2	2.7
United Kingdom	14.3	17.8	-3.5
United States	18.8	21.1	-1.3
Average OECD	22.4	22.4	0.0

Figures are % of GDP average for 2012-23 Source: World Bank

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 per cent of GDP. This means that the capital and financial account balance must have averaged +3 per cent of GDP. In June 2024, Australia recorded a current account deficit equal to 1.6 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 result in a positive savings-investment gap and 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 commodity prices - if the prices of iron ore, coal, natural gas and other commodities fall, then the value of Australia's exports will fall, decreasing the trade balance and the current account 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 domestic inflation will increase the prices of Australian goods and services relative to overseas goods and services reducing the country's competitiveness and decreasing both the trade and current account balance.
- 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 and current account 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 interest payments) and decrease the current account balance.
- 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 relative to saving 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.

Review

1. If $S > I$, then the current account will record a _____ .
2. If $I > S$, then the current account will record a _____ .
3. During a recession, investment will _____ while savings will _____ causing the current account balance to _____ .

Chapter Summary

- *The balance of payments is a record of all economic transactions between the residents of Australia and the residents of the rest of the world.*
- *The balance of payments is divided into two broad accounts – the current account and the capital/financial account.*
- *The current account is concerned with transactions involving trade in goods and services and income.*
- *The financial account records transactions that involve financial assets and liabilities - more commonly referred to as foreign investment.*
- *Every transaction in the balance of payments is recorded as consisting of two equal and opposite entries - this ensures that the balance of payments 'balances'.*
- *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.*
- *The current account balance is equal to the trade balance plus the net income balance.*
- *Australia's trade balance fluctuates from deficit to surplus, depending on factors such as commodity prices and domestic economic activity.*
- *Australia's services balance normally records a deficit due to Australia's large imports of travel services (Australian tourists travelling overseas).*
- *The net income category for Australia is always in deficit. This is due to the net inflow of foreign investment into the Australian economy.*
- *The two most important income flows are dividends and interest.*
- *An increase in foreign investment into the Australian economy will increase the income deficit and decrease the current account balance.*
- *An increase in China's GDP will increase Australia's net exports and increase the trade balance.*
- *An increase in commodity prices will increase Australia's net exports and increase the trade balance.*
- *An increase in domestic economic activity will increase imports and decrease the trade balance.*
- *An exchange rate depreciation will increase net exports and increase the trade balance.*
- *An exchange rate appreciation will decrease net exports and decrease the trade balance.*
- *The current account balance is equal to the difference between a country's total savings and its total investment: $CAB = S - I$. This is referred to as the country's 'saving – investment gap'.*
- *If $S > I$ (positive S-I gap), the current account will record a surplus; if $I > S$ (negative S-I gap), the current account will record a deficit.*

Chapter Review

Multiple choice - test 1

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
- trade deficit.
 - goods and services deficit.
 - net income deficit.
 - financial account deficit.
9. Which item is not included in the current account of a country's balance of payments?
- Exports of services
 - Interest on foreign loans
 - The inflow of foreign capital
 - Profits from foreign investments
10. The main source of fluctuations in the current account balance is
- net income.
 - foreign debt.
 - foreign investment.
 - net exports.
11. In a country's accounts with the rest of the world, a surplus on the current account must be offset by
- a deficit on the capital and financial account.
 - a surplus on the current account.
 - increased borrowing on the capital and financial account.
 - an appreciation of the domestic currency.
12. When the level of economic activity _____ there will be a tendency for the trade balance to decrease as imports _____
- increases, increase
 - decreases, increase
 - increases, decrease
 - decreases, decrease
13. Refer to the data opposite. Which of the following statements is correct?
- The capital and financial account has a deficit of \$10 billion.
 - The current account has a surplus of \$10 billion.
 - The trade balance has a surplus of \$20 billion.
 - The capital and financial account has a surplus of \$10 billion.

Balance of payments items	\$ billion
Exports	430
Imports	410
Net services	-10
Net income	-20

14. When a Swiss company purchases an Australian company for \$50 million, the value of that transaction is recorded in the
- income account.
 - current account.
 - financial account.
 - 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 decrease in services exported
 - A decrease in services imported
 - An increase in services exported
 - An increase in services imported

Articles for analysis

Read the two articles below and answer the questions that follow.

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 - the current account deficit averaged 5 per cent of GDP.

Period	CAB (% Of GDP)
Mining boom (2002–2012)	-5.0
Post mining boom (2013–2019)	-3.0
Current - including Covid (2019–24)	+1.2

The mining boom in Australia ended in 2012. Between 2013-19, Australia's current account deficit averaged just -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 2019-23, 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 experienced a recession due to the pandemic - investment collapsed, while household saving increased to record levels. The combination of falling investment and rising saving resulted in the current account recording surpluses.

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 'smooths' 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.

Questions - Article 1

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.

Questions - Article 2

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

Multiple choice - test 2

1. 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.
2. 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.
3. 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.
4. Which of the following usually contributes most to Australia's current account deficit?
 - a. net primary income.
 - b. net services.
 - c. net secondary income.
 - d. net goods.
5. 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.
6. 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.

7. An increase in a country's current account deficit in the balance of payments
- must be accompanied by an equivalent deficit in the capital and financial account.
 - can be caused by an increase in the country's economic growth.
 - must eventually lead to a decline in the country's terms of trade.
 - can be caused by an increase in the country's aggregate saving.
8. An increase in the current account deficit is most likely to be a result of
- a decrease in economic growth.
 - a fall in the exchange rate.
 - domestic investment being greater than domestic saving.
 - an increase in exports.
9. If Australia's saving-investment ($S - I$) gap is positive, then
- the Australian dollar will appreciate.
 - the Australian dollar will depreciate.
 - Australia's net foreign investment will be positive
 - Australia's current account balance will be positive.
10. Which of the following is most likely to cause an increase in Australia's current account deficit?
- a decrease in national savings
 - a decrease in Australian overseas aid
 - an increase in the Federal Government's budget surplus
 - an increase in the number of overseas students studying in Australia
11. Which of the following statements is correct?
- a country will have a current account surplus if it imports more than it exports.
 - a country will have a capital and financial account deficit if it imports more than it exports.
 - a country that has a current account surplus will lend savings to the rest of the world.
 - a current account deficit is an indication that a country has an excessively high level of imports.
12. Refer to the data table opposite.
The balance on current account is
- \$400 million.
 - \$400 million.
 - \$0 million.
 - it cannot be determined with this data.

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

13. In 2023, Australia recorded a financial account deficit. The reason for this was
- foreign investment into Australia was less than Australian investment abroad.
 - Australia's exports of goods and services exceeded its imports.
 - Australia recorded a net income deficit.
 - Australia's net foreign debt decreased.
14. Which one of the following would be recorded as a debit in Australia's balance of payments on current account?
- The sale of Australian wool to Italy
 - An increase in the number of foreign tourists visiting Australia
 - Interest paid on Australian Government bonds to overseas investors
 - A Chinese company purchasing a farming property in rural Australia

Articles for analysis

Read the article below and answer the questions that follow.

Australia records current account surplus during the Covid recession! (1)

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 whopping \$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 dividends being paid to offshore investors.

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!

Australia records consecutive current account deficit (September 2024)

Australia's current account balance fell by \$4.4 billion to a deficit of \$10.7 billion in the June quarter 2024 (seasonally adjusted, current prices), according to figures released today by the Australian Bureau of Statistics (ABS). The ABS head of International Statistics, said: "This quarter's current account deficit was the largest since June quarter 2018, reflecting continued falls in bulk commodity prices and higher income paid to non-residents."

The balance on goods and services fell \$3.9 billion to \$12.0 billion, and the net primary income deficit rose \$0.5 billion to \$22.5 billion. Exports of goods fell 4.4 per cent, with lower prices for iron ore and coal driving the decrease.

Exports of cereal grains also fell due to reduced Australian wheat production in the 2023-24 season following record highs in the last two seasons. Exports of services partly offset the fall in goods exports led by education-related travel services. Imports of services rose 1.1 per cent following two consecutive quarterly falls. Imports of travel services increased with Australians travelling for longer and spending more. (Source: ABS 5302)

Questions Article 1

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?

Questions Article 2

1. Calculate the size of the net income deficit for June 2024
2. Identify from the extract, Australia's largest service export and largest service import.
3. Outline the two reasons for the rise in the current account deficit for June 2024.
4. Provide two examples of bulk commodity prices.
5. Explain why a fall in bulk commodity prices causes the current account balance to decrease.

Extended responses

Each of the following questions should be answered in 1-2 pages of writing. Include examples where appropriate. Pay attention to the allocation of marks..

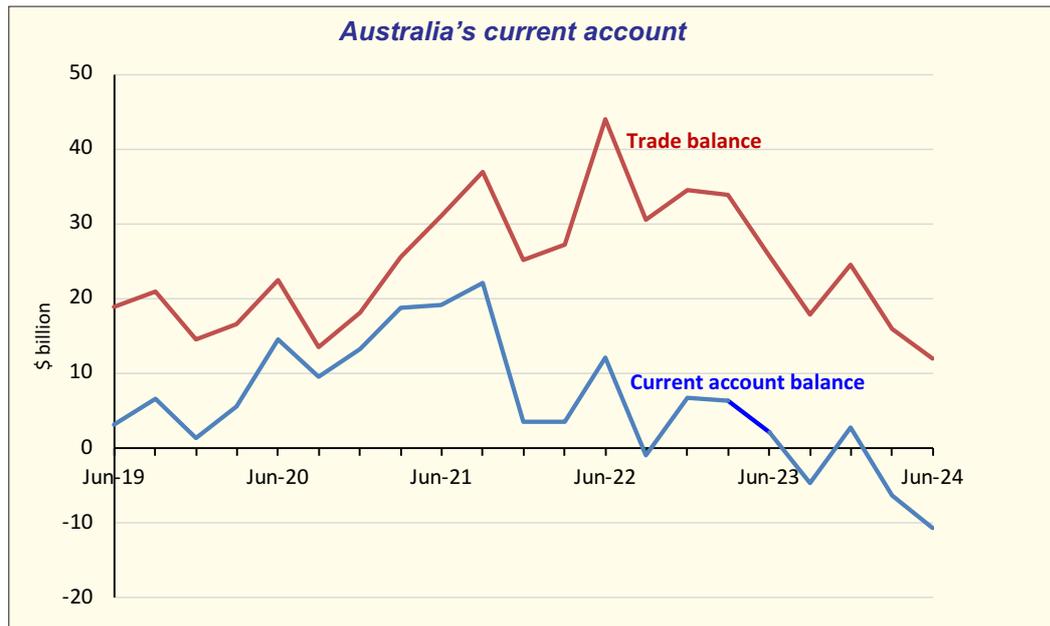
1. a. Describe the structure of Australia's balance of payments accounts. Provide examples of transactions in goods, services, income and financial assets. [7 marks]
- b. Describe four factors affecting Australia's current account balance. [8 marks]
2. a. Explain the link between the savings – investment gap and the current account balance. [7 marks]
- b. During the period 2019-2023 Australia recorded successive current surpluses. Describe four factors causing this outcome. [8 marks]

Past exam questions

1. Which of the following would be recorded as a credit in Australia's current account?
 - a. A New Zealand citizen buys a holiday home in Perth.
 - b. A New Zealand company invests in an Australian mine.
 - c. An Australian company sells wine to New Zealand.
 - d. An Australian mining company pays dividends to its New Zealand shareholders.
2. A financial account surplus would result in
 - a. a decrease in Australia's net foreign liabilities.
 - b. an increase in Australia's net foreign liabilities.
 - c. an increase in Australia's holding of foreign assets.
 - d. a reduction in inward foreign investment into Australia.
3. 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. a higher rate of economic growth boosting demand for imports.
 - d. excessive domestic savings compared with investment requirements.
4. Refer to the graph showing Australia's current account on p. 84.
 - a. Estimate the value of the income balance in June 2024.
Income balance = \$ _____ (1 mark)
 - b. Identify the trend in the current account balance from 2022 to 2024
Trend: _____ (1 mark)
 - c. Describe two economic reasons for this trend. (4 marks)

Reason 1: _____

Reason 2: _____



Selected Answers

Review page 59

- 1a. Service import: \$5,000 debit in the current account; \$5,000 credit in the financial account
 - b. Service export: \$20,000 credit in the current account; \$20,000 debit in the financial account
 - c. Income: \$30,000 debit in the current account; \$30,000 credit in the financial account
 - d. Good export: \$8,000 credit in the current account; \$8,000 debit in the financial account
 - e. \$20m credit in the financial account; \$20m debit in the financial account
2. Credit in the current account; debit in the financial account

Review page 66

1. Balance of trade = \$150 million
Net income = -\$50 million
Current account balance = \$100 million (surplus)

Review page 70

1. increase; 2. increase; 3. decrease; 4. increase; 5. decrease

Review page 75

1. surplus
2. deficit
3. decrease; increase; increase

MC - test 1: 1d; 2d; 3a; 4a; 5a; 6d; 7d; 8c; 9c; 10d; 11a; 12a 13d; 14c; 15a

MC - test 2: 1a; 2a; 3c; 4a; 5c; 6c; 7b; 8c; 9d; 10a; 11c; 12b 13a; 14c

Past exam questions page 83

- 1 c; 2 b; 3 b; 4a. -\$22 billion; 4b. Decreasing

The Terms of Trade



Key understandings

- *the concepts of the terms of trade and the terms of trade index*
- *factors that affect the terms of trade, including changes in commodity prices*
- *trends in Australia's terms of trade over the last ten years*
- *the effects of changes in Australia's terms of trade*

Introduction

The terms of trade measures the relative movements in the prices of exports and imports.

The **terms of trade** - the ratio of export prices to import prices - is an important economic measure because it can affect a country's economic prosperity. It reflects the capacity of any given volume of exports to pay for a quantity of imports. This means that a rise in the terms of trade enables Australia to buy more imports for a given quantity of exports. Changes in the terms of trade also can have a significant effect on Australia's business cycle - affecting key economic indicators such as real GDP, national income and the exchange rate. The terms of trade is calculated by 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 an important influence on the trade and current account balance and national income.

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

Let's use a simple example to illustrate. Assume BHP is receiving \$US100 per tonne of iron ore and is exporting 1 billion tonnes. This means that the value of their exports equals \$US100 billion. If the world price of iron ore rises to \$US120 per tonne, the value of their 1 billion exports is now \$US120 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 refined petroleum. If oil prices increase from \$US75 per barrel to \$US85 per barrel, then the cost of petroleum imports will increase by around 13 per cent. So a rise in oil prices, ceteris paribus, will increase the import price index. This will reduce the purchasing power of Australian households and firms.

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)

If the terms of trade rise, (that is, if export prices rise relative to import prices) then a given quantity of exports will purchase a greater quantity of imports. 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**'. When import prices rise relative to export prices, then this is referred to as an '**unfavourable movement**'. Why? Because now a given quantity of exports will purchase a smaller quantity of imports.

An index number is a statistical technique 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 4.1. A base year (year 1) is selected and assigned an index value of 100. Normally we would assign a 'weight' to each item in the index to reflect its relative importance. But in our basic example, we are not using weights. 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 (XPI) equals 105 (420/400). The import price index (MPI) 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 (ToT) for year 2 we divide the XPI (105) by the MPI (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. 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.

Figure 4.1 Constructing a terms of trade index

	Price (\$ per unit)			
	Year 1	Year 2	Year 3	Year 4
Exports				
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 year 2. Between year 2 and year 3, export prices increased by 4.8 per cent.

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. Between year 2 and 3, import prices increased by 1.8 per cent.

The ToT calculation for year 2 is:

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

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 our hypothetical terms of trade for the four years.

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

Review

1. Construct an export price index and an import price index for year 3 in the table opposite.
2. Calculate the terms of trade for years 2 and 3.
3. Which export showed the greatest percentage increase in price over the three years?
4. Which import showed the greatest percentage increase in price over the three years?
5. Describe the movement in the terms of trade for years 2 and 3.
6. When must the terms of trade of a country decrease?
 - a. When the volume of exports falls and the volume of imports rises
 - b. When the total value of exports falls and the total value of imports rises
 - c. When the average price of exports falls and the average price of imports falls
 - d. When the average price of imports rises relative to the average price of exports
7. 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 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%.
8. From the table below it can be concluded that over the period:
 - 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 decrease in the terms of trade.

	Prices		
	Year 1	Year 2	Year 3
Exports			
Wheat	75	70	65
Coal	85	90	110
Iron Ore	90	120	135
Total	250	280	310
Imports			
Machinery	70	75	80
Refined petrol	65	70	75
Computers	85	80	80
Total	220	225	235
Export Price Index	100	112	....
Import Price Index	100	102	....
Terms of Trade	100		....

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

Factors affecting the terms of trade

A knowledge of the composition of Australia's trade is useful in understanding the movements in 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. Australia's exports consist mainly of primary commodities from both the mining and agricultural sectors. Australia's imports, on the other hand, are dominated by manufactured goods.

Commodity prices and the export price index

Australia has, over a long period of time, benefitted from a comparative advantage in the production of primary commodities, both from the mining and agricultural sectors. For example, Australia has the world's largest reserves of iron ore, the third largest reserves of coal and is the largest producer of lithium. Commodity exports account for around three quarters (75 per cent) 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, crude oil and lithium. This means that the most important determinant of Australia's export price index are **commodity prices**. If commodity prices rise, Australia's export price index will rise and, *ceteris paribus*, so will the terms of trade.

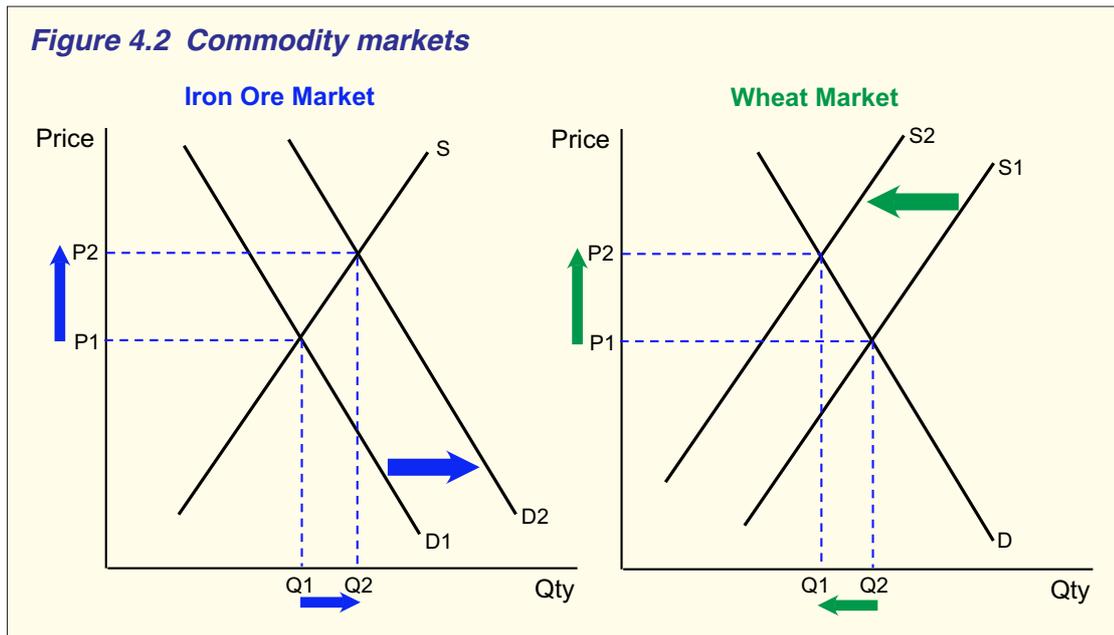
Commodities are split into two categories: hard and soft. Hard commodities must be mined, such as iron ore, gold, and coal, while soft commodities are rural products such as coffee, wheat and wool.

Due to their importance in determining Australia's export price index, the Reserve Bank of Australia compiles an index to record and monitor movements in Australia's commodity prices, known as **the commodity price index**. The composition of this index is shown in the sidebar, with individual weights for both individual commodities and sub groups. Notice that the mining sector accounts for 90 per cent of the index, with the agricultural sector accounting for just 10 per cent.

The prices of commodities are determined in the global market by the forces of demand and supply. But commodities such as minerals and rural goods have a special characteristic - they tend to be relatively inelastic in both demand and supply. This means that both the demand curve and the supply curve are relatively steep. The significance of this is that small shifts in either demand or supply will result in large fluctuations in price.

First consider the case of an increase in the price of a commodity such as iron ore due to an increase in demand. This is illustrated in Panel A of figure 4.2.

Commodity	Weight
Rural Commodities	10.2
Beef and veal	2.3
Wheat	3.2
Base Metals	2.9
Aluminium	1.2
Copper	1.1
Bulk Commodities	54.6
Iron ore	28.1
Metallurgical coal	14.2
Thermal coal	12.3
Other Resources	32.3
LNG	17.9
Crude oil	2.9
Gold	5.3
Lithium	2.7
Total	100.0



Suppose the Chinese economy expands, shifting the world demand curve for iron ore to the right. This causes the price to increase from P_1 to P_2 and quantity sold to increase from Q_1 to Q_2 . Australia's iron ore exporters such as BHP and Rio Tinto will be extremely happy - they will now sell a greater quantity at a higher price. Australia's export price index will increase and the value of Australia's iron ore exports will increase boosting national income.

Commodity prices also include the prices of rural goods, such as wheat, wool and beef. For example, increased global demand for food and/or droughts will cause the prices of rural commodities to rise which will increase Australia's export price index. Panel B in figure 4.2 shows the world wheat market. Suppose there is a global drought causing the world supply curve for wheat to shift to the left. The price of wheat increases from P_1 to P_2 while the quantity sold decreases from Q_1 to Q_2 . Farmers are getting higher prices but selling less. But notice that the increase in price is greater than the decrease in quantity - Why? Because demand is inelastic. So negative supply shocks in commodity markets will also increase Australia's export price index and lead to an increase in the value of exports.

What can cause commodity prices to fall and therefore decrease Australia's export price index? The answer is either a decrease in demand and/or an increase in supply. For example, when the world economy contracts, then the demand for commodities will fall, reducing the value of Australia's exports and decreasing Australia's national income. Figure 4.3 shows Australia's commodity price index from September 2016 to September 2024. Between 2016 and 2020 there was a steady rise in the index from around 38 to 65.

Figure 4.3 Australia's commodity price index

The index fell, unsurprisingly, during the Covid period of 2019-2020. But in the period after 2020, there was a massive surge in commodity prices as the global economy recovered. The index reached its highest value in 2022.

The import price index

The import price index is also important in determining the terms of trade. One of Australia's most important imports is refined petroleum. If world oil prices increase, then Australia's import price index will increase and, *ceteris paribus*, this will decrease Australia's terms of trade. During 2022-24, for example, oil prices spiked due to the Ukraine-Russia war and tensions in the Middle East. Higher oil prices will potentially affect the price of all imports because it increases energy costs as well as transport costs. Supply bottlenecks that were common during the Covid pandemic period also contributed to rises in import prices. Any factor that causes an increase in the costs of production for manufactured goods will increase Australia's import price index. When the import price index rises relative to the export price index, the purchasing power of Australian income falls.

The bulk of Australia's imports are manufactured goods and capital goods. Goods such as motor vehicles, machinery, consumer appliances as well as information and communications technology (ICT) goods. ICT goods include computers, mobile phones, tablets and electronic goods. The prices of ICT goods tend to fall over time due to advances in technology which reduces production costs. Australia has benefitted from China becoming the world's largest factory helping to reduce the prices of many manufactured goods.

Changes in global oil prices have a significant impact on Australia's import price index

Trends in the terms of trade

Figure 4.4 shows the movement in Australia's terms of trade since 2014. Notice how the terms of trade is more closely correlated with the export price index compared to the import price index. A second important point highlighted by this graph is that Australia's import price index (MPI) is relatively less volatile compared with the export price index (XPI). For example, the import price index fluctuates from a low of 83 to a high of 112 - a range of 29. The export price index, on the other hand, fluctuates from a low of 64 to a high 114 - a range of 60. So over this 10 year period, the XPI is twice as volatile as the MPI!

The reason for this is that the supply of manufactured goods is more elastic than the supply of primary commodities, which results in a relatively flat supply curve. This means that when demand either increases or decreases, there is little effect on price. Improvements in technology also have a significant effect on decreasing the cost of most manufactured goods over time helping to reduce the volatility in prices. This is especially the case with ICT goods, such as computers and electronic equipment.

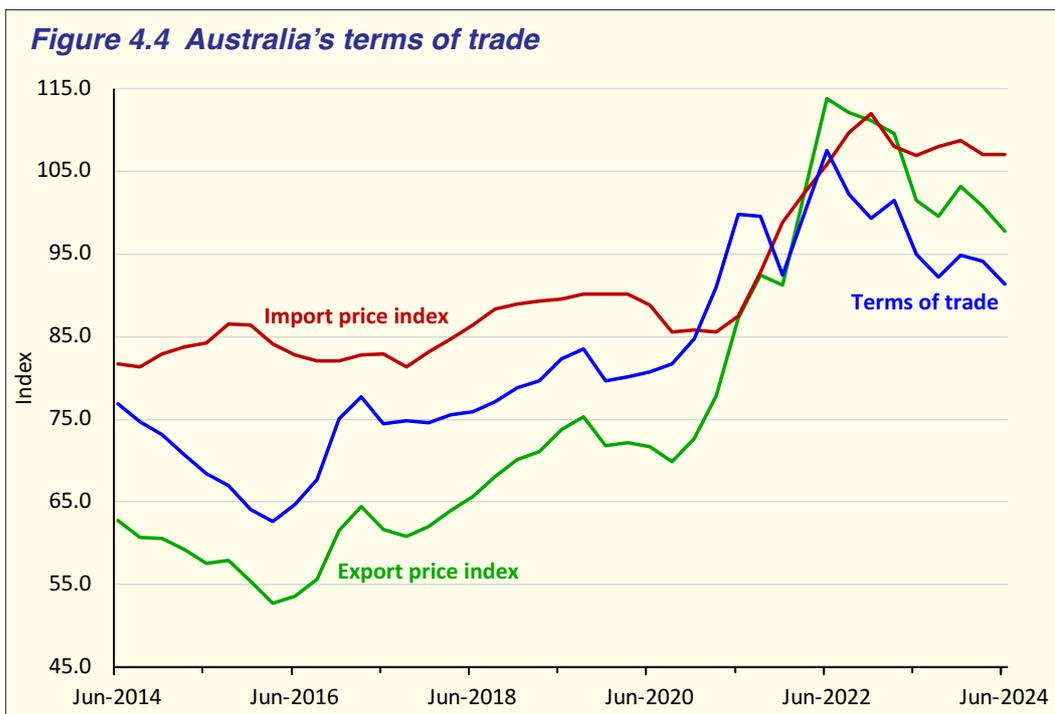
In the period between 2016 and 2019, world economic growth increased causing commodity prices to rise. Australia's export price index surged during this period by 40 per cent raising the terms of trade by 30 per cent. In 2020 the Covid pandemic caused a global recession and Australia's export price index fell. By 2021, most economies had recovered and commodity prices began rising as world demand for mining resources and food surged. In 2022 the Ukraine-Russia war caused energy prices to spike. The combined effect saw Australia's terms of trade reach its highest level in recorded history. The Australian economy was now operating above potential GDP (full employment) with the unemployment rate falling below 4 per cent for the first time in over 50 years. With record low unemployment, Australia's inflation rate soared to over 7 per cent in 2023 and the economy started to slow.

Effects of changes in the terms of trade

Changes in the terms of trade have important effects on:

- the business cycle
- output, employment and inflation
- 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



The exchange rate and the terms of trade

Will a change in the Australian dollar (AUD) exchange rate affect Australia's terms of trade? It would seem logical that it would given that when the exchange rate rises or falls, it changes the price of both exports and imports. But it's a little more complex than that. It is important to remember two key points. First, both the export and the import price index record prices in Australian dollar terms. Second, most of Australia's exports and imports are contracted in US dollars - not Australian dollars.

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 at an exchange rate of $\$1\text{AUD} = \$\text{US}0.75$, an imported car costing $\$US45,000$ is equal to $\$AUD60,000$. If the AUD depreciates to $\$0.70$, then the car will now cost $\$AUD64,286$.

What about export prices? Let's use the example of an iron ore export. If 1 tonne of iron ore sells for $\$US100$, then at an exchange rate of $\$1\text{AUD} = \$\text{US}0.75$, the AUD price is $\$133$ per tonne. If the $\$AUD$ falls to $\$US0.70$, then the iron price in AUD now increases to $\$143$ per tonne. So after a depreciation, the price of Australian exports increases which will increase the export price index.

In summary, 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 a minimal impact on the terms of trade.

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 increase real GDP and national income. Higher incomes and profits will increase spending and may result in demand inflation. Government tax revenue will receive a positive boost from greater income and company tax as well as mining royalties. You can think of a rise in the terms of trade as Australia receiving a ‘pay rise’ from the rest of the world. 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, unemployment will increase and national income will fall.

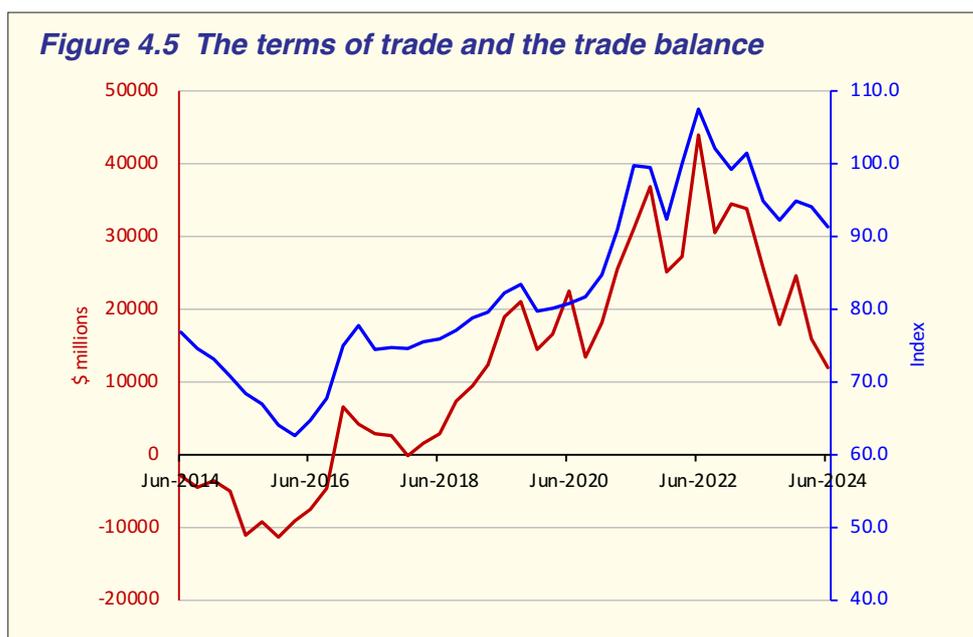
Real gross domestic income (GDI) is GDP adjusted for changes in the terms of trade.

The Australian Bureau of Statistics (ABS) 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. In this way a rise in the terms of trade is seen as providing a positive boost to economic growth and living standards.

Theoretically there should be a close link between the terms of trade and the trade balance in the balance of payments. Figure 4.5 shows that there is indeed a very strong positive correlation both Australia’s trade balance and the terms of trade. Don’t you just love Economics! 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. So a rise in the terms of trade will cause an increase in the trade balance. This is because a rise in export prices increases the value of exports or a fall in import prices decreases the value of imports. It is not surprising that in June 2022 Australia recorded its highest trade surplus as a result of a record high terms of trade.

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 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 the box below). 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.

Review

1. State the three most important commodities in Australia's commodity price index.
2. A rise in Australia's commodity price index will _____ Australia's terms of trade.
3. State the effect of an increase in the price of refined petroleum on Australia's import price index and on Australia's terms of trade.
4. The most likely effect of a fall in commodity prices would be
 - a. an increase in Australia's terms of trade and a depreciation of the Australia dollar.
 - b. an increase in Australia's terms of trade and an appreciation of the Australian dollar.
 - c. a decrease in Australia's terms of trade and a depreciation of the Australian dollar.
 - d. a decrease in Australia's terms of trade and an appreciation of the Australian dollar.
5. Which of the following could explain a movement in Australia's Terms of Trade index from 110 to 106?
 - a. A rise in export prices relative to import prices
 - b. A rise in import prices relative to export prices
 - c. A fall in the quantity of goods imported relative to goods exported
 - d. A fall in the quantity of goods exported relative to goods imported

Australia’s terms of trade boom & the ‘Dutch disease’

With Australia’s terms of trade reaching record levels in 2022, there was 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 can occur when a terms of trade boom sucks 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.

The terms of trade - key points

	Increase in the terms of trade	Decrease in the terms of trade
Meaning	The XPI rises relative to the MPI - more imports can be purchased from a given volume of exports	The MPI rises relative to the XPI - less imports can be purchased with a given volume of exports
Causes	An increase in commodity prices e.g. iron ore A drought increasing rural prices A fall in global oil prices A fall in manufacturing costs Technology lowers ICT prices	A decrease in commodity prices e.g. iron ore An increase in global oil prices An increase in supply bottlenecks An increase in manufacturing costs
Effects	1. Increase in the trade balance	1. Decrease in the trade balance
	2. Increase in real GDP and national income	2. Decrease in real GDP and national income
	3. Unemployment rate decreases	3. Unemployment rate increases
	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. Inflation rate increases	8. Inflation rate decreases

Chapter Review

Multiple choice

1. A terms of trade index can be calculated as
 - a. $\frac{\text{exports} - \text{imports}}{\text{exports}} \times 100$
 - b. $\frac{\text{import price index}}{\text{export price index}} \times 100$
 - c. $\frac{\text{value of exports}}{\text{value of imports}} \times 100$
 - d. $\frac{\text{export price index}}{\text{import price index}} \times 100$
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. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. If import prices rise while export prices rise by less than import prices, then
 - a. the terms of trade will increase.
 - b. the terms of trade will decrease.
 - c. the terms of trade will remain unchanged.
 - d. it is impossible to determine the effect.

9. 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.
10. 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.
11. The average price of a country's exports increased by 5% and the average price of its imports increased by 10%. What can definitely be concluded from this information?
 - a. Its balance of trade will increase.
 - b. Its balance of trade will decrease.
 - c. Its terms of trade have increased.
 - d. Its terms of trade have decreased.
12. 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.
13. 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.
14. 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.

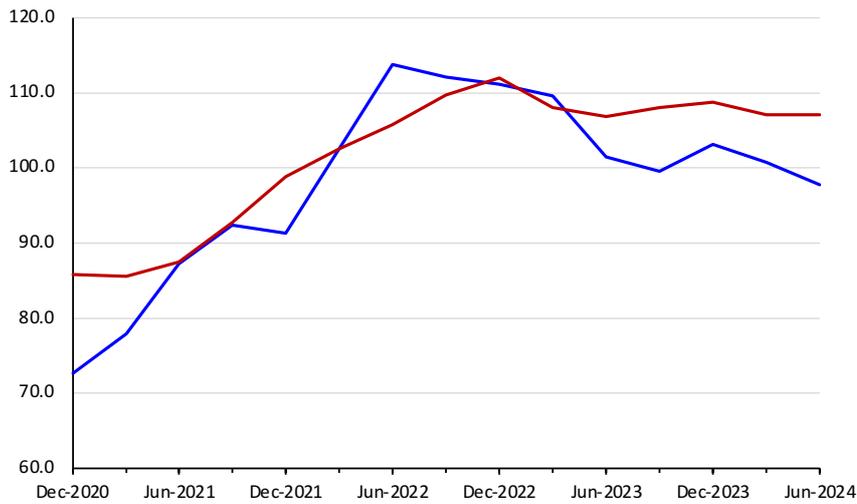
Data Interpretation

Refer to the graph on page 99 showing Australia's export and import price indices.

1. On the graph, label the 'export price index' and the 'import price index'.
2. Identify two quarters when Australia's terms of trade was equal to 100?

3. Use the graph to calculate the terms of trade for June 2024: _____

4. Describe the trend in the terms of trade between June 2022 and June 2024.



5. Outline a reason for this trend.

6. Describe two effects of this trend on the Australian economy.

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, it reached its 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 contraction phase which would see the mining sector decline with a subsequent fall 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. Why did Australia's terms of trade increase during 2021-22?

Extended responses

1. a. Explain what the terms of trade index measures and distinguish between a favourable and an unfavourable movement in the terms of trade. [7 marks]
- b. Describe the effect of each of the following on the terms of trade:
 - i. an increase in iron ore prices
 - ii. an increase in oil prices
 - iii. a fall in ICT prices
 - iv. a global drought [8 marks]
2. The terms of trade index in Australia decreased from 108 in June 2022 to 91 in June 2024.
 - a. Explain what the terms of trade measures, and discuss why it may have risen over this two-year period. [6 marks]
 - b. Explain the likely economic effects of this movement in the terms of trade on consumers, businesses and the macroeconomy. [9 marks]

Selected Answers*Review p. 88*

1. For year 3, the export price index = 124; the import price index = 107
2. The terms of trade year 2 = 110; for year 3 = 116
3. Iron ore (50%)
4. Refined petrol (15%)
5. Favourable movements for each year
6. (d)

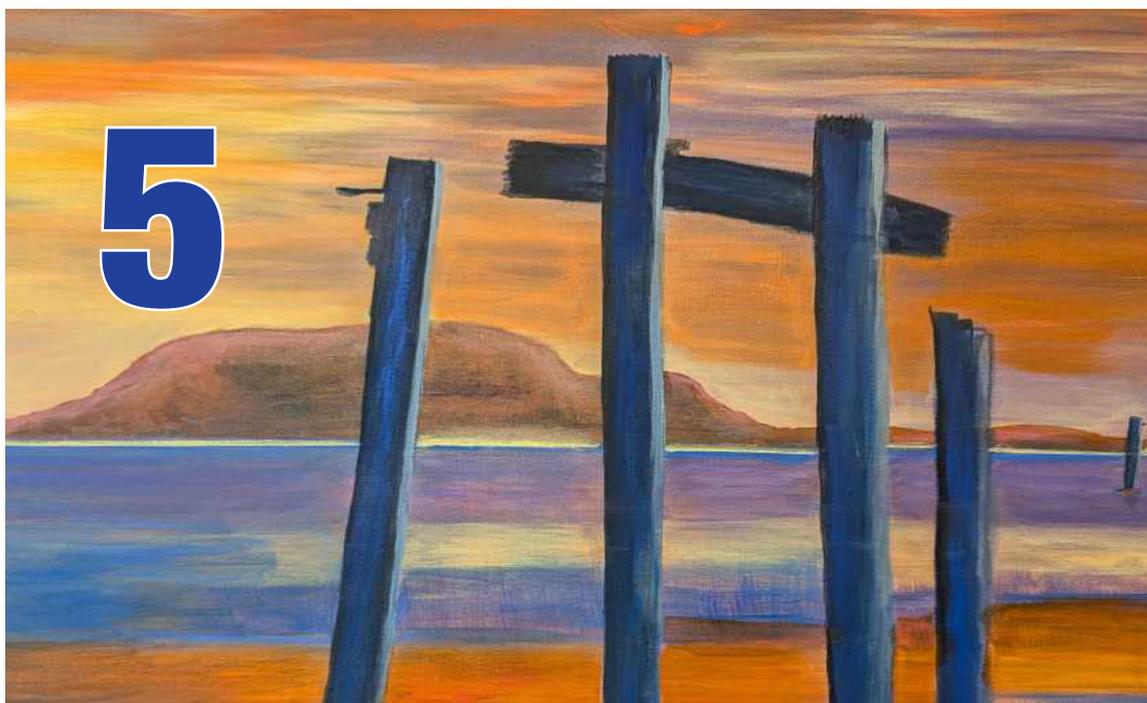
Review p. 95

1. Iron ore; LNG; metallurgical coal;
2. Increase
3. Increase the MPI; decrease the terms of trade
4. c
5. b

*Multiple Choice p. 97: 1d; 2b; 3b; 4d; 5c; 6d; 7b; 8b; 9b; 10a; 11d; 12d; 13c; 14d**Data interpretation p. 98*

1. The export price index is the blue line graph
The import price index is the red line graph
2. June 2021; Sept 2021; March 2022
3. The trend is falling (decreasing)
4. Falling commodity prices reducing the XPI
5. The decline in the terms of trade would decrease net exports and reduce real GDP. This would have a contractionary effect on the economy reducing spending and national income.

Exchange Rates



Key understandings

- *the concept of an exchange rate, including Australia's exchange rate*
- *the concept of the trade weighted index*
- *the relationship between the balance of payments and the exchange rate*
- *the determination of, and movements in, the exchange rate using the demand and supply model*
- *the factors that affect the exchange rate*
- *effects of movements in the exchange rate*
- *trends in Australia's exchange rate over the last ten years*

The foreign exchange market

If all countries of the world used the same currency, international transactions would be very simple. But every country has their own currency, meaning that a rate of exchange has to be established in order for trade to take place. The table shows the rates of exchange between the Australian dollar and some of Australia's main trading partners on October 3, 2024. 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 12 months to October 2024, the Australian dollar increased in value (appreciated) against all of the currencies listed, except for the UK pound.

Exchange rates for the Australian dollar (AUD) (October 3 2024)			
Currency name	Code	Units of foreign currency you can buy with 1 AUD	Number of AUD required to buy one unit of foreign currency
US dollar	USD	0.69	1.45
Chinese yuan	CNY	4.82	0.21
Japanese yen	JPY	101	0.01
European euro	EUR	0.62	1.61
Korean won	KRW	908	0.001
Singapore dollar	SGD	0.89	1.12
New Zealand dollar	NZD	1.10	0.91
Indian rupee	INR	57.6	0.02
UK pound	GBP	0.52	1.92
Trade-Weighted Index (TWI)		62.9	-

Learning activity

Economic research - exchange rates

You can keep up-to-date with exchange rate movements (as you can with many economic indicators) using an app on your smart phone. Download the app and choose the currencies in which you are interested. An exchange rate can be quoted directly or indirectly. A direct quote determines the amount of foreign currency that can be bought for a given unit of the domestic currency. 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). An indirect quote determines the amount of domestic currency that can be bought for a given unit of the foreign currency. In the indirect quote, the foreign currency is the base currency - e.g. USD/AUD is an indirect quote that expresses the number of units of the AUD currency that can be exchanged for one unit of the base currency (USD).

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 USD0.69 on October 3, 2024. This means that if a good in Australia costs AUD 100, then an American buyer would need to pay USD 69 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 AUD 145 ($\$100/0.69$).

That is, if AUD 1 = USD 0.69
then USD 1 = AUD 1.45

Between Oct 2023 and Oct 2024 the Australian dollar increased in value against the US dollar by 10 per cent. This can make a difference to international purchases. For example in October 2023, the exchange rate was AUD 1 = USD 0.63. At this exchange rate, an iPhone costing USD 799 would equate to AUD 1268. But if the exchange rate was AUD 1 = USD 0.76, then the iPhone would cost AUD 1051 - \$107 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 is not a place like a local market. It comprises millions of people including importers and exporters, international investors, banks and speculators.

The rate at which one currency is traded for another is called the exchange rate.

The market in which one currency is traded for another is called the foreign exchange market.

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 29.5% of Australia's trade in 2023 and so its weight in the TWI = 29.5%. 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 60 per cent of the TWI.

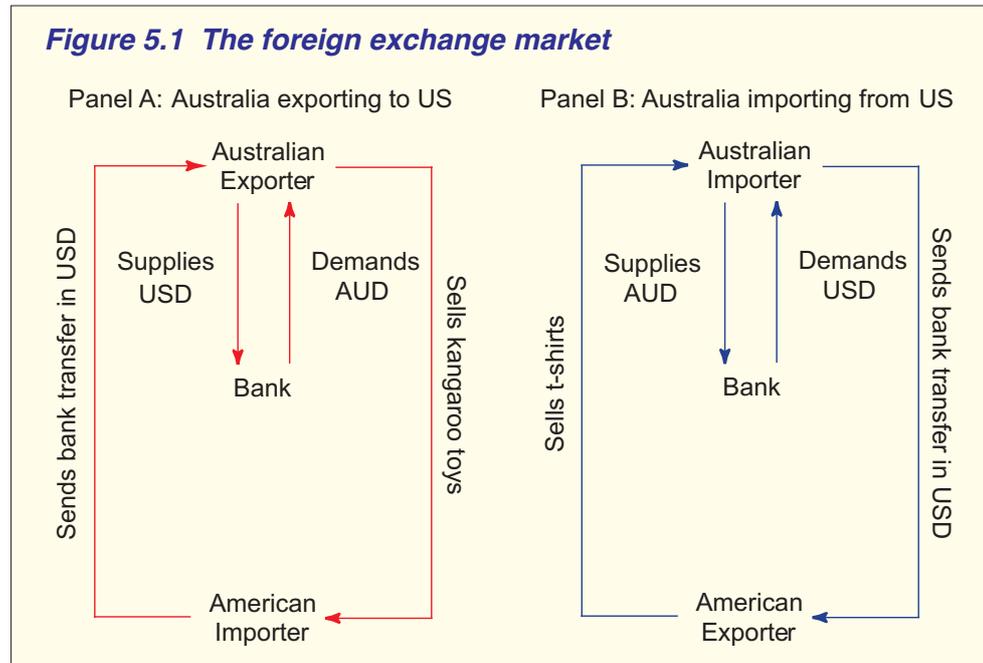
Chinese yuan	29.5%	Singapore dollar	4.7%
Japanese yen	13.2%	Indian rupee	4.2%
European euro	8.8%	New Taiwan dollar	3.9%
United States dollar	8.7%	Malaysian ringgit	3.3%
South Korean won	7.1%	New Zealand dollar	3.2%

Source: RBA

For example, the foreign exchange market between Australian dollars and United States dollars would consist of people demanding US dollars, such as an Australian importer of US goods and people demanding Australian dollars such as an American importer of Australian goods. This means that a demand for US dollars would be matched by a supply of Australian dollars, while a demand for Australian dollars would be matched by a supply of US 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.

Figure 5.1 below shows how the foreign exchange market operates. Assume an Australian firm is exporting kangaroo plush toys to the United States while a US firm is exporting Taylor Swift t-shirts to Australia. Both contracts are likely to be priced in US dollars (USD). Most international transactions are contracted in one of the four 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 their kangaroos plush toys to the US, they will receive a bank transfer in US dollars. They then must convert this into Australian dollars. The US buyer has supplied US dollars into the foreign exchange market, while the Australian exporter will demand Australian dollars from the foreign exchange market. This example is shown in Panel A. Panel B shows the opposite transaction where an Australian importer purchases Taylor Swift t-shirts from a US firm. If the contract is written in US dollars, then the



Australian buyer will first convert Australian dollars at their bank to obtain US currency to send to the seller in the United States as payment for the t-shirts they are importing.

The exchange rate

In any foreign exchange market, the rate at which one currency is traded for another is called the **exchange rate**. Given that an exchange rate is a price, then we can use the demand/supply framework to analyse how an exchange rate is determined. We will focus on the market in which Australian dollars (AUD) are exchanged for US dollars.

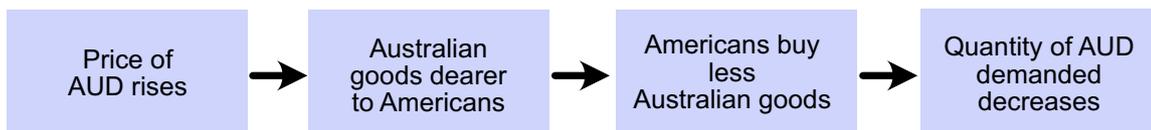
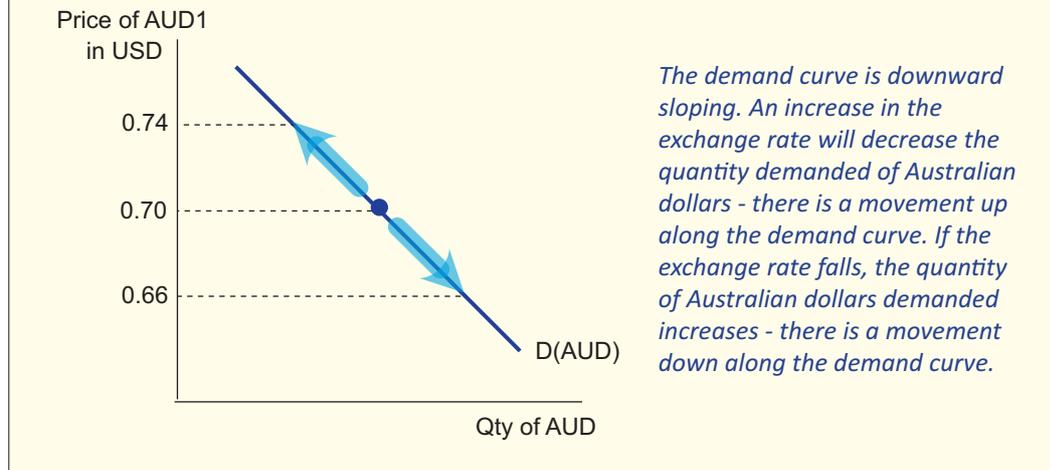
The demand for Australian dollars

First we look at the demand for a country's foreign exchange. Who wants to buy Australian dollars in the foreign exchange market? The simple answer is anyone wanting to buy either goods and services from Australia or who want to purchase Australian assets, such as shares, bonds and property. This means that the demand for Australian dollars is derived from basically two factors - Australian exports of goods and services and foreign investment into Australia. The law of demand applies to Australian dollars just as it does to any other good or service. This means that the demand curve for Australian dollars will have a negative slope - as the exchange rate rises, the quantity of Australian dollars demanded will fall, holding other factors constant (*ceteris paribus*). For example if the Australian dollar rises from 70 US cents to 74 US cents, the quantity of Australian dollars demanded in the foreign exchange market will decrease.

The demand curve for Australian dollars has a negative slope.

Figure 5.2 shows the demand curve for Australian dollars in the foreign exchange market. The price or exchange rate is shown on the vertical axis. In this example we are showing the price of \$AUD1 in terms of US currency. But we could use any other currency such as the Chinese yuan or the Japanese yen. The horizontal axis shows the quantity of Australian dollars traded. Because we are mainly interested in the movement of the price of the exchange rate it is not necessary to show changes on the quantity axis. A change in the exchange rate will cause a movement along the demand curve and change the quantity demanded of Australian dollars. If the exchange rate decreases from \$USD0.70 to \$USD0.66, then the quantity demanded of Australian dollars increases and there is a movement down along the demand curve.

Why does a rise in the AUD/USD exchange rate make Americans want to buy less Australian dollars? Because the higher the price of the Australian dollar, the more expensive Australian goods and services are to American buyers. A kangaroo plush toy that sells for \$AUD50 will cost an American \$USD35 at an exchange rate of \$USD0.70 per Australian dollar. But if the exchange rate rises to \$USD0.80, then the price in US dollars increases to \$40.

Figure 5.2 The demand for Australian dollars

Factors affecting the demand for Australian dollars

There are other factors that affect the demand curve for a currency other than the price of the currency. When these factors change, the whole demand curve will shift - either to the right (an increase in demand) or to the left - a decrease in demand. Figure 5.3 show these shifts of the demand curve for the Australian dollar. Again we are showing the price of \$AUD1 in terms of the US currency, but we could use any other currency. We will use the AUD/USD foreign exchange market to identify key factors such as relative price levels; foreign real GDP; foreign preferences for Australian goods; relative interest rates and commodity prices, such as iron ore coal, natural gas and gold.

- **Relative price levels** - If inflation in other countries is higher relative to Australia, then Australian goods and services will become relatively cheaper and foreign citizens may increase their demand for Australian goods and services increasing the demand for Australian dollars.
- **World real GDP** - If higher economic growth increases real GDP in Australia's main trading partners, then the real incomes of foreign citizens will increase. This will increase demand for Australian goods and services and increase the demand for Australian dollars, shifting the demand curve to the right.
- **Foreign preferences for Australian goods and services** - If Australian goods become more popular with other countries, then the demand

for Australian dollars will increase and the demand curve will shift to the right. For example, an advertising campaign highlighting Australia's unique landscape and wildlife may increase Australia's popularity with foreign tourists.

- **Relative interest rates** - Interest rates reflect the return on financial assets. So when one country's interest rates are higher than another, that country's financial assets will be more attractive. For example, if you are an American investor deciding whether to hold some of your wealth in the US or Australia, you will compare relative rates of return, such as interest rates. The difference between the Australian interest rate and the foreign interest rate is called the **interest rate differential**. If Australian interest rates rise relative to foreign interest rates, then the Australian interest rate differential increases. The higher the interest rate differential, the greater is the demand for Australian assets and the greater the demand for Australian dollars.
- **Commodity prices** - The Australian dollar is known as a 'commodity currency'. This is because over 70 per cent of Australian exports are commodities, including iron ore, coal, natural gas, gold as well as rural commodities. Commodity prices are determined in the world market. If iron ore prices increase due to higher demand from China, then the value of Australia's iron ore exports will increase and this will increase the demand for Australian dollars. Conversely, if commodity prices fall, then the value of Australia's commodity exports will fall, decreasing the demand for Australian dollars.
- **Expectations and speculation** - Every day billions of dollars are traded in foreign exchange markets. Many foreign exchange traders are speculators - people and institutions buying and selling currency based on expectations about the likely movement of a currency. For example, if foreign currency traders believe that the Australian dollar is likely to rise in the future, then they will purchase Australian dollars now to take advantage of the lower price. This will increase the demand for Australian dollars and shift the demand curve to the right.

Changes in interest rates can have a powerful effect on the exchange rate.

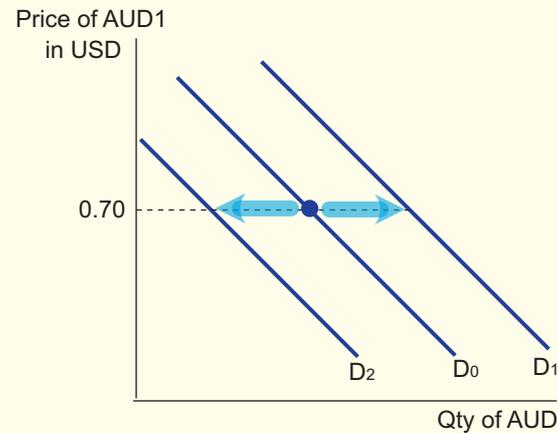
The Australian dollar is known as a 'commodity' currency.

Figure 5.3 shows both an increase in demand for Australian dollars, from D0 to D1 and a decrease in demand from D0 to D2. For example, an increase in China's growth rate will increase Chinese real GDP and increase the demand for Australia's goods and services, including iron ore and Chinese tourists to Australia. This will increase the demand for Australian dollars and shift the demand curve to the right. An increase in Australia's price level (higher inflation rate) relative to other countries will make Australian goods and services more expensive, decreasing the demand for Australian dollars which will shift the demand curve to the left. A rise in Australia's interest rate differential would make Australian assets more attractive to foreign investors, causing an increase in the demand for Australian dollars - shifting the demand curve to the right.

Figure 5.3 Shift of the demand curve for Australian dollars

The demand curve for Australian dollars will increase from D_0 to D_1 when:

- US real GDP increases
- US relative price level increases
- US preferences increase for Australian goods
- Australia's interest rate differential increases
- Commodity prices such as iron ore, coal & LNG increase



The supply of Australian dollars

Now we turn our attention to the supply of a country's foreign exchange. Who wants to sell Australian dollars in the foreign exchange market? The simple answer is anyone in Australia wanting to buy foreign currency. If Australian consumers or businesses want to buy either imports or want to purchase foreign assets, such as shares, bonds and property, they must exchange their Australian dollars into foreign currency. This means that the supply of Australian dollars is derived from basically two factors - Australian imports of goods and services and Australian investment abroad.

The law of supply applies to Australian dollars just as it does to any other good or service. This means that the supply curve of Australian dollars has a positive slope - as the exchange rate rises, the quantity of Australian dollars supplied will rise, holding other factors constant (*ceteris paribus*). For example if the Australian dollar rises from 70 US cents to 74 US cents, the quantity of Australian dollars supplied in the foreign exchange market will increase.

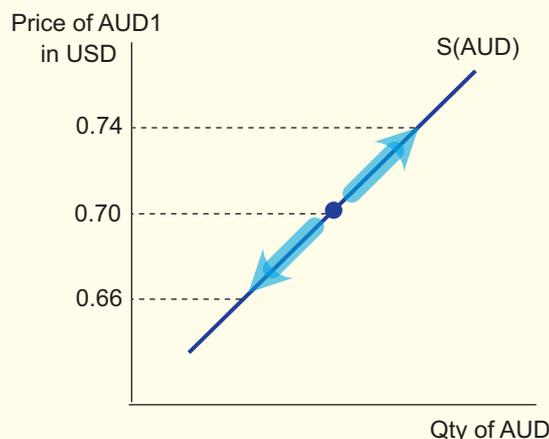
Figure 5.4 shows the supply curve of Australian dollars in the foreign exchange market. A change in the exchange rate will cause a movement along the supply curve and change the quantity supplied of Australian dollars. If the exchange rate decreases from \$USD0.70 to \$USD0.66, then the quantity supplied of Australian dollars decreases and there is a movement down along the supply curve.

Why does a rise in the AUD/USD exchange rate make Australians want to supply more Australian dollars? Because the higher the price of the Australian dollar, the cheaper foreign goods and services are to Australian consumers and firms. For example, a Taylor Swift t-shirt that sells for \$USD50 will cost an Australian consumer \$AUD71.43 at an exchange rate of \$USD0.70 per Australian dollar.

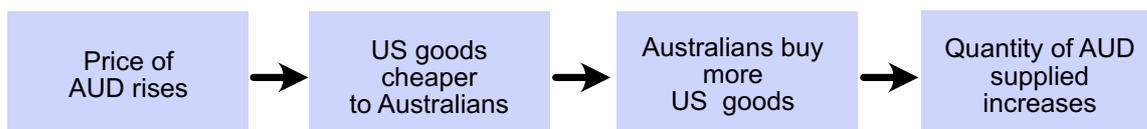
The supply curve for Australian dollars has a positive slope.

Figure 5.4 The supply of Australian dollars

The supply curve is upward sloping. An increase in the exchange rate will increase the quantity supplied of Australian dollars - there is a movement up along the supply curve. If the exchange rate falls, the quantity of Australian dollars supplied decreases - there is a movement down along the supply curve.



But if the exchange rate rises to \$USD0.80 per Australian dollar, then the price in Australian dollars decreases to \$62.50.



Factors affecting the supply of Australian dollars

There are other factors that affect the supply curve for a currency other than the price of the currency. When these factors change, the whole supply curve will shift - either to the right (an increase in supply) or to the left - a decrease in supply. We will use the AUD/USD foreign exchange market to identify key factors such as relative price levels; Australian real GDP; Australian preferences for foreign goods and services and relative interest rates.

- **Relative price levels** - If the inflation rate is lower in other countries relative to Australia, then foreign goods and services will be more attractive to Australians who may increase their demand for foreign goods and services increasing the supply of Australian dollars.
- **Australian real GDP** - Higher domestic economic growth will increase Australia's real GDP increasing national income. This will increase demand for imported goods and services and increase the supply of Australian dollars, shifting the supply curve to the right.
- **Australian preferences for foreign goods and services** - If foreign goods become more popular with Australian residents, then the demand for imports will increase and the supply curve of Australian

dollars will shift to the right. For example, an advertising campaign highlighting the United States famous landmarks may increase the United States popularity with Australian tourists.

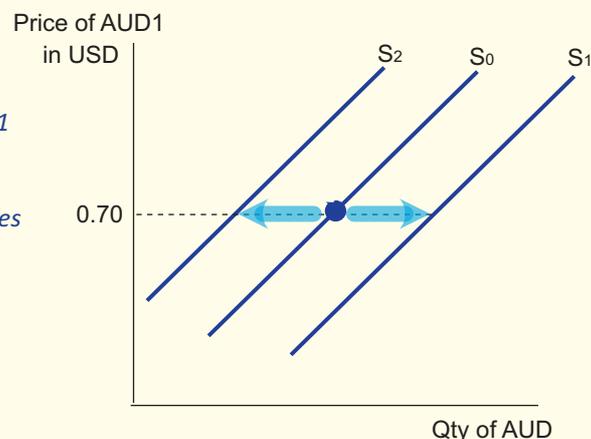
- **Relative interest rates** - Interest rates reflect the return on financial assets. If you are an Australian investor deciding whether to hold some of your wealth in Australia or overseas, you will compare the **interest rate differential**. If the Australian interest rate differential decreases, then you will want to purchase foreign assets which will increase the supply of Australian dollars and shift the supply curve to the right.
- **Expectations and speculation** - Every day billions of dollars are traded in foreign exchange markets. Many foreign exchange traders are speculators - people and institutions buying and selling currency based on expectations about the likely movement of a currency. For example, if Australian currency traders believe that the US dollar is likely to rise in the future, then they will sell Australian dollars now and purchase US dollars. This will increase the supply of Australian dollars and shift the demand curve to the right.

Figure 5.5 shows both an increase in supply of Australian dollars, from S_0 to S_1 and a decrease in supply from S_0 to S_2 . For example, a contraction in economic activity in Australia will decrease Australian real GDP and decrease the demand for imports. This will decrease the supply of Australian dollars and shift the supply curve to the left. An increase in Australia's price level (higher inflation rate) relative to other countries will make foreign goods and services more attractive, increasing the supply of Australian dollars which will shift the supply curve to the right. A rise in Australia's interest rate differential would make foreign assets less attractive to Australian investors, causing a decrease in the supply of Australian dollars - shifting the supply curve to the left.

Figure 5.5 Shift of the supply curve of Australian dollars

The supply curve of Australian dollars will increase from S_0 to S_1 when:

- Australian real GDP increases
- US relative price level decreases
- Australian preferences for US goods & services increase
- Australia's interest rate differential decreases



Review

1. Which of the following would cause the supply curve for AUD to increase?
 - a. Increased demand for foreign assets by Australians
 - b. Decreased demand for foreign imports by Australians
 - c. Decreased demand for Australian assets by foreigners
 - d. Increased demand for Australian exports by foreigners
2. The demand for the Australian dollar in the foreign exchange market is derived from
 - a. the supply of Australian dollars.
 - b. the demand for Australian goods, services, and assets.
 - c. the domestic demand for Australian goods and services.
 - d. the demand by Australian residents for foreign goods, services, and assets.
3. When Australians increase their demand for Japanese goods,
 - a. the demand for dollars will rise, and the demand for yen will rise.
 - b. the demand for dollars will fall, and the demand for yen will rise.
 - c. the supply of dollars will rise, and the demand for yen will rise.
 - d. the supply of dollars will fall, and the demand for yen will fall.
4. Which of the following is most likely to cause a rightward shift in the demand curve for Australian dollars in exchange of the Chinese yuan?
 - a. An increase in the demand for Australian products in China.
 - b. A decrease in the demand for Australian products in China.
 - c. An increase in the demand for Chinese products in Australia.
 - d. A decrease in the demand for Chinese products in Australia.
5. 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)

	Events	Demand for AUD	Supply of AUD
1	Increased Australian imports	No change	Increase
2	Increased Australian 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	Inflation in Australia falls relative to our trading partners	....	....
7	Commodity prices for iron ore and coal increase	....	....
8	Japanese investors purchase Australian shares	...	...
9	China's economy slows	...	...

(see p. 128 for answers)

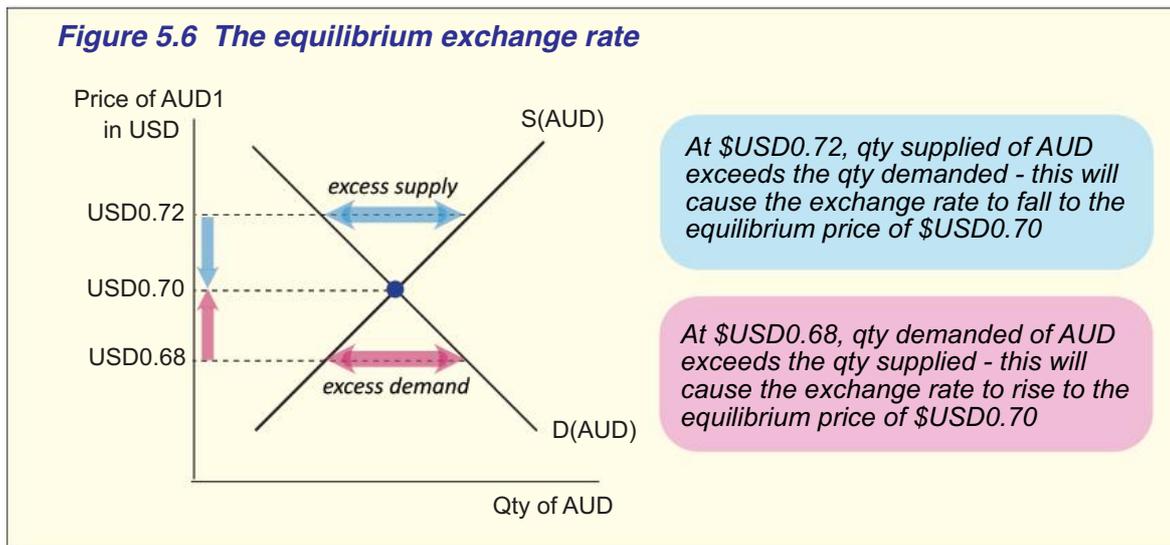
The equilibrium exchange rate

Most countries today, including Australia, the United States, Japan and most of Europe, use a floating or market determined exchange rate. This means that similar to other prices, the exchange rate is determined by the market forces of demand and supply. Its value can change daily and even by the minute as market conditions change. 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 occurs 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. 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 bid up the price. This is known as a **'dirty float'**.

For the Australian dollar, the equilibrium exchange rate occurs at the point where the quantity demanded of Australian dollars equals the quantity supplied. In figure 5.6, this occurs where the demand curve intersects the supply curve. In our example, the equilibrium exchange rate is $\$AUD1 = \$USD0.70$. How do we know that the exchange rate will settle at the equilibrium? If the actual exchange rate was above $\$USD0.70$ at $\$USD0.72$, then there would be an excess supply of Australian dollars ($Q_s > Q_d$), forcing the price of the Australian dollar to fall. On the other hand, if the actual exchange rate was below $\$USD0.70$ at $\$USD0.68$, then there would be an excess demand for Australian dollars ($Q_d > Q_s$), forcing the price of the Australian dollar to rise. This is how a free market always operates so that the price will always gravitate to the equilibrium.

The equilibrium exchange rate occurs where demand equals supply.



An exchange rate appreciation

Figure 5.7 shows the initial equilibrium exchange rate at $\text{\$AUD1} = \text{\$USD0.70}$, which means that $\text{\$USD1} = \text{\$AUD1.43}$. Whenever the demand curve for Australian dollars and/or the supply curve shift, then the equilibrium exchange rate will adjust to a new value. A currency **appreciation** (rise in the exchange rate) will occur if either:

- the demand for Australian dollars increases shifting the demand curve to the right and/or
- the supply of Australian dollars decreases shifting the supply curve to the left

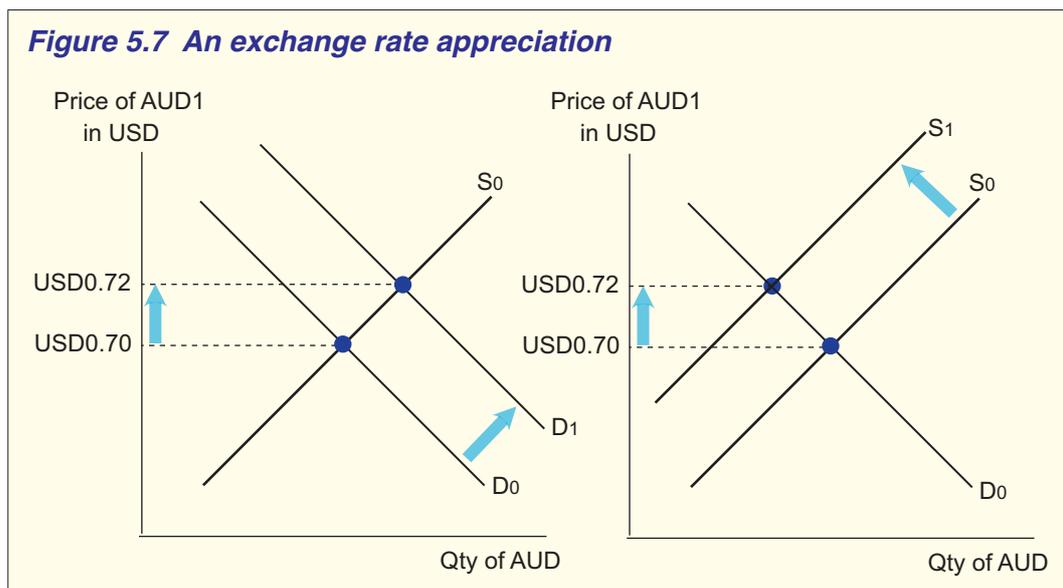
In figure 5.7 the Australian dollar appreciates from $\text{\$USD0.70}$ to $\text{\$USD0.72}$ - it is now worth more in terms of US currency. Remember that at the same time, the US dollar will automatically depreciate from $\text{\$USD1} = \text{\$AUD1.43}$ to $\text{\$AUD1.39}$.

The demand for Australian dollars may have increased due to:

- increased demand for Australia's exports
- increased commodity prices
- an increase in Australia's interest rate differential attracting more foreign investment into the Australian economy

The supply of Australian dollars may have decreased due to:

- decreased demand for imports
- higher inflation in our trading relative to Australia
- an increase in Australia's interest rate differential causing a decrease in Australian investment abroad



An exchange rate depreciation

Figure 5.8 shows the initial equilibrium exchange rate at $\text{\$AUD1} = \text{\$USD0.70}$, which means that $\text{\$USD1} = \text{\$AUD1.43}$. Whenever the demand curve and/or the supply curve for Australian dollars shift, then the equilibrium exchange rate will adjust to a new value. A currency **depreciation** (fall in the exchange rate) will occur if either:

- the demand for Australian dollars decreases shifting the demand curve to the left and/or
- the supply of Australian dollars increases shifting the supply curve to the right

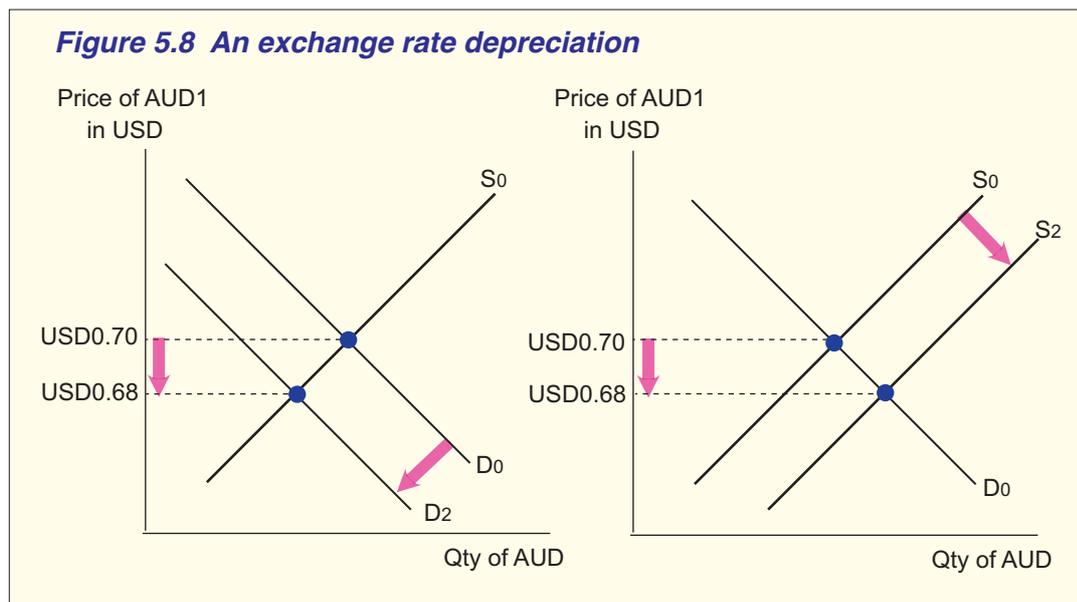
In figure 5.8 the Australian dollar depreciates from $\text{\$USD0.70}$ to $\text{\$USD0.68}$ - it is now worth less in terms of US currency. Remember that at the same time, the US dollar will automatically appreciate from $\text{\$USD1} = \text{\$AUD1.43}$ to $\text{\$AUD1.47}$.

The demand for Australian dollars may have decreased due to:

- decreased demand for Australia's exports
- decreased commodity prices
- a decrease in Australia's interest rate differential attracting less foreign investment into the Australian economy

The supply of Australian dollars may have increased due to:

- increased demand for imports
- higher inflation in Australia relative to our trading partners
- a decrease in Australia's interest rate differential causing a decrease in Australian investment abroad



Effects of movements in the exchange rate

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 positive and negative effects of a currency depreciation (an appreciation will have the opposite effects).

The macroeconomy

An exchange rate depreciation means that one Australian dollar can purchase less foreign currency but a unit of foreign currency can purchase more Australian dollars. This means that a depreciation will provide Australian exporters with a competitive advantage. The prices of Australian goods and services in foreign currency (Australia's exports) will fall while the prices of overseas goods and services (Australian imports) in Australian currency will rise. The depreciation will encourage resources to flow into the traded goods industries – both export and import competing industries. Overseas demand for Australia's goods and services will increase. For example, a depreciation will provide a boost for the domestic tourism industry encouraging foreign tourists to visit Australia. A depreciation will therefore increase the volume or quantity of exports.

At the same time, domestic producers who compete with imports are now more competitive because import prices have increased. Because foreign goods and services are now more expensive for Australian consumers and businesses, the volume or quantity of imports will decrease. As a result, the volume of net exports will increase and this will increase Australia's real GDP. The important point to remember is that a depreciation will have an expansionary effect on the level of economic activity - boosting production, income and employment.

But a depreciation is likely to result in an increase in the rate of inflation. Why? Because the increase in import prices (cars, fuel, mobile phones) will feed into the consumer price index (CPI) and result in an increase in cost inflation. At the same time, demand inflation may also rise since a depreciation will increase income and spending in the domestic economy, increasing aggregate demand.

The trade balance

How will a depreciation affect the trade balance in the current account of the balance of payments? Most people would say that because net exports have

A depreciation will have an expansionary effect on the economy.

increased, then the trade balance must also increase. But this is not necessarily the case. Remember that a depreciation increases the volume or quantity of net exports. But the trade balance measures the value of net exports which takes into account the effects of price changes.

$$\text{Balance of trade} = \frac{\text{\$AUD price of exports}}{\text{x qty of exports}} - \frac{\text{\$AUD price of imports}}{\text{x qty of imports}}$$

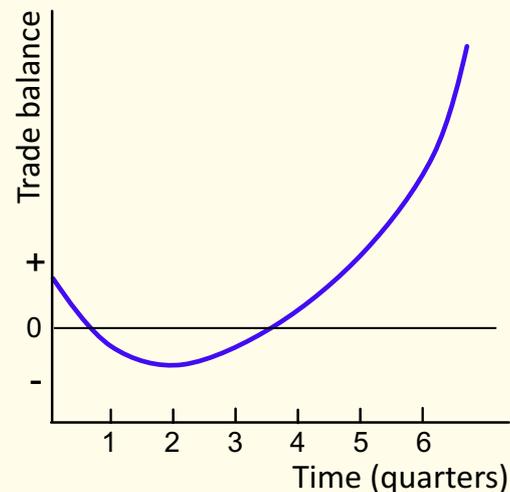
A depreciation will increase the quantity of exports but not affect the price of exports in Australian dollars - so the value of exports will increase. At the same time, a depreciation will decrease the quantity of imports but it also increases the price of imports in Australian dollars. So what happens to the value of imports? The answer is that they might increase or decrease. It depends on whether the demand for imports is price elastic or inelastic.

Most economists believe that in the very short run, a large proportion of Australia's imports are relatively price inelastic, especially for essential goods such as petrol, motor vehicles and mobile phones. For these goods, if prices rise by 5 percent, and quantity demanded only falls by 1 or 2 per cent, then the value of imports will increase. In this case, the effect of a depreciation on the balance of trade is ambiguous - it may increase or decrease. Because quantities take a while to adjust, then it is likely that a depreciation will initially decrease the trade balance. This is often referred to as the '**J curve effect**'. The J refers to the shape of the trade balance after a depreciation and is illustrated in figure 5.9 below. In the first two quarters after the depreciation the trade balance will often fall due to higher import values. Eventually though, the volume effects will dominate and the trade balance will increase.

A depreciation may initially decrease the trade balance due to the J curve effect.

Figure 5.9 The 'J curve' effect

The J-curve effect suggests that after a currency depreciation, the trade balance will first fall for a period of time before beginning to rise once quantities respond to the price changes. If a country has a trade deficit initially, the deficit will first rise and then fall in response to a currency depreciation.



Consumers and business

A depreciation harms consumers since they must pay higher prices for imported goods and services 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 will increase for their goods and services. But firms that compete with imports will also gain since their competitiveness improves. For example local manufacturing firms will now find it easier to compete against foreign manufacturers.

An appreciation

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

- Australian exporters will lose as exports become more expensive to foreign buyers
- imports will become cheaper benefitting both consumers and businesses
- net exports will decrease which has a contractionary effect on the level of economic activity and on real GDP
- import competing firms will lose since imports are now relatively cheaper
- firms selling imported goods will benefit e.g. JB Hifi, Bunnings
- the cost of imported machinery and equipment will fall reducing production costs for Australian producers
- Australian tourists travelling overseas will benefit
- the inflation rate will fall due to the lower price of imports

The balance of payments and the exchange rate

The exchange rate is directly linked to transactions in the balance of payments - in both the current account and the capital/financial account. 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. 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 (see figure 5.10).

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

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

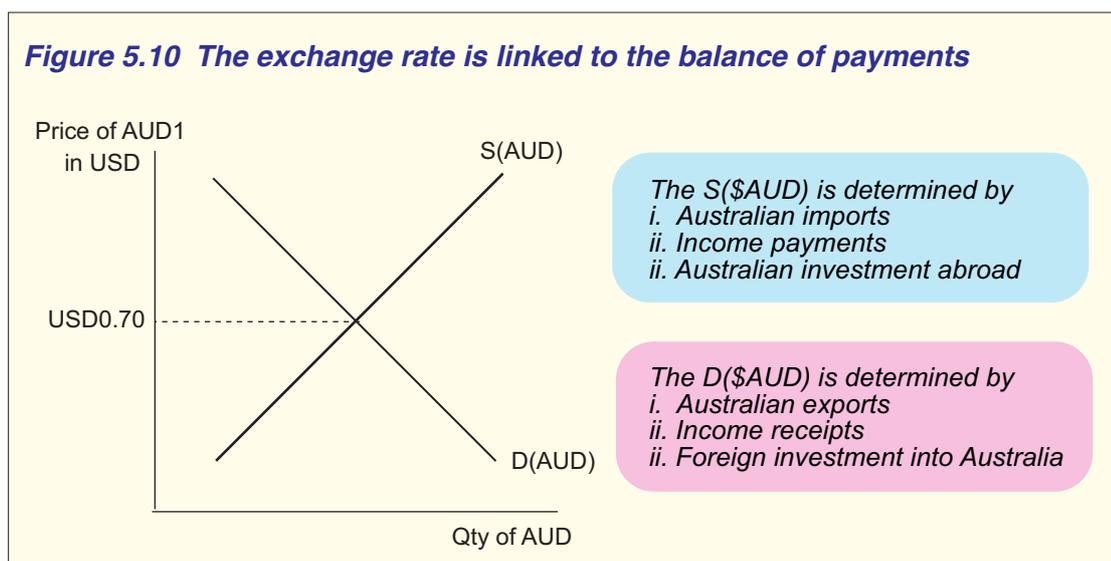
The supply of Australian dollars will be determined by:

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

So an increase in the trade balance or an increase in capital inflow (foreign investment), *ceteris paribus*, will increase the demand for Australian dollars and cause the exchange rate to appreciate. An increase in imports or an increase in Australian investment abroad (*ceteris paribus*) will increase the supply of Australian dollars and cause the exchange rate to depreciate.

The exchange rate is important from a macroeconomic perspective because it can help to insulate the domestic economy from external shocks. Consider the case of a positive economic shock, such as an increase in China's growth rate. This will increase the demand for commodities causing global prices to rise. Australia's export price index will rise, increasing the value of net exports and boosting Australia's real GDP. At the same time, Australia's inflation rate will increase, but the stronger Australian dollar will help to slow the economy and reduce inflationary pressures.

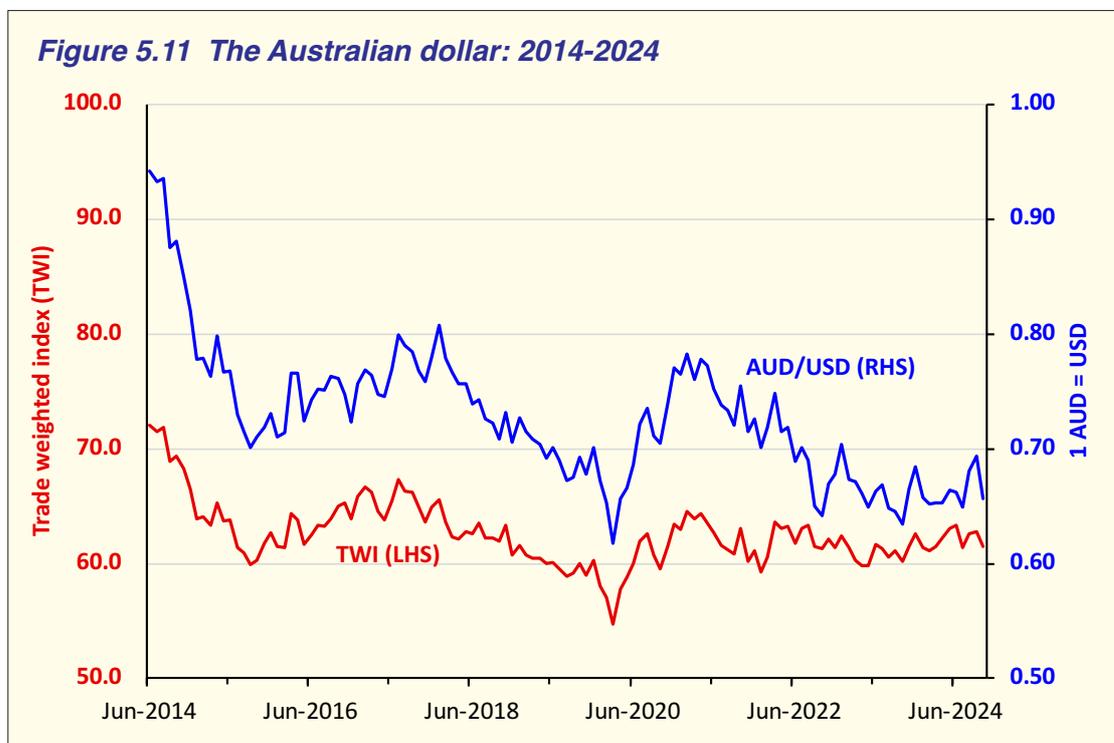
A currency depreciation, on the other hand, can help to shield the economy from a negative external shock. For example, during the global financial crisis (GFC), the Australian dollar fell which helped to stimulate net exports and



provide an expansionary effect on the economy. This protected the Australian economy from suffering a recession. A depreciation remember reduces the prices of Australia's exports to foreign buyers 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. So movements in the exchange rate can work as an '**automatic stabiliser**' to help counteract the effects of economic shocks. Did the Australian dollar fall in value during the Covid pandemic as our theory would predict? Yes it did, from a value of \$US0.73 in January 2019 to \$US0.62 in March 2020 - its lowest level in over a decade. This helped to reduce the impact of the recession.

Recent trends in the AUD exchange rate

Figure 5.11 illustrates the volatility of the AUD exchange rate since 2014. 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 Yuan, the Japanese Yen, the Euro, and the US dollar. These four currencies make up 60 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 2014 and 2024, the Australian dollar fluctuated between USD 0.62 and USD 0.94 - a range of 34 basis points. Over the same period, the trade weighted index fluctuated between 55 and 71 - a range of just 16 basis points. This means that the AUD/USD exchange rate was twice as volatile as the TWI. The reason? A single currency exchange rate will always fluctuate more than an average of exchange rates. During the period shown in the graph, the mean value for the Australian dollar was USD 0.70 and 62 on the trade weighted index. Notice how closely the two exchange rates are correlated, rising and falling together between 2014 and 2021. From 2021, the TWI remained fairly stable while the AUD/USD depreciated from \$0.78 in April 2021 to just \$0.66 by end October 2024.

Key drivers of the Australian dollar

An increase in commodity prices will appreciate the Australian dollar.

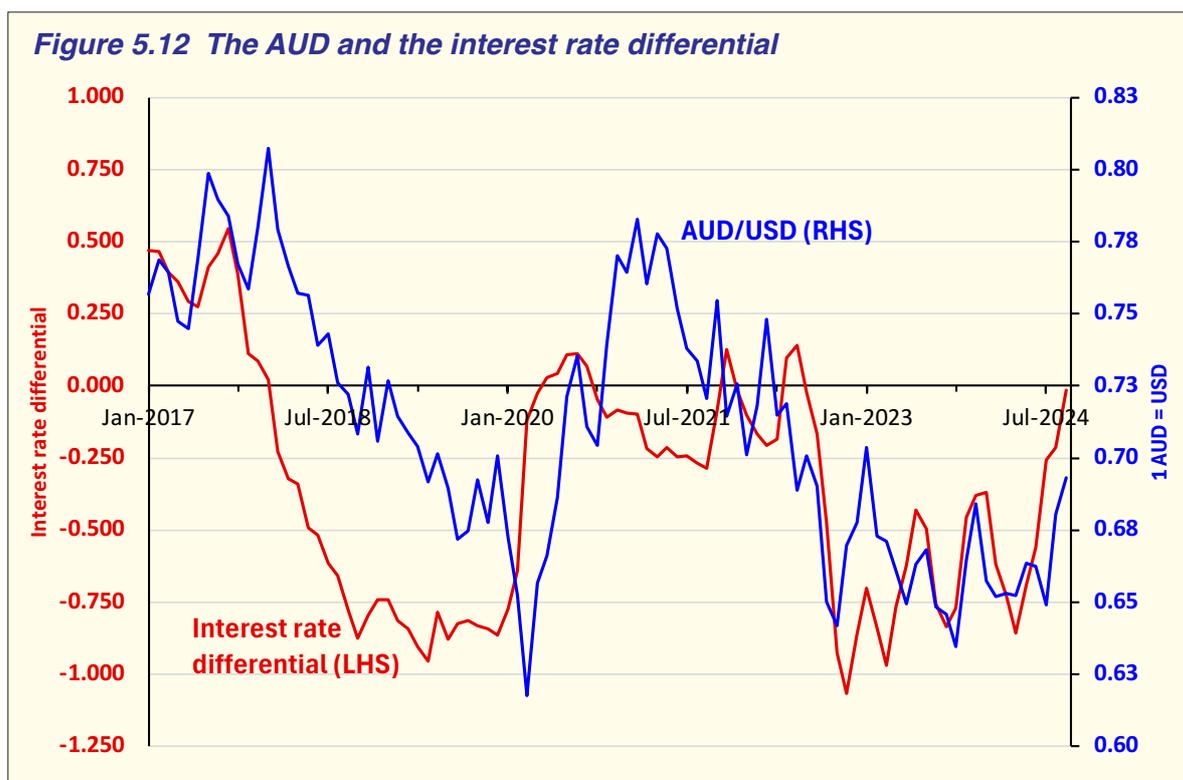
There have been many studies examining the key determinants of the Australian dollar. This research has highlighted two significant factors which appear to drive Australia's exchange rate. The first factor is **commodity prices**. The Australian dollar is often referred to as a '**commodity currency**'. 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. An increase in commodity prices, *ceteris paribus*, will result in an appreciation of the Australian dollar.

An increase in Australia's interest rate differential will appreciate the Australian dollar.

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 in Figure 5.12 along with the value of the AUD/USD exchange rate. The graph shows a very strong positive correlation.

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 the flow of foreign investment between the two 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.



Review

1. If $AUD1 = USD0.80$, how much would an American have to pay for an Australian boomerang costing AUD60? _____
2. Predict the movement in the AUD for each of the following events:
 - a. World iron ore prices increase _____
 - b. World oil prices increase _____
 - c. Interest rates in Australia rise relative to major economies _____
 - d. Inflation rate in Australia increases _____
 - e. A world recession _____

Chapter Summary

- *An exchange rate is simply the price of one country's currency in terms of another country's currency.*
- *The foreign exchange market is the market in which the currencies of different countries are bought and sold.*
- *The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country.*
- *The demand for Australian dollars is derived from basically two factors - Australian exports of goods and services and foreign investment into Australia.*
- *The difference between the Australian interest rate and the foreign interest rate is called the interest rate differential. The higher the interest rate differential, the greater the demand for Australian dollars.*
- *The Australian dollar is known as a 'commodity currency'. An increase in commodity prices will increase the demand for Australian dollars.*
- *The supply curve of Australian dollars has a positive slope - as the exchange rate rises, the quantity of Australian dollars supplied will rise.*
- *Higher domestic economic growth will increase Australia's national income. This will increase demand for imported goods and services and increase the supply of Australian dollars.*
- *If the Australian interest rate differential decreases, then the supply of Australian dollars will increase.*
- *The equilibrium exchange rate occurs where the demand for Australian dollars equals the supply of Australian dollars.*
- *A currency appreciation (rise in the exchange rate) will occur if either the demand for Australian dollars increases and/or the supply of Australian dollars decreases.*
- *An appreciation will have a contractionary effect on the level of economic activity - decreasing production, income and employment.*
- *A currency depreciation (fall in the exchange rate) will occur if either the demand for Australian dollars decreases and/or the supply of Australian dollars increases.*
- *A depreciation will have an expansionary effect on the level of economic activity - increasing production, income and employment.*
- *The J curve effect implies that after a depreciation, the trade balance may at first decrease.*
- *An increase in Australia's interest rate differential with the US will appreciate the Australian dollar.*
- *The exchange rate is directly linked to transactions in the balance of payments - inflows of money increase the demand for AUD while outflows increase the supply of AUD.*
- *Movements in the exchange rate can work as an 'automatic stabiliser' to help counteract the effects of economic shocks.*

Chapter Review

Multiple choice

- Which of the following would lead to an increase in the value of the AUD?
 - rising interest rates in the United States.
 - an increase in imports into Australia.
 - a rise in commodity prices, such as iron ore and coal.
 - restrictions on the inflow of capital into Australia.
- Assume the following exchange rate: AUD1 = USD0.92. What will be the cost in AUD of an imported American car valued at USD20 000?
 - AUD18 400
 - AUD21 739
 - AUD21 600
 - AUD20 000
- If there is an increase in the Australian demand for Korean motor vehicles then
 - the supply of AUD in the foreign exchange market will increase and the AUD will appreciate.
 - the demand for AUD in the foreign exchange market will increase and the AUD will appreciate
 - the supply of AUD in the foreign exchange market will increase and the AUD will depreciate.
 - the demand for AUD in the foreign exchange market will decrease and the AUD will depreciate.
- If an Australian can buy EUR66,666 for AUD100,000, then one Euro will equal
 - AUD0.67
 - AUD1.50
 - AUD15.00
 - AUD6.66
- With a free exchange rate, the price of the AUD will tend to rise when
 - more Australian tourists go abroad.
 - Germans switch from French wine to Australian wine.
 - Australians switch from Holden Commodores to BMWs.
 - Australian aid spending abroad is increased.
- If Australia's inflation rate rises relative to the inflation rates in its major trading partners then the demand for the Australian dollar will
 - rise and the Australian dollar will depreciate.
 - fall and the Australian dollar will appreciate.
 - fall and the Australian dollar will depreciate.
 - rise and the Australian dollar will appreciate.
- Which of the following will result in an increase in the supply of Australian dollars in foreign exchange markets?
 - a reduction in the number of Australians travelling overseas
 - an increase in interest rates in the United States
 - a reduction in imports into Australia
 - a reduction in income payments to foreigners

8. 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.
9. 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.
10. 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.
11. 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.
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 the 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 to the exchange rate data below.

	AUD1 = USD	TWI	AUD1 = CNY	AUD1 = JPY	AUD1 - EUR
Jun-2021	0.75	62.7	4.86	83.07	0.63
Jun-2022	0.69	61.8	4.61	93.95	0.66
Jun-2023	0.66	61.7	4.81	95.9	0.61
Jun-2024	0.66	63.3	4.81	106.6	0.62

- Identify the five exchange rates in the table.

- Calculate the cost in AUD of an imported Japanese car costing 4 million yen in June 2023. If you bought the same car in June 2024 would you pay more or less in AUD? Calculate the difference.

- Andrea, 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 2023, did she make a profit or loss and how much?

- Over the four year period, against which currencies did the Australian dollar appreciate and against which currencies did it depreciate?

- Against which currency did the AUD appreciate the most between 2023 and 2024? Provide a reason for the change.

- Describe two positive effects of an appreciation and two negative effects.

Articles to review

Refer to Article 1 below and Article 2 on page 127.

Article 1 questions

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

Article 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 commodity prices (such as iron ore and coal) rise in value. Australia is a resource-rich country, so naturally as commodity prices rise and fall, so does Australia's overall 'worth', and the exchange rate responds to that.

Source: www.abc.net/news

Article 2 questions

1. Explain two benefits and two 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?

Article 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.

Past exam questions

1. A depreciation of the Australian dollar will most likely result in
 - a. an increase in import prices in terms of the Australian dollar.
 - b. a decline in exports of goods and services.
 - c. a decline in domestic economic activity.
 - d. a fall in domestic prices.
2. An appreciation of the Australian dollar will most likely occur if there is
 - a. a fall in domestic interest rates.
 - b. an increase in demand for imports.
 - c. a rise in the global price of iron ore.
 - d. a large decrease in domestic investment expenditure.
3. If over a period of six months the value of the Australian dollar appreciates from \$US0.69 to \$US0.75, then, all things being equal, the most likely consequence will be
 - a. an increased competitiveness of Australia's exports to Japan.
 - b. a decrease in inflationary pressures in Australia.
 - c. more expensive imports from Japan.
 - d. an increase in demand for Australia's exports to Japan.

4. If the United States official interest rate rose above the Reserve Bank of Australia's cash rate then this would most likely cause
- an appreciation of the Australian dollar.
 - a decline in the value of trade between the two nations.
 - an increase in foreign investment into Australia.
 - a depreciation of the Australian dollar.
5. Using a demand and supply model, demonstrate and explain the impact of falling commodity prices on the value of the Australian dollar (AUD) and explain the impact of this change on Australian consumers. (8 marks)

Selected Answers

Review Page 111

1a; 2b 3c; 4a

5. (2) Increase; No change (3) No change; increase (4) Decrease; Increase (5) Increase; No change (6) Increase; Decrease (7) Increase; No change (8) Increase; No change (9) Decrease; No change

Review p. 121

1. \$48 2a Appreciate b. Depreciate c. Appreciate d. Depreciate e. Depreciate

Multiple Choice - p.123: 1c; 2b; 3c; 4b; 5b; 6c; 7b; 8d; 9b; 10b; 11d; 12d; 13a; 14d; 15d

Past Exam questions p. 127

1a; 2c; 3b; 4d

5. Falling commodity prices would decrease the value of Australia's exports. This would decrease the demand for Australian dollars - the demand curve would shift to the left resulting in a depreciation of the Australian dollar. Australian consumers would be adversely affected - they would have to pay more for imported goods and services.

Foreign Investment



Key understandings

- *the concept of foreign investment in terms of Australia's foreign investment flows*
- *the distinction between foreign direct and portfolio investment*
- *the link between foreign investment and the current account balance*
- *trends in Australia's foreign investment flows over the last ten years*
- *the benefits and costs of foreign investment in Australia*
- *the concept of Australia's foreign assets, foreign liabilities and international investment position*

Investment and foreign investment are different concepts

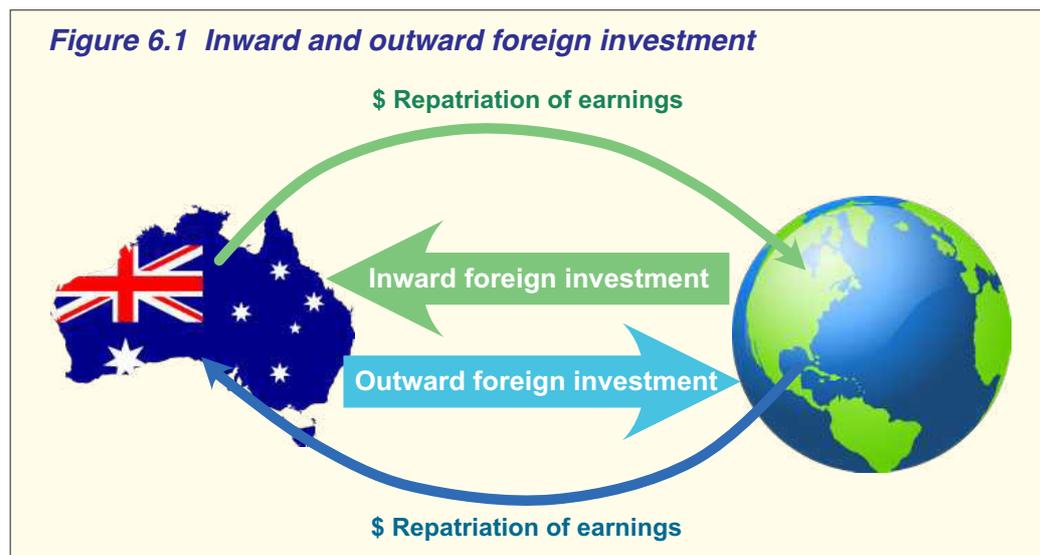
What is foreign investment?

In this chapter we investigate the importance of foreign investment to the Australian economy. It is very important not to confuse foreign investment with normal investment spending that forms part of Australia's gross domestic product or GDP. In economics we define **investment spending** as the purchase of capital equipment. It includes spending by firms on machinery, motor vehicles, computers and construction - referred to as business fixed investment. Investment spending also includes the purchases of new houses and apartments, known as residential investment.

Foreign investment refers to the flows of financial capital into and out of the Australian economy. Financial flows are associated with the buying and selling of financial assets. Examples of financial assets include shares, bonds, property and bank deposits. For example, an Australian resident buying shares in a US company would be outward foreign investment. An Australian bank borrowing money from an overseas bank would be an example of inward foreign investment. BHP purchasing an overseas mine would be outward foreign investment while a Chinese resident buying real estate in Australia or depositing money with an Australian bank would be examples of inward foreign investment.

Figure 6.1 below illustrates the dual aspect of foreign investment - there is a flow of foreign investment into the Australian economy and there is a flow of foreign investment from Australia to the rest of the world. These flows are recorded in the financial account of Australia's balance of payments. Notice that there is also a flow of earnings associated with each flow of foreign investment. These earnings mainly consist of dividends, profits and interest and are recorded in the income section of the current account in Australia's balance of payments.

Figure 6.1 *Inward and outward foreign investment*



Australia has throughout its history had more inward foreign investment than outward. In 2024 the stock of foreign investment in Australia (FIA) amounted to \$4.7 trillion, while Australian investors owned around \$4 trillion worth of investments in foreign countries (figure 6.2). This is referred to as the stock of Australian investment abroad (AIA). The difference between the two is known as Australia's net **international investment position (IIP)**:

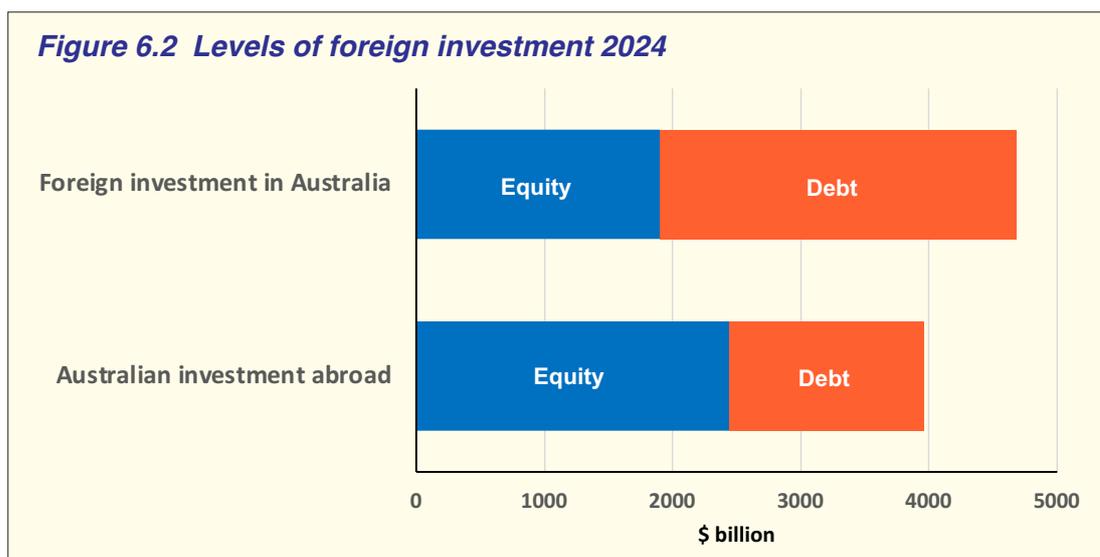
$$\text{IIP} = \text{FIA} - \text{AIA}$$

In 2024, Australia's net IIP was a liability of \$720 billion. Foreign investment is divided into two main categories:

- **foreign debt** - which relates to a country's borrowing and lending of money; and
- **foreign equity** - which relates to a country's buying of foreign assets and selling of domestic assets.

If Australian residents, including companies and financial institutions, borrow money from overseas, then this increases the level of Australia's foreign debt. If Australian investors lend money to overseas residents this will decrease the level of foreign debt. If an Australian superannuation fund purchases shares in an overseas company then this increases Australia's equity assets. If a company in the United States or Europe purchases shares in an Australian company such as BHP, then this adds to Australia's equity liabilities. Notice that 60 per cent of foreign investment into Australia is in the form of debt while 60 per cent of Australian investment abroad is in the form of equity.

Australia has traditionally 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 capital/financial account surplus.



We also learnt that the current account balance is equal to the difference between a country's saving and its investment - the S - I gap. The reason why Australia usually records a current account deficit or financial account surplus is that its investment is greater than its saving ($I > S$). What fills this gap? The answer is foreign investment. In other words, Australia imports foreign savings from the rest of the world. This foreign savings is financial capital inflow, or foreign investment into the Australian economy.

Foreign direct and portfolio investment

Figure 6.3 classifies foreign investment into its main types - direct investment, portfolio investment and other investment (which includes financial derivatives and reserve assets). The two most important categories are direct investment and portfolio investment. In Australia, portfolio investment is the largest proportion of both inward and outward foreign investment, close to double the share of direct investment.

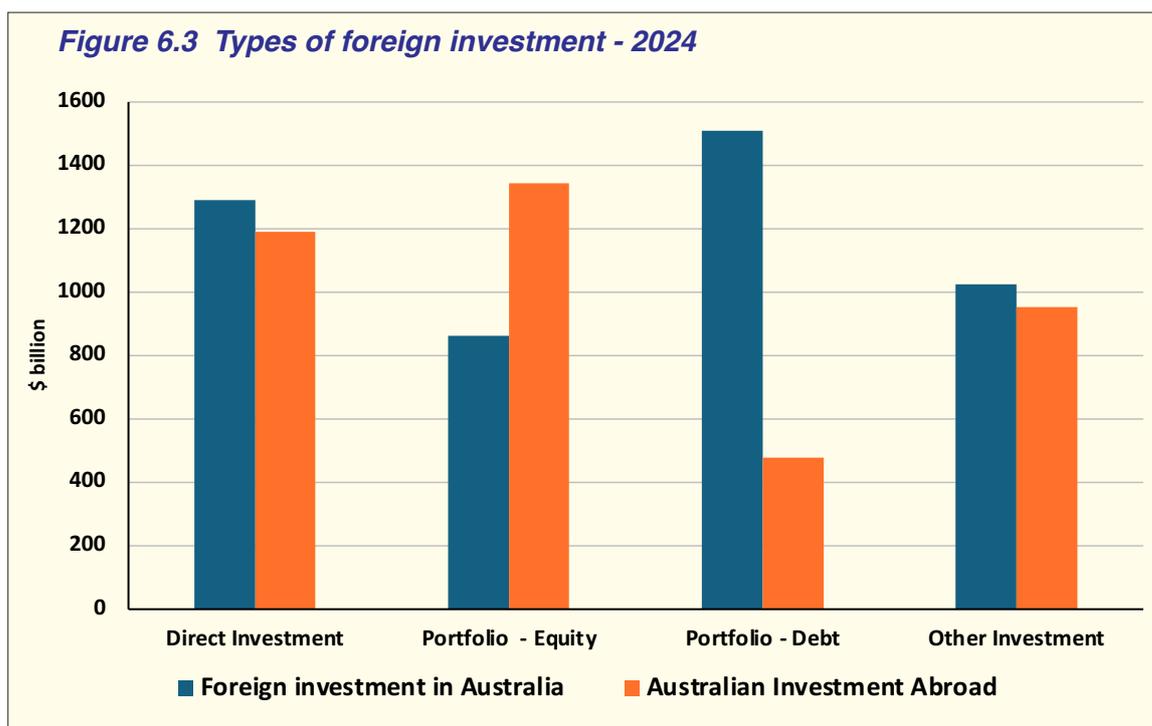
Foreign direct investment

Foreign direct investment (FDI) takes place when a business, multinational corporation or individual from one country invests in another country's assets, establishes a new business, participates in a joint venture or takes an ownership stake in its companies. The level of ownership that defines direct investment is a minimum of 10 per cent equity or 10 per cent of the voting power of the company. This minimum 10 per cent stake provides the foreign investor with the power to actively manage and influence the firm's operations. FDI results in a lasting interest in and a significant degree of influence over an enterprise in another economy.

Australia is a highly attractive destination for foreign direct investment (FDI). The total stock of FDI in Australia has increased by 6 per cent per year since 2010. By 2024 it had grown to \$1.3 trillion. Figure 6.4 shows the most important sources of FDI into Australia. The top four overseas investors are the United States (18%), the United Kingdom (13%), Japan (12%) and the European Union (10%). But Australia also attracts investors from ASEAN (group of countries in Southeast Asia), Canada and China. Australia's direct investment in overseas economies in 2024 amounted to \$1.2 trillion, with most of this directed to the United States and the United Kingdom. Direct investment comprises around one quarter of both Australia's total investment abroad and total foreign investment in Australia.

Figure 6.4 also shows the levels of FDI in Australia by industry. It's not surprising that the mining industry comprises the largest share, with 33 per cent of the total. Other major industries include finance & insurance (13 per cent), real estate activities (12 per cent) and manufacturing (10 per cent).

FDI involves investment in the productive assets of another nation.



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 account 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.

What makes Australia attractive to foreign direct investment? Australia is the world's 13th largest economy. Consistent economic growth makes Australia a preferred destination for global investors and a reliable springboard for expansion into the Asia-Pacific region. Australia is close to both south and east Asia - the world's most populous and fastest growing region, including the economies of India, China, Indonesia and Japan. Australia also has a global reputation for good government. Australia is recognised as one of the least corrupt nations and Australia's legal system is well respected and transparent. Australia is a global leader in protecting property rights, including intellectual property, and this sound governance enhances investor confidence. Australia's financial system is underpinned by a strong regulatory framework which provides low risk to investors.

Australia's strong trading links are a cause for confidence among overseas investors. Australia's 18 free trade agreements (FTAs) cover trade with some of the world's largest economies, including the US, China, Japan and most

countries in the Asia-Pacific region. In 2022, For example, Australia became the first developed economy to sign an FTA with India. These trade agreements provide Australian firms with preferential access to these markets - much sought after by foreign investors.

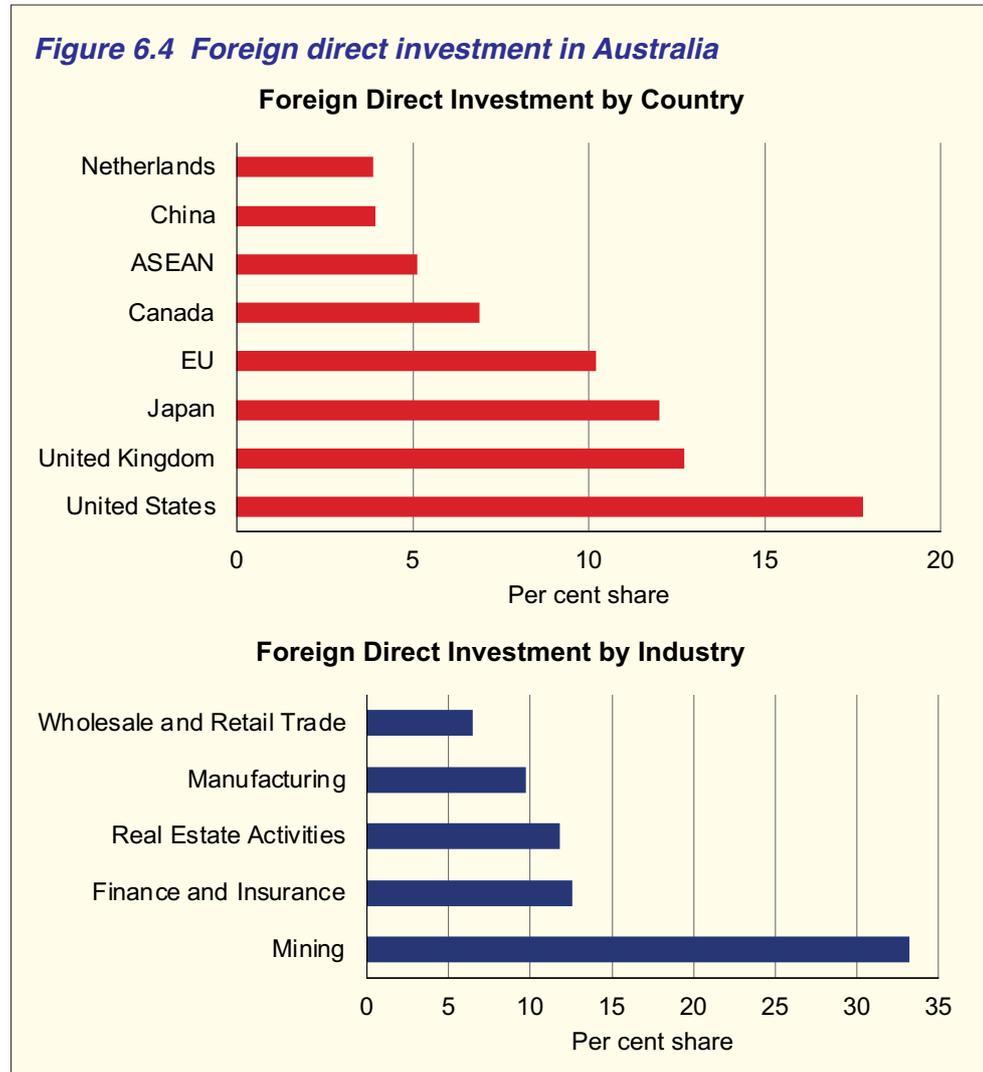
Australia is the 7th largest spender on education in the world. This investment helps to generate the skills needed for a dynamic and innovative economy. Expenditure on formal education in Australia is equivalent to 6.2 per cent of GDP which is higher than the OECD average. As a result, Australia’s workforce is highly qualified with half of the workforce holding a tertiary qualification. Australia ranks 1st in the world for skills in using and adopting emerging technologies. These are all positive factors in attracting foreign investors to the Australian economy.

The Australian dollar is the 6th most traded currency worldwide.

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

The most important industry for foreign direct investment is mining.

Figure 6.4 Foreign direct investment in Australia



Foreign portfolio investment

Foreign portfolio investment (FPI) refers to the investment in a company's shares, bonds, or assets, but not for the purpose of controlling or directing the firm's operations or management. This means that the investment results in less than 10 per cent ownership of the enterprise. Typically, investors in this category are looking for a financial rate of return as well as diversifying investment risk through different markets. For example, purchasing shares in companies on a foreign stock exchange is not made with the intention of acquiring a controlling interest in the issuing company.

FPI involves investing in the financial assets of another nation such as shares and bonds.

FPI, unlike FDI, means the investor has no appreciable say in the operation of the business. For example, superannuation funds and financial institutions are major portfolio investors. Their aim is to spread their investments across a wide range of assets in international markets to maximise returns and balance their investment risks. Typically, this type of investment is short-term in nature and is made to take advantage of favourable changes in exchange rates or to earn short-term profits on interest rate differences. It provides the investors with an opportunity to diversify their portfolios. Portfolio investment is viewed as being more speculative and short term compared with direct investment.

Most of Australia's inward portfolio investment is in the form of debt securities - accounting for nearly two thirds of the total. A large proportion of this is undertaken by financial institutions to provide funding for Australia's housing market. Without this foreign borrowing, Australian households would not be able to borrow to purchase a house or apartment. Other examples of inward portfolio investment include the purchase of property and/or shares in Australian companies as well as the purchase of government bonds.

In terms of Australia's outward portfolio investment, three quarters is in the form of equity. This is mainly attributable to the growth of Australian superannuation funds. In 1992, the Australian Government introduced a compulsory superannuation scheme for all employees, known as the Superannuation Guarantee. This required firms to make a contribution into a super fund on their employees' behalf. The initial contribution was 3 per cent of workers' wages or salary, steadily rising each year to 12 per cent in 2025. As a result of this policy, superannuation balances increased from a modest \$148 billion in 1992 to over \$3.5 trillion in 2024. Australian superannuation funds are now purchasing assets around the globe increasing the level of Australia's foreign assets.

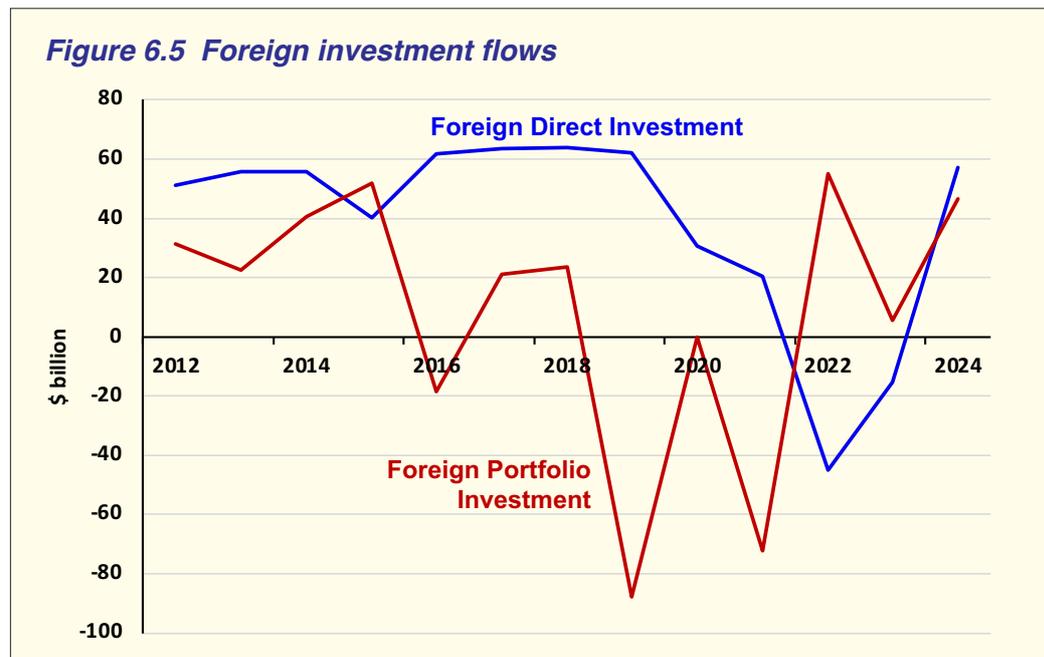
Trends in Australia's foreign investment flows

Figure 6.5 shows the changes in Australia's foreign investment flows for both direct and portfolio investment since 2012. The line graphs represent net investment so that a positive number means there is net inflow of funds while a

negative amount represents a net outflow of funds. Net foreign direct investment is normally positive for Australia. This is investment that supports Australia's mining, finance and housing sectors. Notice that net FDI is normally fairly stable from one year to the next. In the Covid period of 2019-2022, however, direct investment into the Australian economy declined from an annual inflow of \$60 billion to an outflow of \$40 billion. This is understandable given the global economy was pushed into a severe recession. After 2022, the inflow of direct investment resumed to its pre-Covid level of around \$60 billion annually. Why is direct investment relatively stable? Because it is made with a long term commitment.

Figure 6.5 also reveals the volatility of foreign portfolio investment - changing from a net inflow to a net outflow from one year to the next. This makes sense given the short term and speculative nature of portfolio investment. It is a function of business profitability, share market performance and relative interest rates. The interest rate differential between Australia and the rest of the world plays an important role in the movement of foreign portfolio investment in and out of the Australian economy. For example, if interest rates in Australia rise relative to the rest of the world, then capital inflow increases. Events that would cause a decrease in the flow of foreign portfolio investment into Australia are listed below:

- a decrease in interest rates in Australia relative to overseas
- a contraction in economic activity in the Australian economy
- a fall in the Australian share market
- a decrease in commodity prices reducing profits in the mining sector



Review

1. Define foreign investment and explain how it is different from domestic investment.
2. For Australia, which is larger - inward foreign investment or Australian investment abroad?
3. Define a country's international investment position.
4. Most inward foreign investment is in the form of _____ while most Australian investment abroad is in the form of _____ .
5. Distinguish between foreign direct and foreign portfolio investment. Provide an example of each.
6. Identify the two main source countries for Australia's foreign direct investment.
7. Explain why FDI is more stable and more productive than foreign portfolio investment.

Foreign investment and the balance of payments

In chapter 4 we noted that Australia normally records a current account deficit and a capital/financial account surplus. Remember that the sum of the two accounts in the balance of payments must equal zero:

$$\text{Current account balance} + \text{Capital/financial account balance} = 0$$

The flow of foreign investment into and out of the economy is recorded in the financial account of the balance of payments. This is illustrated in figure 6.6. A financial account surplus means that there has been a net inflow of foreign investment while a financial account deficit means the opposite - a net outflow of foreign investment.

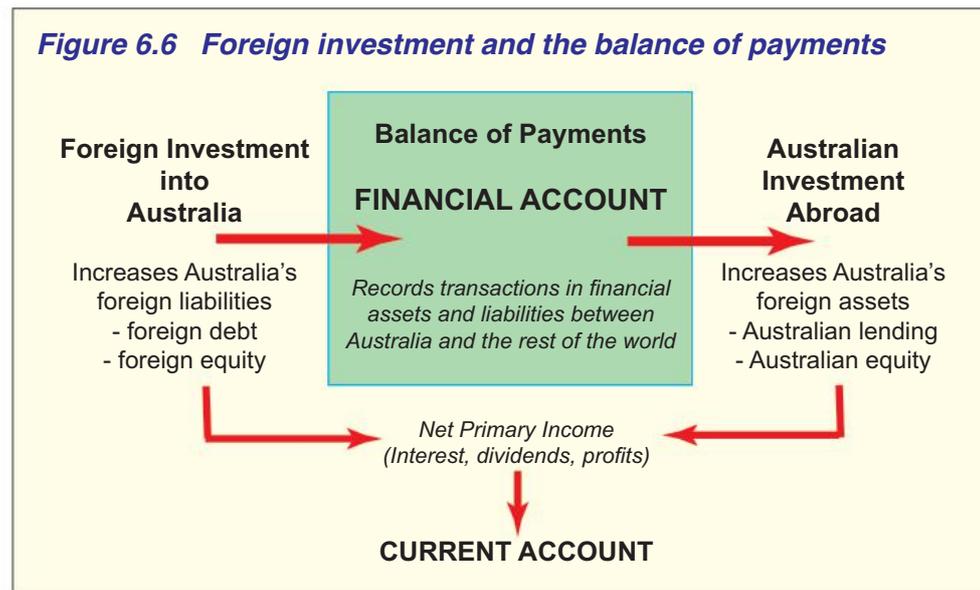
We also learnt in chapter 4 that the current account balance is equal to the difference between a country's saving and its investment:

$$\text{Current account balance} = \text{Saving} - \text{Investment (S - I gap)}$$

The reason why Australia usually records a current account deficit or capital/financial account surplus is that its investment is greater than its saving ($I > S$). What fills this gap? The answer is foreign investment. In other words, Australia imports foreign savings from the rest of the world. This foreign savings is financial capital inflow, or foreign investment into the Australian economy. So we can now show that the financial account balance is also equal to the difference between a country's saving and its investment:

$$\text{Capital/Financial account balance} = \text{Investment} - \text{Saving (I - S gap)}$$

An inflow of foreign investment into the Australian economy will increase the financial account balance, while an outflow of foreign investment will decrease the financial account balance. Figure 6.5 also illustrates the important link between the financial account and the current account. Foreign investment



generates income flows into and out of the economy. These income flows are mainly in the form of interest, dividends and profits and are recorded in the income category of the current account. For example, if an Australian bank borrows \$1 billion from a foreign financial institution (foreign investment inflow) then it will have to remit interest payments to the overseas lender. These payments will be recorded as an income debit in the current account. If an Australian super fund has purchased shares in a foreign company (foreign investment abroad), then it will receive dividend receipts which will be recorded as an income credit in the current account. Because Australia has always been a net receiver of foreign investment, the income balance has always recorded a large deficit - the income payments are greater than the income receipts.

The benefits and costs of foreign investment

The most important benefit of the inflow of foreign investment into the Australian economy is that it has supplemented Australia's domestic savings to fund a higher level of investment. Australia is a resource rich nation which depends on the inflow of foreign investment to develop its vast mineral and energy resources. Most inward 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 0 - 15 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. The table below shows Australia's total investment flows between 2018 and 2024. 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 Saving - Investment Gap							
	2018	2019	2020	2021	2022	2023	2024
Domestic investment \$billion	449	454	449	469	537	599	648
Domestic savings \$ billion	400	435	470	537	591	624	629
Foreign savings \$ billion	49	19	-21	-68	-54	-25	19
Domestic source (% share)	89	96	105	114	110	104	97
Foreign source (% share)	11	4	-5	-14	-10	-4	3

In 2020 the economy experienced a deep recession due to the Covid 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 2023, Australia had enough savings to fund its investment needs! In 2024, investment increased above saving and this meant that Australia had to use foreign savings of \$19 billion to fill the gap.

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 reduces the cost of capital for domestic investments, increasing the volume of investments, not only for businesses but for households as well through lower mortgage rates. Inward 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 leading to higher real incomes. Without the large amount of foreign investment that has flowed to Australia, the mining, manufacturing and housing sectors would have been much smaller.

Direct foreign investment has the advantage that it can bring with it new technology and managerial expertise. Most of the foreign direct 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.

Infrastructure refers to the basic structures and systems that enable an economy to function - such as water supply and power grids.

Foreign investment provides spillover benefits such as technology transfer.

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.

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 foreign company. The new concern is that foreign investment into areas of critical infrastructure may create a national security risk. A recent example was the 99 year lease of the Darwin port to a Chinese company in 2015.

Most inward foreign investment in Australia is in the form of borrowing which adds to the stock of Australia’s foreign debt. Many media commentators highlight the fear of foreign debt believing that it imposes a burden on the economy. But they forget that foreign debt is part of the foreign investment story. Borrowing funds, whether from overseas or domestic sources, is irrelevant, as long as the borrowing leads to a higher national income. Interest payments on foreign debt have become the largest debit item in the income category of the current account. However, as long as the borrowing boosts Australia’s future productive capacity, then the servicing of the debt is not an issue.

Another favourite media scare is that foreign investment in Australia’s real estate market can ‘crowd out’ domestic residents by increasing property prices. The truth is that foreign investors cannot legally buy existing residential property in Australia. They can purchase new residential property if they receive approval from the FIRB (Foreign Investment Review Board). Currently foreign buyers make up only 1 per cent of all real estate purchases in Australia. It should also be remembered that a large proportion of the finance that funds new housing and apartment construction is sourced from foreign investment.

<i>The benefits of foreign direct investment</i>
<i>Helps to fund the I – S gap, allowing Australia to have a high rate of investment</i>
<i>Enables Australia to have higher real incomes & higher living standards</i>
<i>Reduces the cost of capital for both businesses and households</i>
<i>Increases employment & economic growth</i>
<i>Enabled the development of Australia’s mining & energy sector</i>
<i>Increased net exports in the resources sector</i>
<i>Encourages competition and increased innovation through new technologies</i>
<i>Enhances productivity growth through capital deepening</i>
<i>Increased tax revenue for State and Commonwealth Governments</i>

Because Australia has a relatively high level of net foreign debt, it is argued that Australia's **credit rating** may be adversely affected if the level of borrowing increases. This means that future borrowing could be subject to higher interest rates. But if this were to happen, the higher rates would reduce the amount of foreign borrowing which is a normal market reaction. A further argument that is raised is that a depreciation in the Australian dollar will increase the value of Australia's foreign liabilities. But this is incorrect. Most of Australia's borrowing is denominated in Australian dollars so a change in the exchange rate has a minimal effect on the outstanding debt. Australia's foreign assets on the other hand are held in foreign currency, so a depreciation in the Australian dollar actually increases their value.

A country's credit rating is an assessment of the level of risk associated with lending to that country.

Australia's foreign liabilities and foreign assets

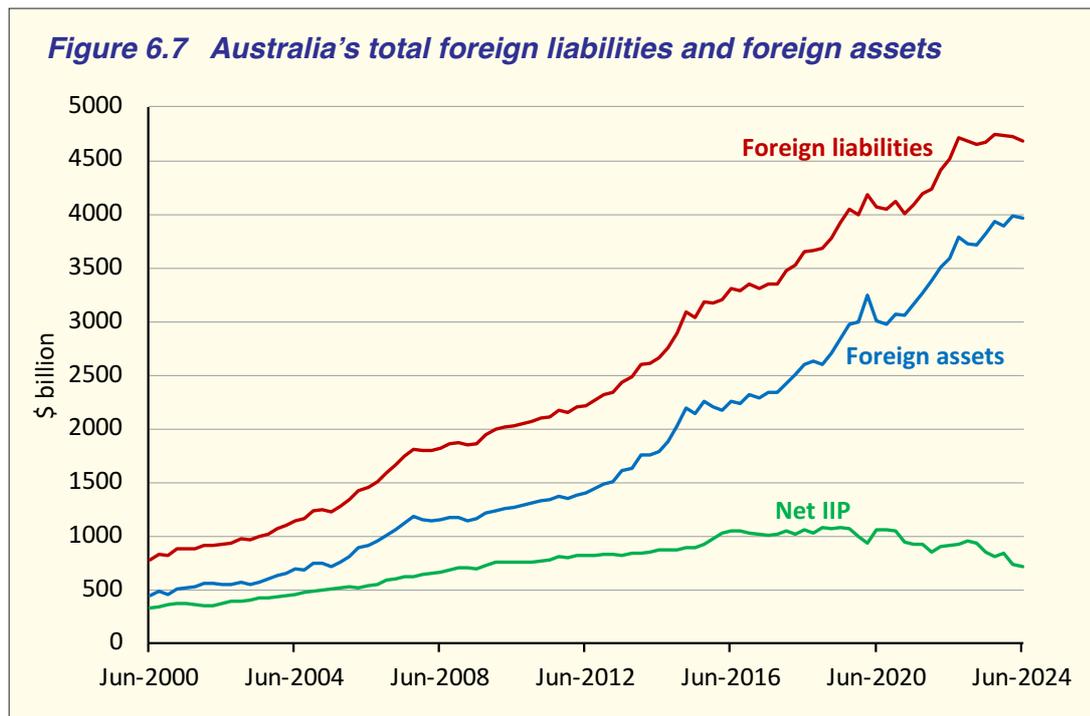
The sum or stock of all the foreign investment that has flowed into Australia over time is known as Australia's **foreign liabilities**. A liability is something that you owe. The sum or stock of all Australia's investment that has flowed into foreign countries over time is known as Australia's **foreign assets**. An asset is something that 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 increase in Australia's investment abroad.

The difference between Australia's total foreign liabilities and total foreign assets is known as the net **international investment position** (IIP). Figure 6.7 shows the growth in Australia's foreign liabilities and foreign assets since 2000. Over this time foreign liabilities have increased by a factor of six, however, foreign assets have increased at a faster rate - by a factor of eight. In June 2024, Australia's foreign liabilities totalled \$4,683 billion while Australia's foreign assets totalled \$3,963 billion. This meant that Australia's net international investment position was a liability of \$720 billion.

For most of Australia's history, foreign residents have invested more in Australia than Australians have invested overseas.

Why has this occurred? Because throughout Australia's history, foreign residents have invested more in Australia than Australian residents have invested in overseas countries, resulting in a net foreign liability. Is this a cause for concern? Not really, because it is important to remember that net foreign liabilities represents net foreign investment into the Australian economy which has been used to boost our national income and standard of living.

Net foreign liabilities can be divided into net foreign debt (borrowing) and net foreign equity (foreign ownership). If Australian residents (households, firms or government) borrow funds from overseas, then this increases Australia's

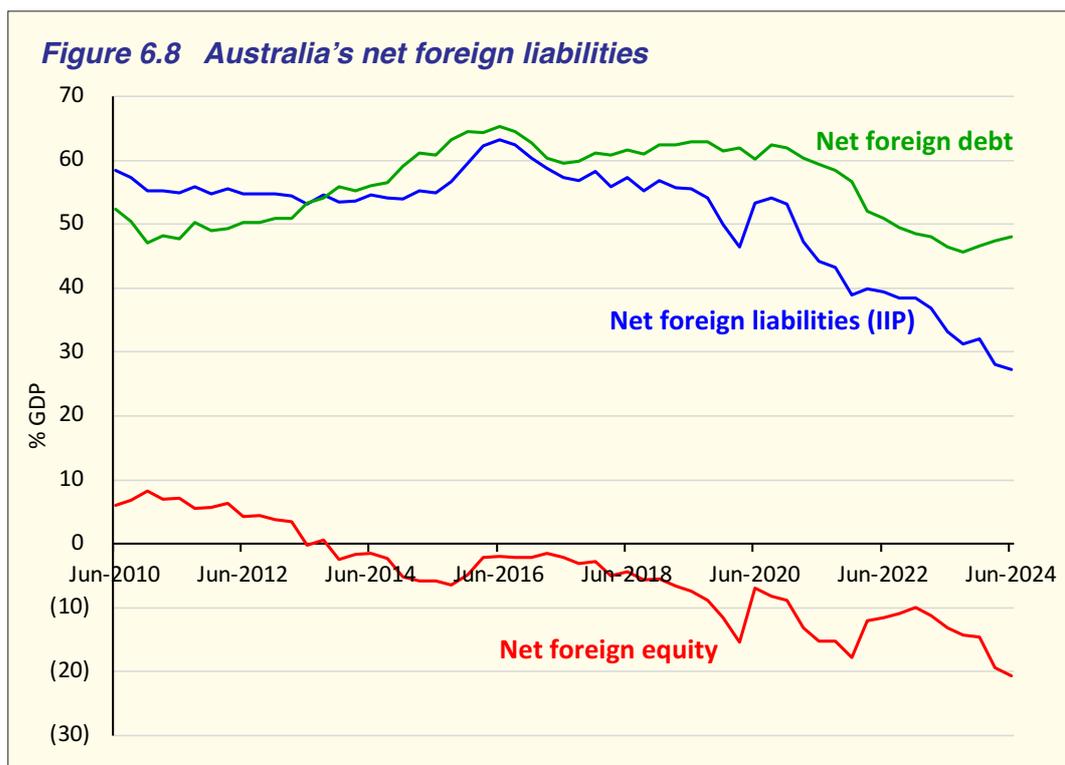


foreign debt liability. If Australian residents sell assets to overseas residents, then this increases Australia's foreign equity liability. The following table summarises Australia's net international position for 2024.

June 2024	Debt \$bn	Equity \$bn	Total \$bn
Foreign Liabilities	2784	1899	4683
Foreign Assets	1518	2445	3963
Net Foreign Liabilities	1266	-546	720
Per cent of GDP	48	-21	27

Total foreign liabilities equalled \$4,683 billion, with 60 per cent comprised of foreign debt and 40 per cent foreign equity. Australia's foreign assets totalled \$3,963 billion and this comprised around 40 per cent lending and 60 per cent equity. We are interested in the net figures – Australia's net foreign debt in 2024 was \$1,266 billion, while net foreign equity was -\$546 billion. Why is the net foreign equity figure negative? Because Australia now owns more foreign equity than it owes, so in fact net foreign equity is no longer a liability - it is now a foreign asset. These numbers appear large but it is important to remember that they consist of the accumulation of net foreign investment over many decades.

Figure 6.8 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 since 2010 by more than half – falling from 58 per cent of GDP to just 27 per cent in 2024. Net foreign debt has decreased from 52 per cent of GDP in 2010 to 48 per cent in 2024, while net foreign equity has fallen from 6 per cent of GDP to -21%. This means that now all of Australia's net foreign liabilities are in the form of net foreign debt with net foreign equity no longer being a liability. This is a very significant change! The reason for this dramatic growth in Australia's holdings of overseas assets has paralleled the growth in Australia's superannuation funds. 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.

Australia's foreign debt

Foreign debt refers to 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.

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 net foreign debt is private debt – of a total of \$1,266 billion in 2024, private sector debt amounted to \$935 billion or 74 per cent. The government's share was \$331 billion, or 26 per cent. 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 table above shows the government's share of net foreign debt between 2016-2019 was relatively stable at 23-24 per cent. Then in 2020, it jumped significantly to 28 per cent and then to 36 per cent in 2021. This was the impact of the Covid 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 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! 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 foreign debt imposes a 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 2024, one third of the foreign debt had a maturity of less than one year while 67 per cent was to be repaid within five years.

Australia's Net Foreign Debt \$billion					
Year	Government \$bn	Private \$bn	Total \$bn	Government %	Private %
2016	252	831	1083	23	77
2017	241	805	1046	23	77
2018	274	863	1137	24	76
2019	300	928	1228	24	76
2020	336	859	1195	28	72
2021	442	800	1242	36	64
2022	337	852	1189	28	72
2023	325	864	1189	27	73
2024	331	935	1266	26	74

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. Does it matter whether the borrowing is from domestic sources or foreign sources? Accessing foreign savings can help to reduce the cost of borrowing and as we have seen can help to fill Australia's investment-savings gap. The problem is that many journalists in the Australian media 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.

The Australian Bureau of Statistics (ABS) now publishes a 'balance sheet' for Australia which details changes in Australia's assets, liabilities and net wealth over time. This balance sheet shows that while Australia's foreign liabilities have increased over time so has Australia's total assets. These are measured in terms of both domestic and foreign assets such as buildings, housing, machinery, natural 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 Balance Sheet				
	Assets \$billion	Liabilities \$billion	Net Worth \$billion	Per capita \$'000
2000	12,298	1,341	10,957	576
2010	16,725	2,630	14,095	640
2020	21,764	4,449	17,315	675
2024	23,172	4,381	18,791	691

Source: ABS 5204.0

Australia's wealth has been rising over time. Since 2000, Australia's liabilities increased by \$3 trillion but total assets increased by \$11 trillion. This means that Australia's wealth over this time rose by around \$8 trillion. Not only has the total amount of Australia's wealth increased, but per capita wealth in Australia has also risen - from \$576,000 in 2000 to \$691,000 in 2024. This proves that the net inflow of foreign investment into the Australian economy has increased both Australia's real income and wealth.

Review

- 1. Outline how foreign investment can affect both the financial account and the current account in the balance of payments.***
- 2. Describe four benefits of foreign investment.***
- 3. Distinguish between Australia's foreign liabilities and foreign assets. Which is larger?***
- 4. Explain why Australia's net foreign liabilities have fallen over the past decade.***
- 5. Explain why Australia has a high level of foreign debt and why this is not a problem for the economy.***

Chapter Summary

- *Foreign investment and investment are different concept.*
- *Investment refers to spending that increases the quantity of capital - machinery, buildings, equipment.*
- *Foreign investment refers to the buying and selling of financial assets both within Australia and overseas.*
- *When foreigners invest in Australia it is recorded as an inflow in the financial account in the balance of payments.*
- *When foreigners invest in Australia it increases Australia's foreign liabilities.*
- *When Australians invest in overseas economies it is recorded as an outflow in the financial account in the balance of payments.*
- *When Australians invest abroad it increases Australia's foreign assets*
- *Australia has traditionally relied on a net inflow of foreign investment to develop its economy and to supplement its domestic savings.*
- *The level of ownership that defines direct investment is a minimum of 10 per cent equity.*
- *The sum or stock of all the foreign investment that has flowed into Australia over time is known as Australia's foreign liabilities.*
- *The sum or stock of all Australia's investment that has flowed into foreign countries over time is known as Australia's foreign assets.*
- *Because Australia has always been a net receiver of foreign investment, the income balance has always recorded a large deficit - the income payments are greater than the income receipts.*
- *The most important benefit of the inflow of foreign investment into the Australian economy is that it has supplemented Australia's domestic savings to fund a higher level of investment and increase living standards..*
- *Foreign investment in Australia reduces the cost of capital for both businesses and households.*
- *Foreign investment in Australia can help to increase the economy's infrastructure.*
- *Foreign direct investment has the advantage that it can bring with it new technology and managerial expertise.*
- *The costs of foreign investment are associated with foreign ownership and foreign debt*
- *The sum of all foreign investment into Australia is known as Australia's foreign liabilities.*
- *The sum of all Australia's investment abroad is known as Australia's foreign assets.*
- *The difference between Australia's total foreign liabilities and total foreign assets is known as the net international investment position.*
- *Foreign debt refers to the amount of money that Australian residents, both public and private, owe to the rest of the world.*
- *Most of Australia's net foreign debt is private debt (74 per cent).*

Chapter Review

Multiple choice 1

1. 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 financial assets whereas foreign investment is the purchasing of capital goods.
2. In the short term, a rise in real interest rates in Australia could be expected to, ceteris paribus,
 - a. increase foreign investment into Australia and appreciate the AUD.
 - b. increase foreign investment into Australia and depreciate the AUD.
 - c. decrease foreign investment into Australia and depreciate the AUD.
 - d. have no effect on the levels of overseas investment in Australia or the exchange rate.
3. 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.
4. 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.
5. _____ 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.
6. Most inward foreign direct investment flows into the
 - a. housing sector.
 - b. financial sector.
 - c. manufacturing sector.
 - d. mining sector.
7. If the level of foreign investment in Australia increases relative to Australian investment abroad then
 - a. the income balance in the current account will increase.
 - b. the income balance in the current account will decrease.
 - c. the trade balance in the current account will increase. .
 - d. the trade balance in the current account will decrease.

8. Foreign investment is considered desirable for the Australian economy because it can
 - a. reduce the cost of borrowing.
 - b. fund a higher rate of domestic investment.
 - c. increase Australia's national income.
 - d. all of the above.
9. 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.
10. Which of the following statements about foreign direct investment (FDI) into Australia are correct?
 - I. FDI brings new technology that increases the efficiency of Australian firms
 - II. FDI contributes to improved infrastructure
 - III. FDI contributes to Australia's financial account surplus
 - IV. FDI reduces employment resulting in decreased taxation revenue
 - a. I and II only
 - b. I, II and III
 - c. I and IV only
 - d. I, III and IV
11. If Australia records a financial account deficit, this would mean that
 - a. Australia's net foreign liabilities would increase.
 - b. Australia's net foreign liabilities would decrease.
 - c. there would be a net inflow of portfolio investment.
 - d. there would be a net outflow of direct investment.
12. Which of the following types of foreign investment is most likely to lead to an increase in Australia's trade balance?
 - a. Direct investment
 - b. Portfolio investment
 - c. Financial derivatives
 - d. Reserve assets
13. The two economies that account for most foreign investment in Australia are
 - a. The United States and China.
 - b. The United States and the United Kingdom.
 - c. The United States and Japan.
 - d. The United States and Belgium.
14. If Australia receives \$200 billion of foreign investment and at the same time invests a total of \$160 billion abroad, then Australia's
 - a. financial account balance increases by \$40 billion.
 - b. current account balance increases by \$40 billion.
 - c. capital account must be negative.
 - d. financial account balance decreases by \$40 billion.

Articles to review

Refer to the article below on foreign direct investment to answer the questions that follow.

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 (FDI) 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.

Questions

1. How does Australia access foreign saving?
2. Clearly explain the difference between foreign direct investment (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 three benefits of FDI.

Refer to the article below on foreign liabilities to answer the questions that follow.

Foreign liabilities and 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 and for the years 2020-2023 actually pushed the current account 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.

Concerns about foreign liabilities

In 2023 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 27 per cent of the economy's yearly output. While foreign ownership brings in foreign capital, foreign innovation and foreign management techniques, there can be 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.

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 \$1,200 billion due to the inflow of foreign investment.

Questions

1. Describe the two main types of foreign liability.
2. Explain how a current account deficit is financed.
3. Why will a current account surplus result in falling net foreign liabilities?
4. Why does foreign investment increase the income deficit in the balance of payments?
5. Why is Australia 'better off' with foreign debt?
6. Who owes Australia's foreign debt?
7. Australia's net foreign debt is now over \$1,200 billion. Should we be worried?
8. Why do some analysts see an increase in the foreign debt as a problem but others see it as a benefit?

Multiple choice 2

1. Australia's net foreign liabilities have been declining due to
 - a. a sustained increase in Australia's foreign assets.
 - b. an appreciating AUD exchange rate.
 - c. a favourable movement in Australia's terms of trade.
 - d. a sustained fall in Australia's foreign debt.
2. Foreign liabilities increase when
 - a. Australian firms engage in direct investment abroad.
 - b. Australian firms engage in portfolio investment abroad.
 - c. the Australian dollar (AUD) appreciates.
 - d. Australian firms borrow from overseas financial institutions.

3. Refer to the data below:

<i>Real GDP (\$bn)</i>	<i>Net foreign liabilities (\$bn)</i>	<i>Net foreign debt (\$bn)</i>
1960	980	1140

What is the value of net foreign equity as a percentage of real GDP?

- a. 8.2%
 - b. -8.2%
 - c. 50.0%
 - d. 58.2%
4. The table shows hypothetical data for the Australian economy. What is the value of Australia's Net Foreign Liabilities?

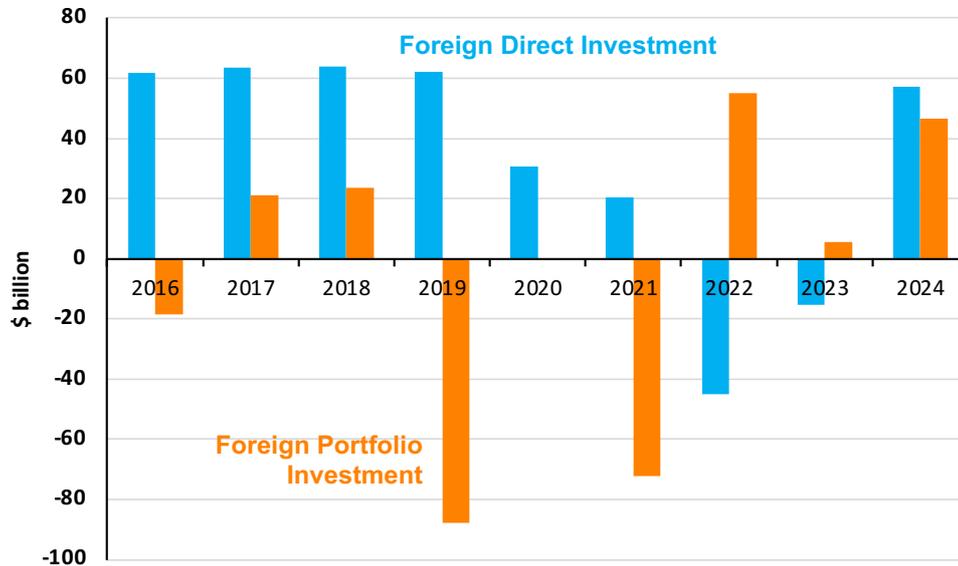
Loans owed by foreigners to Australians (\$ billions)	150
Loans owed by Australians to foreigners (\$ billions)	600
Australian assets owned by foreigners (\$ billions)	100
Foreign assets owned by Australians (\$ billions)	250

- a. \$300 billion
 - b. \$400 billion
 - c. \$600 billion
 - d. \$1100 billion
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 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.

7. Most of Australia's foreign debt is owed by
 - a. the government.
 - b. private households.
 - c. private enterprises.
 - d. government enterprises, for example the ABC or Australia Post.
8. Which one of the following would result from Australian companies increasing their overseas borrowing?
 - a. both the current account deficit and the capital & financial account surplus will fall.
 - b. both the current account deficit and the capital & financial account surplus will rise.
 - c. the financial account surplus will rise, but the current account deficit will not be affected.
 - d. the current account deficit will increase, but the financial account surplus will not be affected.
9. Which of the following statements about Australia's foreign debt are correct?
 - I. High foreign debt levels can cause a downgrade in Australia's credit rating.
 - II. Government debt is the largest component of Australia's foreign debt.
 - III. A depreciation of the Australian dollar can cause an increase in debt service costs.
 - IV. High foreign debt can lead to higher per capita income in Australia.
 - a. I, II and III.
 - b. II and IV.
 - c. II, III and IV.
 - d. I, III and IV.
10. Which of the following would reduce Australia's net foreign liabilities?
 - a. An increase in the 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.
11. 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.
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 debt is preferred to foreign equity because it is more flexible.
 - b. Australia's net foreign liabilities have increased over the past decade.
 - c. Foreign debt does not require an income payment.
 - d. Most of Australia's net foreign liabilities are in the form of net foreign equity.
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.

Data interpretation

Refer to the graph below showing the net flow of foreign direct and foreign portfolio investment into Australia.



Questions

1. Distinguish between foreign direct and foreign portfolio investment.

2. Estimate the value of direct and portfolio investment in 2024.

3. Refer to the graph to explain why portfolio investment is more volatile than direct investment.

4. Account for the change in portfolio investment in the period 2019-21

5. Explain how changes in interest rates would affect the flow of portfolio investment.

Extended responses

Each of the following questions should be answered in 1-2 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1.
 - a. Imagine you are a foreign investor in the United States. Describe four reasons why you would want to invest in the Australian economy. (8 marks)
 - b. Describe the impact of an increase in foreign direct investment into the Australian economy. In your response refer to the level of economic activity, the balance of payments and the exchange rate. (7 marks)
2.
 - a. Distinguish between Australia's foreign assets and foreign liabilities and describe Australia's net international investment position. (9 marks)
 - b. Explain the link between foreign investment and the current account balance. (6 marks)

Selected Answers

Multiple Choice 1 - p.147: 1b; 2a; 3a; 4b; 5c; 6d; 7b; 8d; 9c; 10b; 11b; 12a; 13b; 14a

Multiple Choice 2 - p.151: 1a; 2d; 3b; 4a; 5b; 6b; 7c; 8b; 9d; 10d; 11c; 12a; 13a; 14d

Data interpretation p. 153

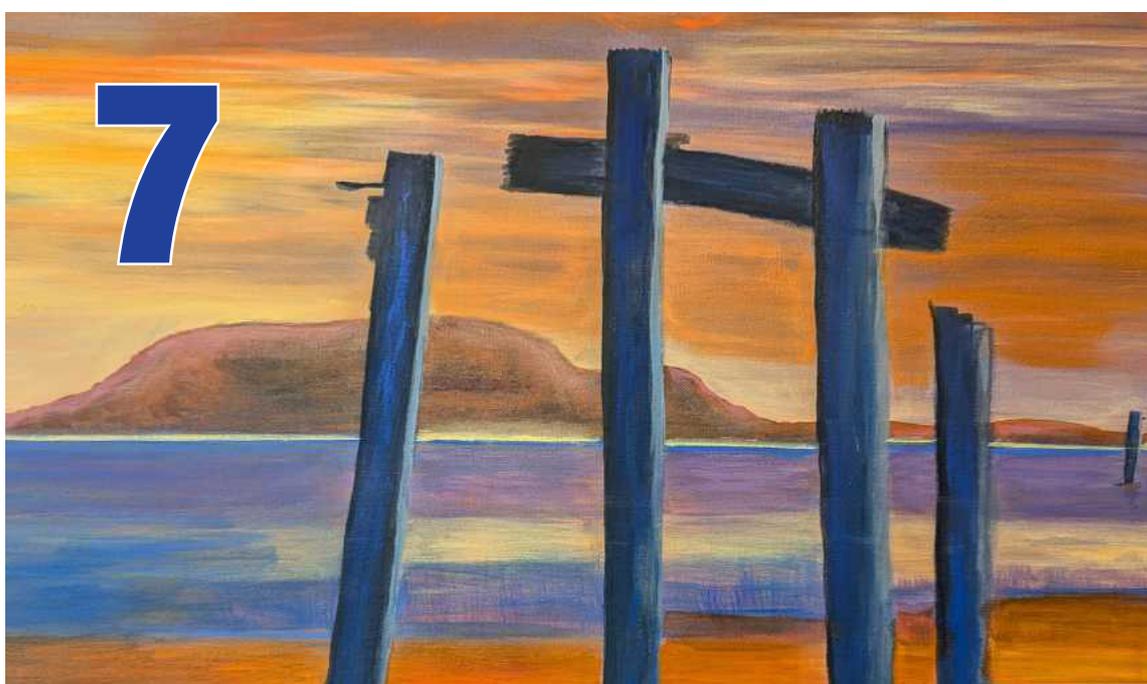
2. Direct = \$57 billion; Portfolio = \$47 billion

3. Portfolio fluctuates between an inflow of \$55 billion (2022) and an outflow of \$88 billion (2019) - a range of \$143 billion. Direct fluctuates from an inflow of \$64 billion (2018) to an outflow of \$45 billion - a range of \$109 billion. Portfolio fluctuates more because it is short term and speculative.

4. This was the period affected by the Covid pandemic. There was a large net outflow of foreign portfolio investment in both 2019 and 2021. Foreign investors would have withdrawn their funds due to the global recession.

5. Higher relative interest rates in Australia would cause an increase in foreign portfolio investment into the Australian economy as investors would chase higher returns on their money.

Macroeconomics and the business cycle



Key understandings

- *the meaning of macroeconomics*
- *the concept of the business cycle*
- *the causes and turning points of the business cycle*
- *the relationship between the business cycle and economic indicators*
- *trends in Australia's macroeconomic performance over the last ten years*

What is macroeconomics?

Macroeconomics focuses on the performance of the whole economy – changes in economic output, inflation and unemployment.

Macroeconomics is the study of the performance of the economy as a whole and the policies used to improve that performance. Macroeconomics is distinguished from microeconomics, which studies the behaviour of individual economic agents (households and firms) and sectors of the economy. Macroeconomics focuses on aggregate (total) economic activity. This means analysing the total production of goods and services across the entire economy. It means analysing the change in the overall level of prices rather than prices in individual markets. It means analysing changes in employment and unemployment across all sectors of the economy.

The two most important areas of research in macroeconomics are long-term economic growth and shorter-term business cycles. In this chapter we focus on the **business cycle**. Chapter 12 will take a closer look at long term economic growth.

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 labour market. The following excerpts are from the Reserve Bank website highlighting key changes to macroeconomic conditions:

- “The Australian economy is growing a little above trend, although GDP growth slowed unexpectedly in the September quarter. In contrast, the labour market continues to improve, with the unemployment rate having fallen to 5 per cent. (*Reserve Bank February 2019*)
- “Economic developments continue to be driven by the Covid pandemic. In Australia, the 7 per cent contraction in GDP in the June quarter was the largest peacetime contraction since the 1930s”. (*Reserve Bank February 2019*)

Review

Which of the following topics refer to the macroeconomy?

- a. Consumer confidence is at an all time high and the economy is growing.*
- b. The market for portable electronic devices has been steadily increasing over the last 5 years.*
- c. Wages for architects have been increasing faster than average in Sydney.*
- d. The Consumer Price Index (CPI) rose 1.0 per cent in the June 2024 quarter.*
- e. With employment rising by 64,000 people and the number of unemployed falling 9,000, the unemployment rate remained at 4.1 per cent.*
- f. The Reserve Bank decided to reduce the cash rate to encourage increased investment.*

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 unemployment rate?' 'Is the state of the economy better this year than last year?' and even 'Do you think interest rates are too high?' Record their answers and reflect on them as your course progresses.

- "In Australia, inflation is very high and broadly based, and the labour market is tight." Headline CPI inflation was 7.3 per cent over the year to the September quarter, the highest rate in over three decades. At 3½ per cent, the unemployment rate remains around the lowest rate in nearly 50 years. (*Reserve Bank November 2022*).
- "Inflation has fallen substantially since the peak in 2022, as higher interest rates have been working to bring aggregate demand and supply closer towards balance. Over the three months to August 2024, employment grew on average by 0.3 per cent per month. The unemployment rate remained at 4.2 per cent, up from the trough of 3.5 per cent in mid-2023." (*Reserve Bank September 2024*).

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.

Macroeconomics as a sub branch of economics is less than 100 years old. It was born in the 1930s in response to the **Great Depression** when most economies suffered a massive recession with unemployment rates rising to 30 per cent of the work force. The existing economic theory, known as the **Classical School**, could not explain the causes of the severe worldwide economic collapse nor provide an adequate policy solution to shift the economy back to full employment. It was a British economist, **John Maynard Keynes**, who came to the rescue! He overturned the then-prevailing idea that free markets would automatically prevent economies from deviating from full employment.

Keynes major work was entitled "*The general theory of employment, interest and money*". It was published in 1936 and shifted focus to the theory of aggregate demand which until then had been overlooked. Keynes's theory suggested that increases in spending by either the private or public sector, could be used to counteract economic depressions or recessions. This meant that there was a role for government policy such as fiscal and/or monetary

policy to be used reduce fluctuations in the business cycle. For example, during a recession, the Government could increase its spending or cut taxes to stimulate consumption or reduce interest rates to encourage investment spending. Much of the theory presented in chapters 8 and 9 is based on Keynesian economics.

Another economist who made a significant contribution to macroeconomics was **Simon Kuznets**. Simon was an American economist who, during the 1930s, developed a technique to measure the value of national income and production across the entire economy. This of course led to the development of the concept of **gross domestic product (GDP)** which is viewed today as the 'king' of all macroeconomic indicators. Kuznets was justifiably awarded a Nobel Prize in Economics for his ground breaking research. Without the GDP statistic it would not be possible to accurately measure changes in the level of economic activity or measure the rate of economic growth.

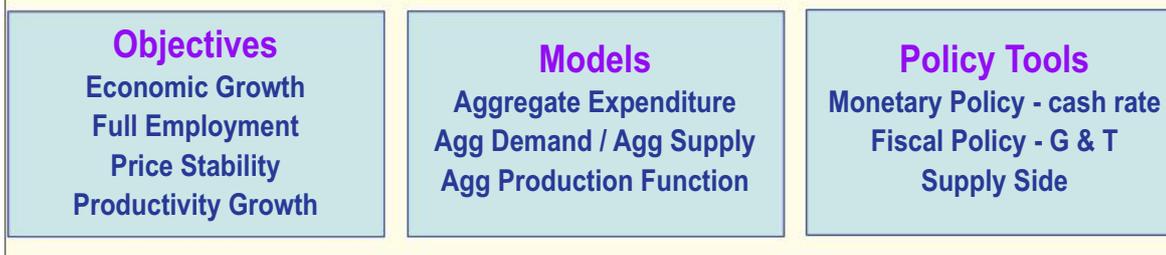
Today, macroeconomists:

- collect a range of data that describe the state of production, expenditure and income in the economy;
- use economic concepts to interpret the data to describe and explain trends in economic activity;
- use economic models to explain and predict effects of events on the macroeconomy;
- suggest policy measures to improve macroeconomic performance.

Figure 7.1 below provides a framework with which we can summarise the key components of macroeconomics. First the goals or objectives of macroeconomics include:

- **Economic growth** - increasing the productive capacity of the economy over time in order to increase living standards.
- **Full employment** - keeping the unemployment rate close to its natural rate.
- **Price stability** - achieving a low and stable inflation rate.
- **Productivity growth** - increasing labour productivity over time.

Figure 7.1 The macroeconomic framework



There are three models that we use in this text to help explain the concepts of macroeconomics:

- the **Aggregate Expenditure (AE) model** - this is the foundation model which explains how changes in expenditure affect the level of income and output (developed in chapter 8).
- the **Aggregate Demand/Aggregate Supply (AD/AS) model** - this is a more complete model of the macroeconomy since it can be used to explain fluctuations in both output and the price level (developed in chapter 9).
- the **Aggregate Production Function (APF)** - this model is used to explain the importance of labour productivity (developed in chapter 12).

There are three types of government policy that can be used to achieve the objectives or goals of macroeconomics:

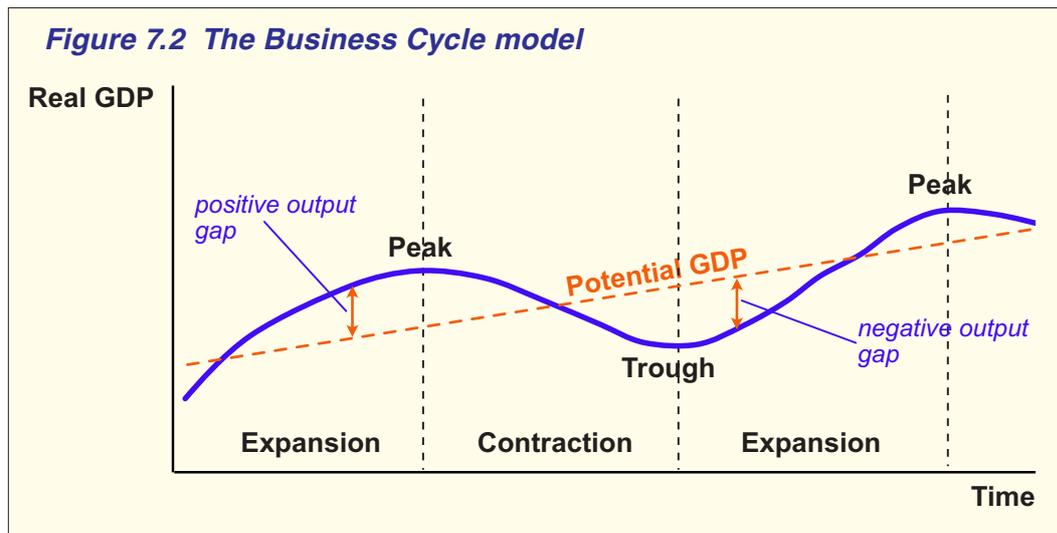
- **Fiscal policy** - also known as Budgetary policy, involves the use of government spending (G) and taxation (T) to influence the level of economic activity (developed in chapter 10).
- **Monetary policy** - this refers to the actions of the Reserve Bank in setting interest rates in order to influence the level of economic activity and inflation (developed in chapter 11).
- **Supply side policies** - these are government policies that focus on increasing labour productivity (developed in chapter 12).

The business cycle

The **business cycle** refers to the fluctuating levels of economic activity in an economy over a period of time. We use real GDP as the overall indicator for economic activity. We depict the business cycle on a diagram with the y-axis measuring real GDP and the x-axis measuring time (refer to figure 7.2). The fluctuations in real GDP include both expansions and contractions that occur around a trend line of growth known as potential GDP.

Potential GDP is the maximum or full employment level of production that can be attained given the economy's factors of production and level of technology. If the quantity and/or the quality of resources increase each year, then the level of potential GDP will increase. We can actually determine the growth rate of potential GDP by summing the annual growth rate of the labour force and productivity. For Australia this is usually between 2.5 to 3 per cent per year. Growth in productivity reflects improvement in the quality of labour, through education and training, and improvement in the quality of capital, through advances in technology.

A business cycle refers to the recurring pattern of expansion and contraction in economic activity over time.



The 'normal' state for the economy is to expand each year given that the labour force usually grows between one and two per cent and productivity grows between one and two per cent. The trend line of growth has a positive slope and follows a linear path. If the economy were to stay on this path, then the level of unemployment would remain at the 'natural' or full employment rate. But we know that over time, actual real GDP fluctuates around this trend line which results in the business cycle. When actual real GDP is above the trend line, then the economy experiences a **positive output gap**. This means that the unemployment rate has fallen below the natural rate. When actual real GDP is below the trend line, then the economy experiences a **negative output gap**. This means that the unemployment rate has risen above the natural rate.

The business cycle comprises four phases - the expansion or upswing, the upper turning point or peak, the contraction or downswing and the lower turning point or trough. One complete business cycle is usually measured from a peak to a trough. In many ways, the term 'business cycle' is misleading. 'Cycle' seems to imply that there is some regularity in the timing and duration of expansions and contractions in economic activity. Figure 7.2 is a 'stylised' depiction of the business cycle implying that an expansion is similar in length to a contraction, but this is far from the truth. Contractions and expansions are unpredictable and their lengths vary.

Business cycles are dated according to when the direction of economic activity changes. The peak of the cycle refers to the last month before several key economic indicators - such as employment, output, and retail sales - begin to fall. The trough of the cycle refers to the last month before the same economic indicators begin to rise.

The following table highlights the different business cycle phases for the Australian economy since September 1983. In this period there were two recessions totalling four quarters and there were three expansion periods totalling 160 quarters (equivalent to 40 years). This clearly illustrates that the 'normal' phase for the economy is an expansion. Being in an expansion does not mean that the economy is booming – it could be growing only modestly. For example in 2024, the economy grew by just 0.2 per cent in both the March and June quarters.

Period	Business Cycle Phase	GDP Growth Rate
Sep 1983 - Dec 1990	Expansion (30 qrts)	2.1% (avg)
Dec 1990	Peak	0.5%
Mar 1991	Recession	-1.3%
Jun 1991	Trough	-0.2%
Sep 1991 - Dec 2019	Expansion (114 qrts)	0.8 (avg)
Dec 2019	Peak	0.5%
Mar 2020	Recession	-0.2%
Jun 2020	Trough	-6.7%
Sep 2020 - Jun 2024	Expansion (16 qrts)	1.0% (avg)
Sep 2024 - ??	??	??

Figures 7.3 and 7.4 illustrate Australia's actual business cycle measured in two different ways. Figure 7.3 shows the change in the level of quarterly real GDP from June 2016 to June 2024. The y-axis measures real GDP in billions of dollars. In June 2024, for example, real GDP was equal to \$612 billion. Notice how actual real GDP stays close to the trend line with the exception of the period associated with the Covid pandemic (2020-21). This was a major negative shock to the economy causing Australia's first recession since 1991. In June 2020, real GDP contracted by 6.7 per cent while the unemployment rate spiked to 7.5 per cent. Notice how within two years of the pandemic, the economy had returned to its long run growth path.

Figure 7.4 illustrates the percentage change in Australia's annual real GDP since 1990. The y-axis now measures the growth rate or percentage change in quarterly real GDP. This graph clearly highlights how actual real GDP fluctuates from one period to the next - it looks more volatile than figure 7.3. On this graph, a contraction is shown as a negative growth rate - an actual decline in real GDP. Note that a fall in the growth rate is not a contraction. As long as the growth rate is positive, then real GDP is rising and the economy is in an expansion. The economy experienced a recession in 1991 and in 2020. The period between these recessions was a 28 year expansion - the longest of any economy since 1900. Obviously there are periods when the economy slows, but as long as real GDP rises, then the economy is expanding.

Figure 7.3 The level of Real GDP

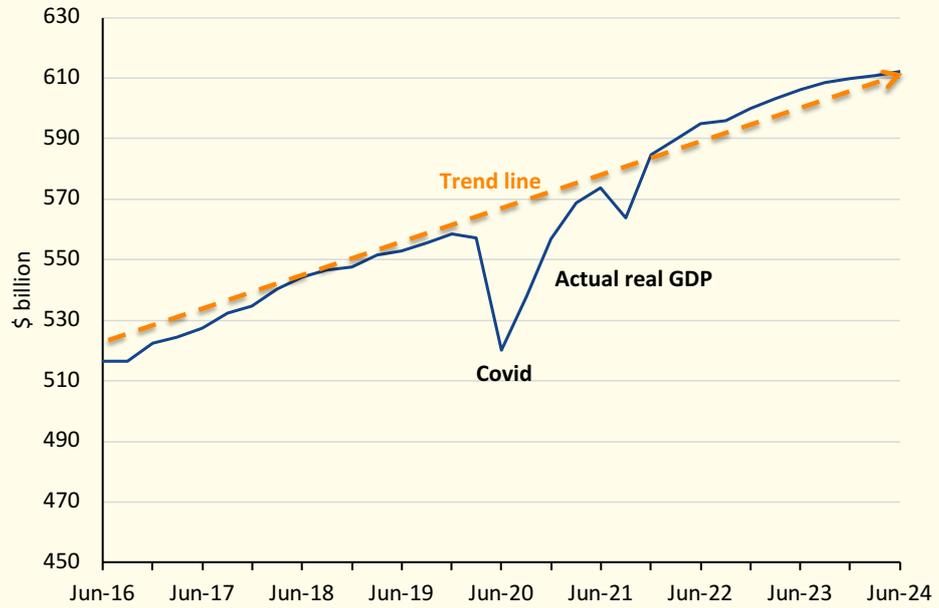
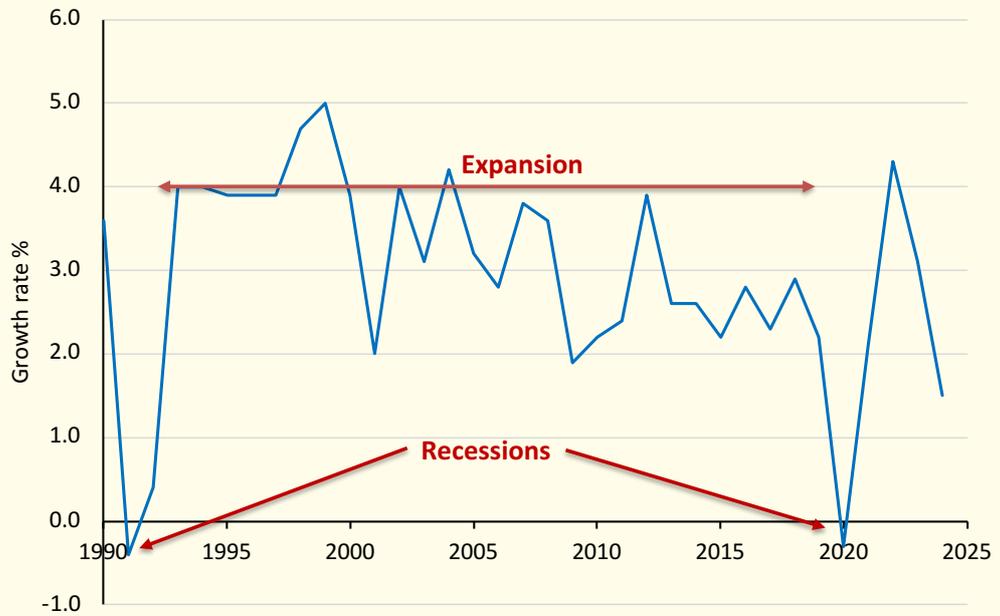


Figure 7.4 The growth rate of Real GDP



The expansion phase

The upward slope of the business cycle is referred to as an **economic expansion**. An expansion is a period when economic output increases. That is, more goods and services are being produced in the economy. The rate of real GDP growth is positive. As the economy expands, businesses will require more resources, including labour. Employment will typically increase while unemployment will fall. As economic activity increases, the rate of inflation will rise as demand for goods and services and resources grows. An expansion is associated with rising economic prosperity.

Typical characteristics of an expansion include:

- increased business investment in plant and equipment
- rising household income
- rising levels of household consumption spending, particularly on discretionary items
- decreased household saving ratio
- rising retail and motor vehicle sales
- increased levels of household and business confidence
- increasing asset prices, including shares and property
- higher business profitability
- increasing labour market participation
- falling cyclical unemployment

The contraction phase

The downward slope of the business cycle is referred to as an **economic contraction**. A contraction is a period when economic output decreases. That is, less goods and services are being produced in the economy. The rate of real GDP growth is negative. Two or more successive quarters of negative growth defines a technical **recession**, although many economists think that this is a relatively narrow definition.

The National Bureau of Economic Research (NBER) in the United States uses a broader definition and considers a number of measures of activity to determine the start and duration of a recession. The NBER defines a recession as *“a significant decline in economic activity spread across most sectors in the economy, lasting more than a few months and visible in a decline in production, employment and real income”*. As an economy contracts, businesses will require less resources, including labour. Employment will typically decrease while cyclical unemployment will rise. As economic activity decreases, the rate of inflation will fall (disinflation) as demand for goods and services and resources declines. In a prolonged recession, the rate of inflation may actually become negative - this is referred to as **deflation**.

A recession is a period of declining economic activity extending over a period of time.

Typical characteristics of a contraction include:

- decreased business investment in plant and equipment
- falling household income
- falling levels of household consumption spending, particularly on discretionary items
- increased household saving ratio
- falling retail and motor vehicle sales
- declining levels of household and business confidence
- decreasing asset prices, including shares and property
- falling business profits and increased bankruptcies
- decreasing labour market participation
- rising cyclical unemployment

A contraction is associated with a decline in economic prosperity and living standards.

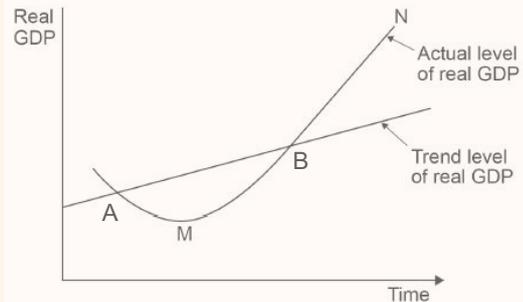
Review

1. Indicate whether the following statements are TRUE or FALSE?

- a. Expansions and contractions are of similar length _____
- b. A peak in the business cycle is followed by an expansion _____
- c. A trough in the business cycle represents a lower turning point _____
- d. If the growth rate of real GDP declines, the economy enters a contraction _____
- e. During a recession, the household saving ratio usually increases _____

2. The diagram below shows the actual level of real GDP and the trend level of real GDP over time for an economy.

- a. Does point M represent a positive or negative output gap? _____
- b. Does point N represent a positive or negative output gap? _____
- c. Between points A and M the economy experiences _____
- d. At what points does actual real GDP equal potential GDP? _____
- e. Between points A and M the unemployment rate would be expected to _____
- f. Between points B and N the inflation rate would be expected to _____
- g. The economy would be at its natural rate of unemployment at points _____
- h. Between points M and B the labour force participation rate would be expected to _____



The business cycle - causes and turning points

What causes business cycles? Is it possible for either an expansion or contraction to continue indefinitely? The beginning and end of a contraction are the **turning points** in real GDP - the beginning represents a **peak** in real GDP while the end represents a **trough**. When an expansion ends, the business cycle reaches its highest level of real GDP before falling. The Australian economy last reached a business cycle peak in December 2019, just before the onset of the Covid pandemic which caused the economy to contract. When a contraction ends, the business cycle reaches its trough. At this point, real GDP is at its lowest level before rising. The Australian economy last reached a business cycle trough in June 2020.

Economic shocks

The Covid pandemic was an example of a negative economic shock which caused the economy to abruptly shift away from its trend path of growth. Macroeconomists believe that the major cause of business cycles are external **economic shocks** - either positive, resulting in economic booms or negative, leading to contractions. In either case, real GDP deviates away from its long run potential growth path. Economic shocks are random in nature and can have a variety of sources. Examples can include financial market disruptions, international disturbances, technology shocks, energy price shocks, and even actions taken by the Government or Central Bank.

Negative shocks include natural disasters such as earthquakes or climate events. Australia often suffers from droughts or floods that can damage land resources and disrupt agricultural production. Wars or military conflict, including terrorist activity, can adversely affect a country's human and capital resources. The global financial crisis in 2009 was an example of a negative shock that disrupted the banking and finance sectors of most economies causing a recession in the United States and European economies. If financial institutions fail, then it can have a dramatic effect on the supply of credit which impacts all sectors of the economy.

Economic shocks can also be positive, causing real GDP to increase above potential GDP. An increase in commodity prices, such as iron ore, coal and natural gas, will increase Australia's terms of trade resulting in an economic stimulus that may cause a mining boom. The application of new technology such as artificial intelligence (AI) can be the spur for new investment and employment growth across all sectors of the economy.

The role of spending

How does an initial economic shock propel the economy into either an upswing or a downswing? Most macroeconomists believe that the cycle is

Economic shocks are the main cause of business cycle fluctuations.

created by changes in aggregate demand or total spending. Remember that total spending (income) in the economy is made up of four components:

- Consumption spending
- Investment spending
- Government spending, and
- Net exports.

Consumption spending is by far the largest accounting for around 55 per cent of all spending. Consumption spending is also the most stable, given that a large proportion of household spending is on essential goods and services such as food, petrol, rent, utilities and healthcare. Macroeconomists believe that because private investment spending is relatively volatile, it can be a major source of economic fluctuations.

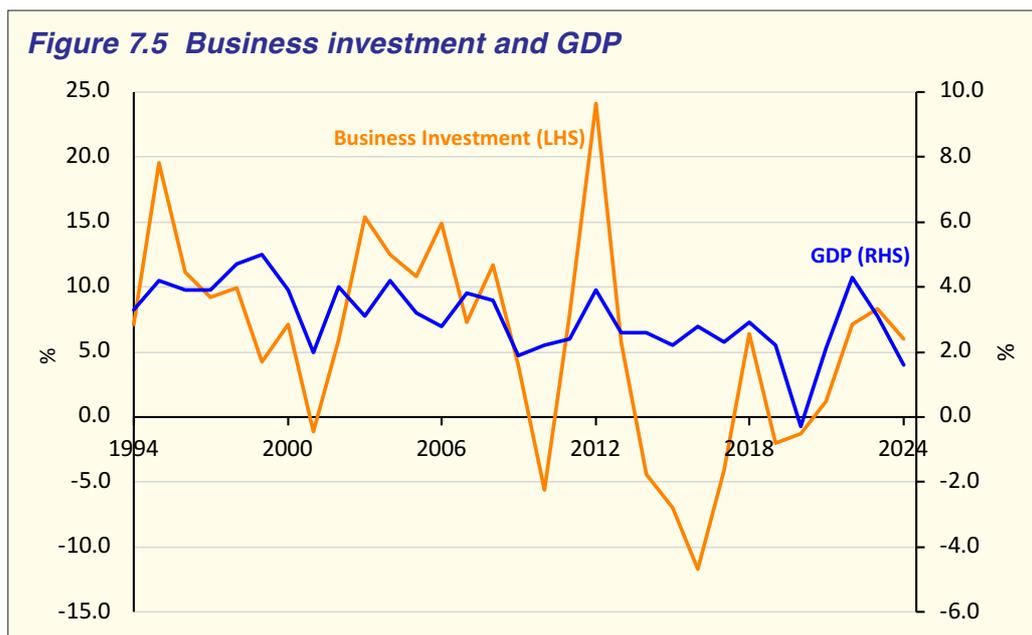
Investment is expenditure on capital equipment that businesses use to assist labour in the production of goods and services. It includes spending on construction as well as residential investment - the construction of new homes and apartments. Investment decisions are essentially driven by two things - current and expected profitability, and the cost and availability of finance. When household spending is rising, firms invest to take advantage of expected sales and profits. But capital equipment and construction, can last for a reasonable period of time, often 5-10 years, before needing to be replaced. It is this 'lumpy' nature of investment that can result in firms making large, infrequent investments in capital goods rather than making smaller, more continuous adjustments. This can lead to periods of high investment activity followed by periods of low investment activity and create a cyclical movement in overall economic activity.

A correlation between business investment and the business cycle is evident in figure 7.5, which shows a positive relationship between the percentage change in business investment in Australia and the percentage change in real GDP. Notice how business investment can change abruptly from one year to the next. In 2011, for example, at the peak of the mining boom, business investment increased by a massive 25 per cent, causing the growth rate of real GDP to double from 2 per cent to 4 per cent. But in 2013 business investment then fell by 5 per cent causing real GDP growth to slow. A similar pattern is evident during the Covid period. In 2019, investment fell precipitating the recession in 2020. But then from 2021-23, investment surged taking GDP with it.

The lower and upper turning points

Suppose the economy is hit by a negative shock, such as an abrupt fall in the share-market reducing household wealth. Consumers will react by reducing their expenditure on durable goods, such as motor vehicles, furniture and appliances, and increasing their saving. Falling retail sales will cause

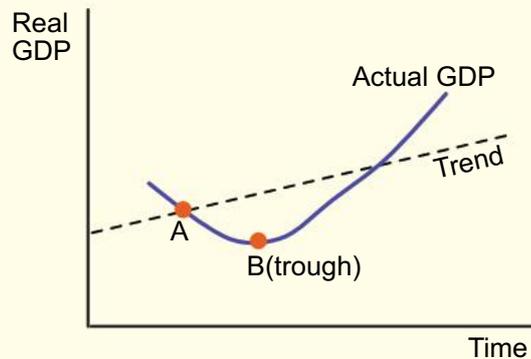
Typical contractions begin with reduced business investment spending, which is a volatile component of GDP.



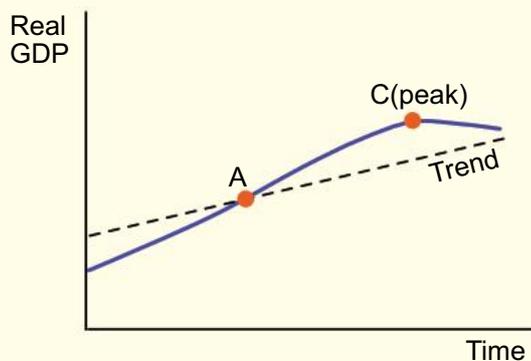
inventories to rise and firms will respond by decreasing production and reducing their planned investment on machinery, equipment and construction. Employment will slow and some workers will lose their jobs. Rising unemployment and falling profit levels will then induce further falls in both household consumption and business investment. The 'snowball' effect has started and will continue to gather momentum resulting in a contraction in economic activity measured by falls in production, employment and income.

But troughs are normally short-lived. The reason? Government economic policies - both fiscal and monetary policy - are designed to counteract the decline in economic activity by stimulating spending. The government will often adopt an expansionary stance and either cut taxes or increase its spending to boost production and employment. Similarly, the Reserve Bank will adopt an expansionary stance and cut the cash rate. This will lead to falls in interest rates, reducing the cost of borrowing and encouraging consumer spending and business investment. In this way, government economic policy can 'engineer' a **lower turning point** and bring the economy out of a trough and into a recovery (refer to Panel A, figure 7.6) .

What about the case of an economy experiencing an economic expansion? How does the economy reach its **upper turning point**? An expansion will always be constrained by the full employment level of real GDP. As the economy approaches full capacity, factors of production, especially labour will become more scarce, increasing the price of resources (e.g. wages). This will increase production costs and increase prices across most sectors of the

Figure 7.6 Turning points

Between points A and B the economy is in a contraction with real GDP, income and employment falling. The economy experiences a negative output gap. Increased government spending and cuts to interest rates will help to stimulate spending and create a lower turning point at point B.



Between points A and C the economy experiences a positive output gap. Capacity constraints cause input prices (e.g. wages) to rise. Higher production costs add to inflation pressures increasing the cost of living and reducing consumption. With higher interest rates discouraging investment an upper turning point is created at point C.

economy. At the same time, high levels of consumer spending will lead to shortages of final goods and services adding to price pressures. An increase in the inflation rate will automatically help to dampen spending and slow an 'overheating' economy. The Reserve Bank will also raise interest rates to keep the inflation rate in its target zone and this will slow the growth of spending. If business and/or consumer confidence falls then it may precipitate a decrease in investment and/or consumption causing real GDP to fall. The economy has now moved from a peak into the beginning of a contraction causing the unemployment rate to rise.

Key Points

- *The turning points in the business cycle are called peaks and troughs.*
- *At a peak, the expansion phase of the business cycle ends and the contraction phase begins. Output stops increasing and starts to decrease.*
- *At a trough, the contraction phase of the business cycle ends and the expansion phase begins. Output bottoms out and starts to increase again.*

Economic indicators

Macroeconomic indicators are economic variables that provide insight into the health of the economy. All economic agents from households, to businesses and the government are interested in the current and future state of the economy. Economic indicators are useful in that they can confirm trends in economic activity as well as predict future economic activity. Company managers want economic information to help them answer questions such as 'should I hire more staff' or 'should I invest in a new warehouse?' Households want to know about employment trends, price levels and interest rates. The government and policy makers are interested in trends in the labour market and household spending patterns. Broad economic indicators such as GDP, inflation and unemployment give a general overview of the state of the economy. Partial indicators, such as retail sales and housing construction focus more on specific sectors of the economy.

Real GDP is considered the 'father' of all macroeconomic indicators because it is a summary statistic measuring the aggregate level of economic activity. Changes in real GDP will help confirm the position of the economy in the business cycle - whether it is in an expansion phase or heading for a contraction. GDP data is released every quarter by the Australian Bureau of Statistics (ABS). The average growth rate for the Australian economy is between 2.5 and 3 per cent per year, so we would expect quarterly growth rates of around 0.6 to 0.8 per cent.

Real GDP is the most important economic indicator of the 'health' of the economy.

Some economic variables move with real GDP and some move in the opposite direction. A variable that increases during an expansion and falls during a contraction is called a **procyclical** variable. Examples of these variables are consumer spending, investment and employment. A variable that decreases during an expansion and increases during a contraction is called a **countercyclical** variable. Examples of these variables are unemployment, business failures and government welfare spending.

Economists also classify economic indicators by their timing relative to the business cycle. There are three main types:

- leading economic indicators
- coincident economic indicators
- lagging economic indicators

Leading indicators change before a direction becomes evident in the rest of the economy. For example a leading indicator will increase before the level of economic activity actually increases. They therefore predict trends in economic activity. Examples of leading indicators include building approvals; share prices; levels of inventory held by firms; new employment vacancies; levels of business confidence. Leading indicators tend to reflect the expectations of households and firms about the future of the economy.

Share prices are the most well-known and widely followed leading indicator. Why? Because share prices are based in part on what companies are expected to earn, so if share prices rise, the market is expecting the economy to improve and for business profits to increase. Building approvals are another good example of a leading indicator. An increase in the number of building approvals will mean that house construction will increase 6 to 12 months forward. The construction sector has strong multiplier effects on many retail sectors such as home furnishings. The importance of leading indicators is that they provide an early indication of significant turning points in the business cycle.

Coincident indicators are those that move in line with the level of economic activity - increasing when the level of economic activity rises and decreasing when the level of economic activity falls. In other words, coincident indicators change simultaneously with economic conditions. These indicators are used to identify the current state of the economy. Factory production, employment and retail sales are all excellent examples of coincident indicators. During an expansion, employment levels would increase causing both household income and consumption to rise all correlating with an increase in real GDP.

Lagging indicators are variables that change sometime after the level of economic activity changes. For example, the unemployment rate will increase after the level of economic activity declines. Similarly the inflation rate tends

Figure 7.7 Economic indicators

Economic Indicator	Direction	Timing
<i>Industrial production</i>	<i>Procylical</i>	<i>Coincident</i>
<i>Consumption spending</i>	<i>Procylical</i>	<i>Coincident</i>
<i>Household saving ratio</i>	<i>Countercyclical</i>	<i>Coincident</i>
<i>Retail sales</i>	<i>Procylical</i>	<i>Coincident</i>
<i>Motor vehicle sales</i>	<i>Procylical</i>	<i>Coincident</i>
<i>Employment</i>	<i>Procylical</i>	<i>Coincident</i>
<i>Business investment</i>	<i>Procylical</i>	<i>Coincident/Leading</i>
<i>Index of consumer confidence</i>	<i>Procylical</i>	<i>Leading</i>
<i>Share prices</i>	<i>Procylical</i>	<i>Leading</i>
<i>Building approvals</i>	<i>Procylical</i>	<i>Leading</i>
<i>Residential investment</i>	<i>Procylical</i>	<i>Leading</i>
<i>Labour productivity</i>	<i>Procylical</i>	<i>Leading</i>
<i>Unemployment</i>	<i>Countercyclical</i>	<i>Lagging</i>
<i>Inflation</i>	<i>Procylical</i>	<i>Lagging</i>
<i>Nominal interest rates</i>	<i>Procylical</i>	<i>Lagging</i>

to rise after the level of economic activity increases. Changes in these variables are the result of changes in real GDP, not the cause. These variables change only after macroeconomic conditions have already changed. Lagging indicators are used to confirm economic trends that have already been predicted by leading indicators. The importance of lagging economic indicators is that they confirm where the economy has been. Figure 7.7 shows several examples of important economic indicators.

Review

1. A leading indicator is _____.
 - a. a variable that tends to move along with the level of economic activity.
 - b. a variable that tends to move in advance of aggregate economic activity.
 - c. a variable that tends to move consequent on the level of aggregate economic activity.
 - d. none of the above.
2. Which of the following variables would you include in an index of leading economic indicators?
 - a. Employment
 - b. Inflation
 - c. Real interest rates
 - d. Residential investment
3. A variable that tends to move later than aggregate economic activity is called _____.
 - a. a leading variable.
 - b. a coincident variable.
 - c. a lagging variable.
 - d. a cyclical variable.
4. When the economy reaches a trough in a business cycle, which of the following will occur?
 - a. Income, production, and employment will continue to fall.
 - b. Income, production, and employment will begin to rise.
 - c. Income and production will rise, but employment will continue to fall.
 - d. Employment rises, but income and production will continue to fall.
5. Provide a short description for the following indicators in the different business cycle phases.

Indicator	Business cycle phases			
	Trough	Expansion	Peak	Contraction
Consumer confidence	at its lowest	rising	continues to rise	falling
Share prices				
Interest rates				
Unemployment rate				
Inflation rate				
Industrial production				
Housing construction				
Business profits				

Australia's macroeconomic performance

The ultimate aim in economics is for average living standards to increase over time. A person's living standard is determined by the quantity and quality of goods and services they can consume and this is determined by their income and wealth and the prices of goods and services they consume. This means that it is important to measure the growth in the production of goods and services, the changes in the average level of prices and the growth in employment over time.

In assessing an economy's macroeconomic performance we usually focus on three key aspects:

- the production of goods and services across all sectors of the economy - measured by real gross domestic product (Real GDP) and Real GDP per capita;
- the general price level - measured by either the consumer price index (CPI) or the GDP deflator;
- the labour market - measured by the employment to population ratio and the unemployment rate.

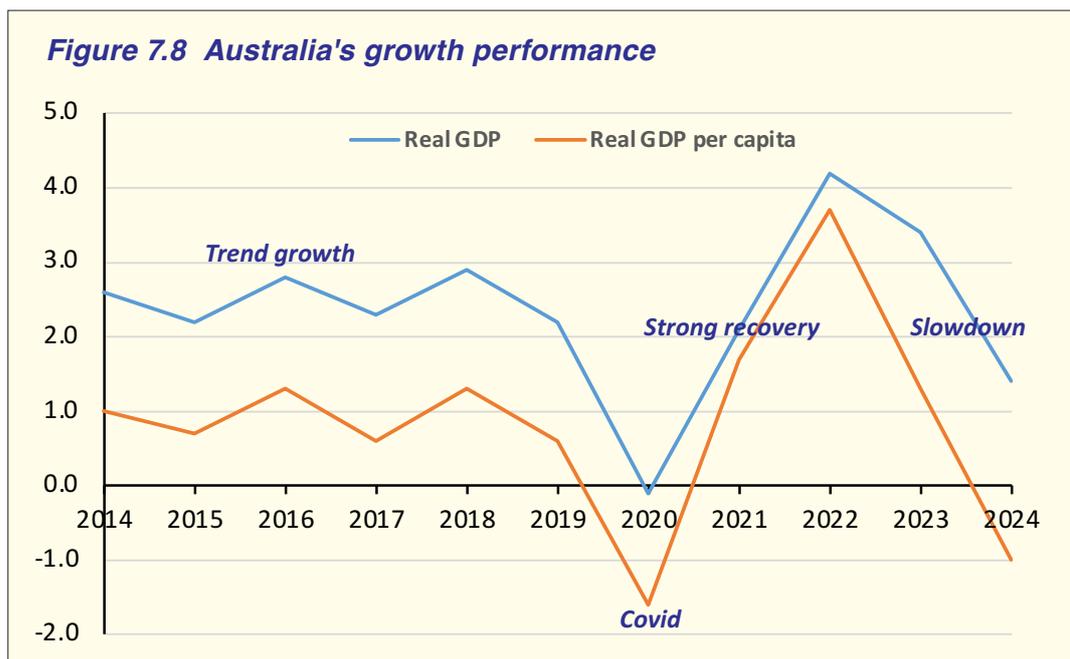
Real GDP tells us whether the economy is growing from one period to the next in terms of the volume of production. We know that Australia's potential GDP grows by around 2.5 to 3 per cent annually so that this provides a benchmark to assess whether the economy is growing above or below trend. Growth in real GDP is important because it enables national income and consumption to rise. Real GDP per capita takes into account changes in the population so that it provides a better measure of whether average living standards have risen or fallen. For example, if Real GDP increased by 3 per cent over a year but the population increased by 4 per cent, then the quantity of goods and services per person (Real GDP per capita) would have fallen which would indicate a decline in average living standards.

Figure 7.8 illustrates Australia's growth performance over the past decade by comparing the annual percentage change in both real GDP and real GDP per capita. Notice how the two series are highly correlated - both rising and falling together. It is important to remember that a positive growth rate means that the economic indicator is rising, even if the growth rate is falling. A negative growth rate means that the indicator has decreased.

We can identify four separate periods in figure 7.8:

1. **Trend growth period from 2014-2018:** the economy averaged an annual growth rate of 2.6 per cent with real GDP per capita growing by an average of 1 per cent meaning that average living standards were rising during this time.

Real GDP per capita is considered the 'best' measure of a country's living standard.

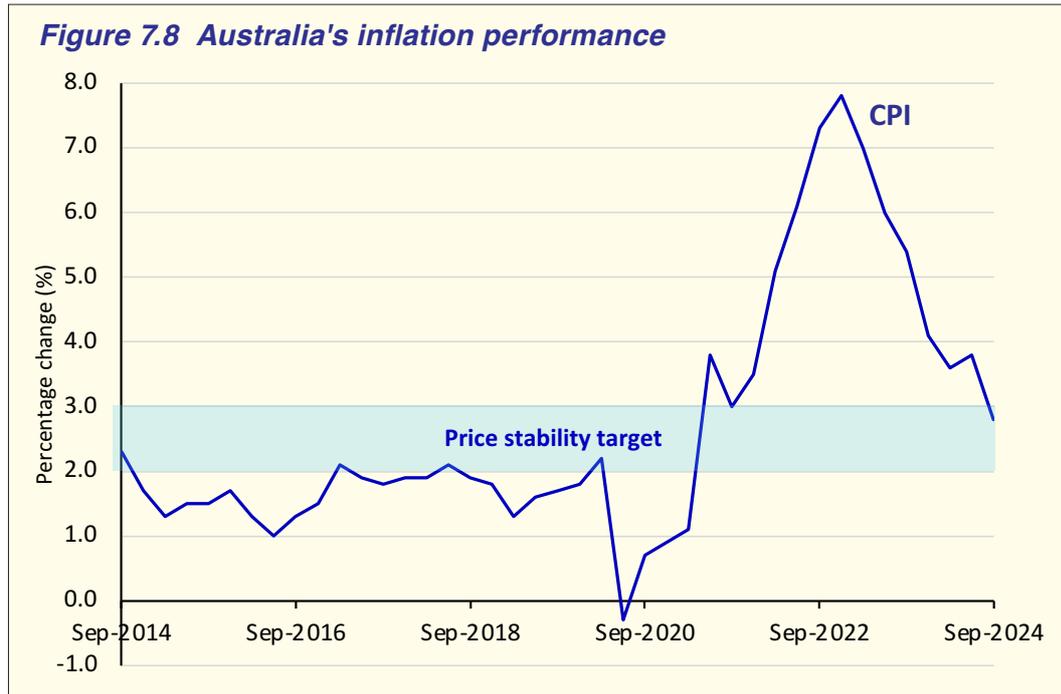


2. **The Covid recession from 2019-2020:** the economy plunged into its first recession since 1991 brought about by the Covid pandemic which caused widespread disruption to economic activity.
3. **Strong recovery from 2020-2022:** the economy recovered quickly as spending, employment and production all increased rapidly to create boom conditions.
4. **Slowdown from 2022-2024:** after two years of above trend growth, the economy slowed significantly as high inflation increased cost of living pressures and the economy experienced a 'per capita recession'. Population growth exceeded GDP growth in this period which caused average living standards to fall.

Changes in the price level or rate of inflation affect the cost of living for households and can affect the international competitiveness of domestic producers. The main priority of Reserve Bank of Australia is to achieve the objective of price stability. This means keeping the rate of inflation within a range of 2-3 per cent on average over the business cycle. Price stability is important because high rates of inflation can erode the value of money and distort economic decision-making. High inflation increases uncertainty for both consumers and producers, reducing both consumption and investment spending which is a negative for economic growth.

Figure 7.9 illustrates Australian's inflation performance between 2014-2024, measured by the annual percentage change in the consumer price index

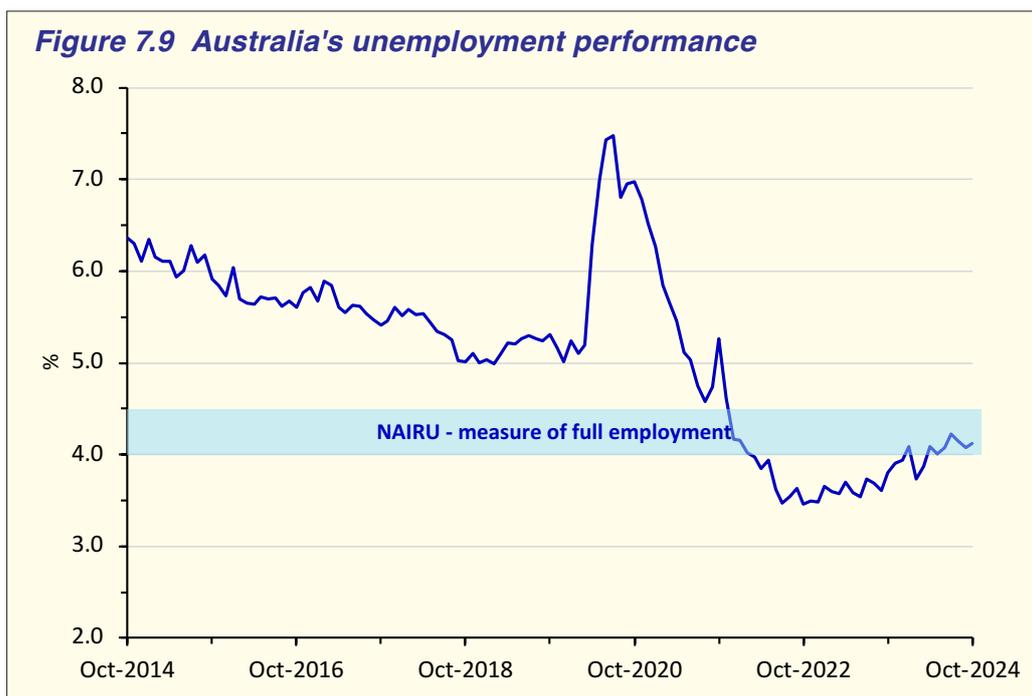
The target for price stability is to keep inflation between 2-3 per cent.



(CPI). For most of the period between 2014 and 2020, the inflation rate is below the 2 per cent lower bound of the target range - averaging just 1.8 per cent. For this period, the Australian economy would be given an 'A plus' for its inflation performance. During the Covid recession period, the CPI actually fell resulting in a short period of deflation. Then from June 2021 onwards, the inflation rate surged reaching 7.9 per cent in September 2022 - its highest rate since September 1989.

What contributed to this spike in the price level? There were both elements of demand and cost inflation. Between 2022-24, the economy was operating above potential GDP (full capacity) with unemployment at a 50 year low of just 3.5 per cent. Increases in energy and food prices were major drivers of the inflation, along with supply chain disruptions adding to cost pressures. Immigration added to demand for housing and accommodation fueling record rises in rent. At the same time, increased demand for labour resulted in higher wages increasing household incomes and consumer spending. Whenever demand and cost pressures occur together, then it is very difficult to prevent a spike in inflation. As the economy slowed in 2023-24, the inflation rate began to decline, returning to its target zone in late 2024.

Our third key indicator of macroeconomic performance is the unemployment rate. This is illustrated in figure 7.9. The graph also shows the target range for achieving the full employment objective. For Australia, this is a rate of unemployment between 4 and 4.5 per cent. Full employment is synonymous



with the concept of the '**natural rate of unemployment**'. This is the rate that consists of just frictional and structural unemployment. A similar concept that the Reserve Bank of Australia uses as its measure for full employment is the **Non-Accelerating Inflation Rate of Unemployment** or **NAIRU**. This is the minimum rate of unemployment that the economy can sustain without causing the inflation rate to accelerate. The current estimate for Australia's NAIRU is between 4 and 4.5 per cent.

The target for full employment is an unemployment rate between 4 and 4.5 per cent.

The unemployment rate is closely linked to changes in real GDP given that labour is one of the main factors of production. Changes in the level of employment will reflect fluctuations in the level of economic activity. As the economy expands, the demand for labour will increase causing employment to rise and unemployment to fall. So during an expansion, we would expect to see the unemployment rate decline. This is evident in figure 7.9. Between 2014 and 2019, the unemployment rate steadily fell from around 6.5 per cent to 5 per cent - above the NAIRU threshold.

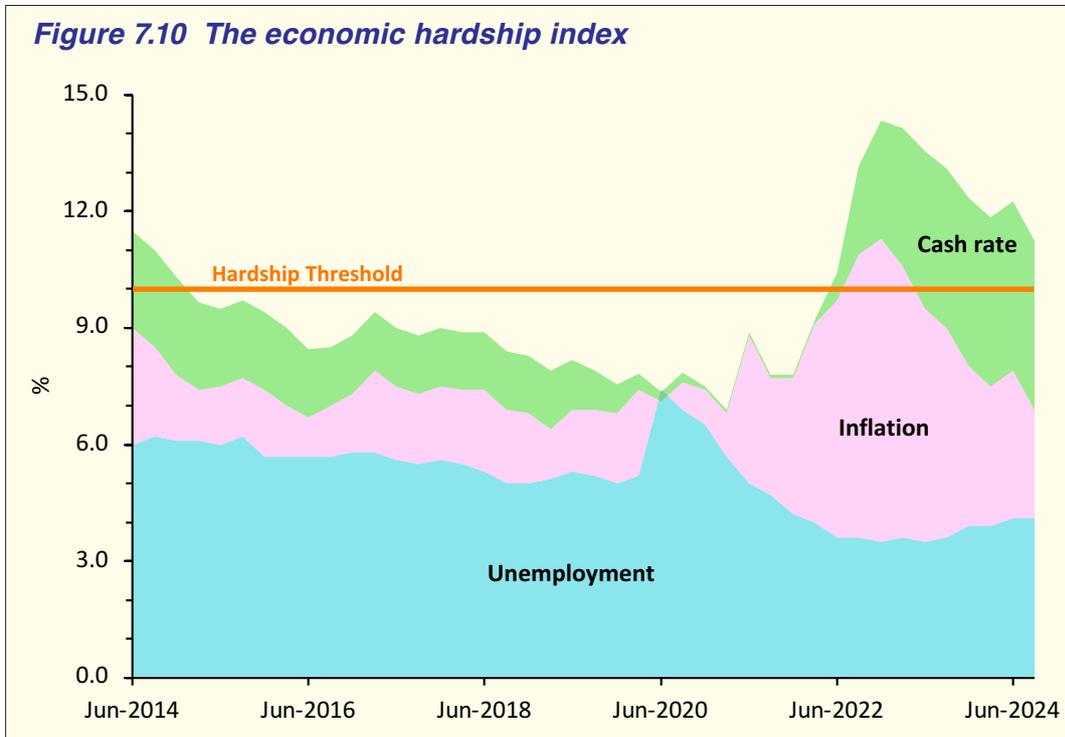
The Covid recession of 2020 caused the unemployment rate to spike to a 30 year high of 7.5 per cent. But as the economy recovered, the unemployment rate quickly fell as the economy's growth rate surged and broke through the NAIRU threshold in 2022. For most of the period between 2022-24, Australia's unemployment remained at or below 4 per cent contributing to the acceleration in the inflation rate. This meant that the Australian economy was operating above potential GDP.

The 'Economic Hardship' index

Is there a way to combine our various indicators of macroeconomic performance to reflect an average measure of economic well-being? In the 1970s, an American economist, Arthur Okun, devised a measure that he called the '**Economic Discomfort Index**'. This index simply summed the unemployment rate and the annual inflation rate as a way to measure the level economic distress felt by the average person in the economy. A rise in the index, for example, would imply that economic discomfort for the average person would increase because either the cost of living and/or the level of joblessness had increased.

In the following decades, Okun's index was renamed the '**misery index**' and was often used by the media during an election year to assess the performance of the incumbent government. If the index rose significantly, it was a strong predictor for a change in government because it would indicate that on average, people were less happy with the state of the economy. Figure 7.10 illustrates another version of the index which includes the **cash rate**. This is the interest rate controlled by the Reserve Bank of Australia in setting monetary policy. A rise in the cash rate will cause other interest rates to rise including mortgage rates and personal loans. So a rise in the cash rate will, similar to a rise in unemployment and/or inflation, add to economic distress for the average person, especially those with a large mortgage.

The Economic Hardship Index is the sum of the unemployment rate, the inflation rate and the cash rate.



This updated index is called the '**Economic Hardship Index**'. We can use the index to determine a threshold level below which people will be relatively 'happy' with the state of the economy and above which people will face economic distress. This threshold value is determined by adding the target rate of unemployment (assume 4.5%) with the target rate for inflation (assume 2.5%) and the neutral cash rate (assume 3%). This produces a threshold rate of 10 per cent - shown on figure 7.10 as the orange line. If the index rises above 10 per cent, then many people will bear some aspect of economic hardship.

Notice that for most of the period between 2014 and 2021, the Economic Hardship Index was below 10 per cent, despite the unemployment rate being above 5 per cent. So for this period we could say that the macroeconomic performance of the Australian economy was above average. But then from 2022 onwards, the index started to rise quite steeply due to first, the inflation rate rising and then second, increases in the cash rate. From June 2022 onwards, the index was above the 10 per cent threshold indicating that Australia's economic performance had deteriorated.

Chapter Summary

- *Macroeconomics focuses on the performance of the whole economy – changes in economic output, inflation and unemployment.*
- *The goals of macroeconomics include economic growth, full employment, price stability and productivity growth.*
- *The business cycle refers to the fluctuating levels of economic activity in an economy over a period of time.*
- *Potential GDP is the maximum or full employment level of production that can be attained given the economy's factors of production and level of technology.*
- *When actual real GDP is above the trend line, then the economy experiences a positive output gap.*
- *When actual real GDP is below the trend line, then the economy experiences a negative output gap.*
- *The business cycle comprises four phases - the expansion, the upper turning point or peak, the contraction and the lower turning point or trough.*
- *Macroeconomists believe that the major cause of business cycles are external economic shocks .*
- *Economists classify economic indicators by their timing relative to the business cycle - there are three main types: leading; coincident and lagging.*
- *The ultimate aim in economics is for average living standards to increase over time.*
- *The Economic Hardship Index is the sum of the unemployment rate, the inflation rate and the cash rate.*
- *Since 2022, Australia's macroeconomic performance has deteriorated due to relatively high inflation and interest rates.*

Chapter Review

Multiple choice test

1. Most economists see the business cycle
 - a. as a regular pattern of recessions and expansions of the same length and intensity.
 - b. occurring as a result of anticipated macroeconomic changes in the marketplace.
 - c. as randomly occurring, resulting from unpredictable long-run changes in the economy.
 - d. as resulting from the response of households and firms to macroeconomic shocks.
2. The phases of a business cycle in correct order are
 - a. contraction, expansion, trough, peak
 - b. expansion, contraction, trough, peak
 - c. peak, expansion, trough contraction
 - d. trough, expansion, peak, contraction
3. Wars, new inventions, harvest failures, and changes in government policy are examples of
 - a. the business cycle.
 - b. economic models.
 - c. economic shocks.
 - d. opportunity costs.
4. Which of the following are likely to be experienced during a business cycle contraction?
 - a. rising unemployment and rising inflation
 - b. rising inflation and falling economic growth
 - c. falling government spending and falling consumption
 - d. falling investment and rising government spending
5. When the economy is operating at full employment
 - a. the unemployment rate will equal zero.
 - b. frictional unemployment rate will equal zero.
 - c. cyclical unemployment rate will equal zero.
 - d. structural unemployment rate will equal zero.
6. During the downswing phase of the business cycle, which of the following pairs of events would most likely occur?
 - a. Lower levels of confidence and a higher savings rate
 - b. Higher levels of cyclical unemployment and relatively high levels of borrowing
 - c. Low levels of cyclical unemployment and higher labour force participation
 - d. Declining interest rates and increasing business investment
7. The three main macroeconomic goals for the Australian economy are
 - a. maintaining stable prices, reducing interest rates and achieving sustainable rates of economic growth.
 - b. maintaining low levels of unemployment, increasing the trade balance and achieving sustainable rates of economic growth.
 - c. maintaining low levels of unemployment, achieving sustainable rates of economic growth and maintaining stable prices.
 - d. achieving sustainable rates of economic growth, reducing unemployment and reducing interest rates.

8. Which of the following most accurately represents economic fluctuations during a business cycle?
- Shock -> Spending response by households and firms -> Multiplier effect -> Change in real GDP
 - Shock -> Multiplier effect -> Spending response by households and firms -> Change in real GDP
 - Shock -> Multiplier effect -> Change in real GDP -> Spending response by households and firms
 - Shock -> Change in real GDP -> Spending response by households and firms -> Multiplier effect
10. If a macroeconomic indicator moves in the opposite direction from real GDP, it is a _____ indicator.
- procyclical
 - countercyclical
 - leading
 - lagging
11. Which of the following macroeconomic variables is procyclical and coincident with the business cycle?
- Residential investment
 - Nominal interest rates
 - Industrial production
 - Unemployment

Data Interpretation

Questions 1-3 refer to the extract below

The Australian Economy - June quarter 2024

The economy grew a modest 0.2 per cent in the June quarter 2024 and 1.5 per cent over the 2023-24 financial year. While this was the eleventh consecutive quarter of GDP growth, real GDP per capita actually fell by 1 per cent. The consumer price index rose 1.0 per cent in the June quarter and was up 3.8 per cent for the year. The labour market remained tight. The unemployment rate in the month of June rose slightly compared to March to sit at 4.1 per cent. Household spending fell 0.2 per cent in the quarter, while business investment in new machinery and equipment fell 1.6 per cent.

- For the June quarter 2024 state the:
 - annual rate of GDP growth _____
 - annual inflation rate _____
 - unemployment rate _____
- Identify the evidence that suggests the standard of living for most people fell during 2024?

- Describe the evidence that suggests the economy is close to a peak of the business cycle?

Questions 4-6 refer refer to the hypothetical economic data in the table below.

Indicator	Real GDP \$bn	Unemployment rate %	CPI %	Business investment %GDP
Year 1	922	4.6	99.2	16.2
Year 2	932	5.2	101.2	15.3
Year 3	928	5.8	102.2	15.1
Year 4	958	4.9	105.6	16.4

4. Calculate
 a. the rate of economic growth in Year 2 _____ b. the inflation rate in Year 2

5. In which year was there a recession? _____
6. Which year recorded the highest growth rate? What impact did this have on the unemployment rate and the inflation rate.

Selected Answers

Review p. 156

(a), (d), (e) and (f) are macroeconomic topics
 (b) and (c) are microeconomic topics

Review p. 164

1a False; b. False; c. True; d. False; e. True

2a. negative; b. positive; c. a contraction; d. A & B; e. increase; f. increase; g. A & B; h. increase

Review p. 171

1b; 2d; 3c; 4b

Multiple Choice - p.178: 1d; 2d; 3c; 4d; 5c; 6a; 7c; 8a; 9a; 10b; 11c; 12b; 13b; 14d; 15d.

Data Interpretation p. 181

1a. 1.5%; b.3.8%; c. 4.1%

2. Real GDP per capita fell by 1%

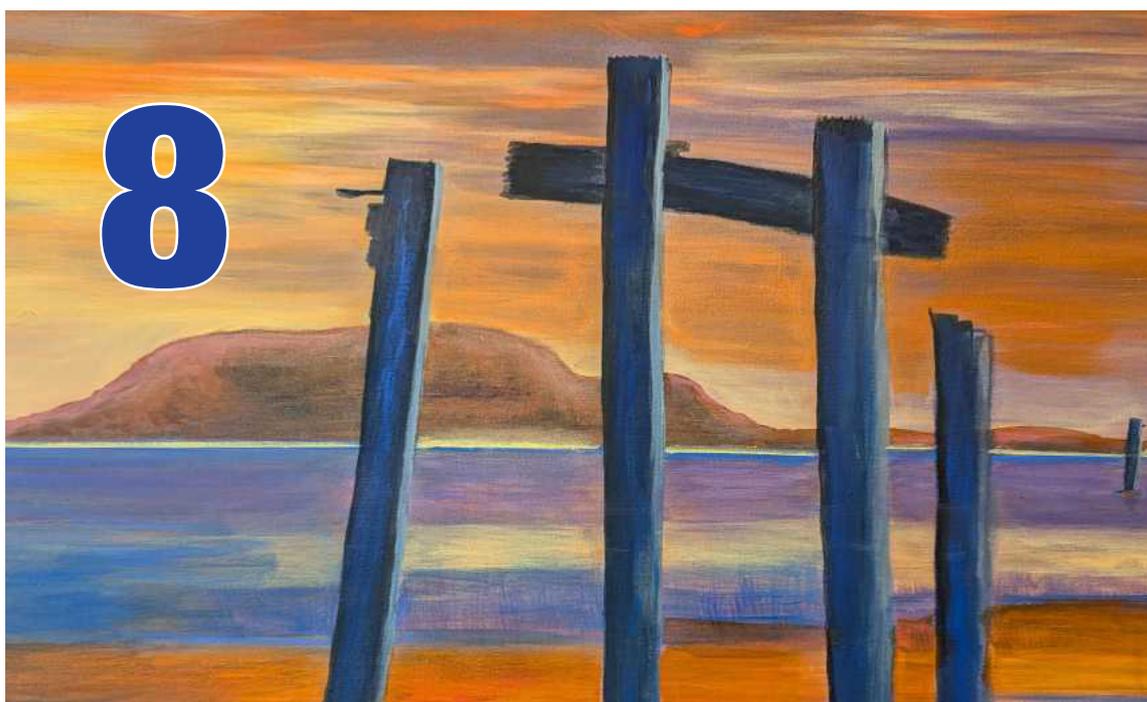
3. Real GDP growth is slowing - meaning that real GDP is rising slowly towards a peak; the inflation rate is well above the 3% upper range; both C and I decreased in the June qrt.

4. a. 1.1%; b. 2.0%

5. Year 3

6. Year 4 - the growth rate was 3.2%. This caused the unemployment rate to fall and the inflation rate to rise to 3.3%.

The Aggregate Expenditure Model



Key understandings

- *the factors affecting each of the components of aggregate expenditure*
- *the concept of macroeconomic equilibrium, including the role of inventories*
- *the aggregate expenditure (AE) model*
- *the relationship between the consumption function, the marginal propensity to consume and the marginal propensity to save*
- *the concept of the multiplier*
- *the impact of changes in the components of aggregate expenditure*

Macroeconomics is a study of the business cycle. It focuses on economic aggregates such as the total level of output, income and production (GDP), the total level of employment and the overall price level. It analyses key concepts such as economic growth, unemployment and inflation. But it also examines the role of economic policy, such as fiscal and monetary policy as a means to stabilise the business cycle.

An important understanding in macroeconomics is the relationship between spending, output and income at the aggregate (whole economy) level. This chapter examines the role of aggregate expenditure 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 component. We then develop the aggregate expenditure (AE) model (also known as the Keynesian expenditure model) that will help to explain the concept of 'macroeconomic equilibrium' and the effects of changes in spending on the level of economic activity. We also introduce the concept of the 'multiplier' which can help to explain why business cycle expansions and contractions can occur.

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); planned investment (spending on capital equipment and construction); government spending on goods and services; and net exports (X - M). We often use an equation:

$$AE = C + I + G + (X - M)$$

Is aggregate expenditure (AE) equal to gross domestic product (GDP)? Remember that one way to measure the value of gross domestic product (GDP) is the expenditure method. So GDP equals the sum of the four expenditure categories when the economy is in equilibrium. In 2023-24, Australia's GDP amounted to \$2,670 billion dollars but aggregate expenditure equalled \$2,669 billion. The difference of \$1 billion was the increase in inventories. What are inventories - they are unsold goods. The value of inventories is included as part of actual investment when calculating GDP, but they are not included in planned investment.

$$\text{Actual investment} = \text{planned investment} + \text{change in inventories}$$

The largest component of aggregate expenditure is consumption - household expenditure on goods and services. Consumption expenditure for 2023-24 equalled \$1,358 billion which accounted for 52 per cent of GDP.

Planned investment does not include changes to inventories.

Consumption consists of:

- expenditure on non-durable goods;
- expenditure on durable goods; and
- expenditure on services.

Non-durable goods are consumed immediately (or within three year) and include spending on food, fuel, cosmetics, cleaning products, clothing and footwear. Much of this spending could be regarded as essential or **non-discretionary** and it is fairly stable over time, typically accounting for about 35 per cent of total consumption.

Durable goods last for a longer period of time (three or more years). Durable goods include major appliances (washing machines, fridges); small appliances goods (kettle, toasters, microwaves) sporting equipment; and motor vehicles. Spending on durable goods is often '**non discretionary**' - meaning it can be postponed, depending on the individual household's circumstances. Expenditure on durable goods accounts for approximately 15 per cent of total consumption.

Durable goods provide satisfaction to buyers for an extended period of time (e.g. furniture, cars).

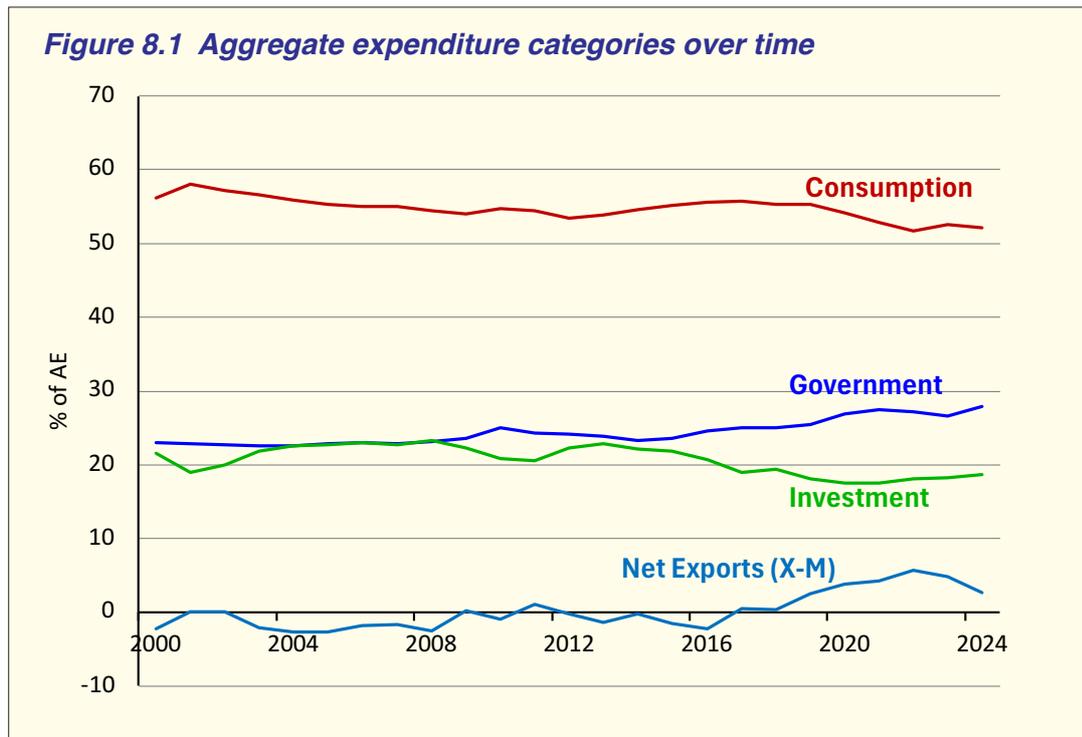
The largest category of consumption is on services, accounting for around 50 per cent. Examples include education, transport, health, and household utilities. Some services are essential or non-discretionary, such as education, health services and transport, while others are discretionary, such as spending on entertainment and leisure. In Australia over the past 25 years, consumption spending has ranged between 50 and 58 per cent of GDP - with an average of 55 per cent (refer to figure 8.1).

Services account for over half of all household consumption.

The second component of aggregate expenditure is **private investment**. Economists define investment as spending on new capital goods and new construction. A capital good is any item of machinery or equipment that is used to assist labour in the production process. Planned investment spending (or gross private capital expenditure) includes:

- **business investment** - privately funded business spending on capital goods used in production - equipment, machinery and construction and
- **residential investment** - private expenditure on new housing and apartments

Remember that planned investment does not include changes to inventories. In 2023-24, private investment equalled \$498 billion and accounted for 19 per cent of GDP. Investment spending tends to be the most volatile component of aggregate expenditure. Over the last 25 years, private investment has fluctuated between 16 per cent and 24 per cent of Australia's GDP, with an average value of 21 per cent. Changes in private investment spending are thought to be a key factor in explaining fluctuations in the business cycle and the level of economic activity.



Government purchases do not include government spending on welfare.

Government purchases is the third component of aggregate expenditure. In 2023-24, total government purchases across all levels of government (state, local and Commonwealth) equalled \$743 billion, which represented a relatively high 29 per cent of GDP. It is important to remember that government purchases do not include government spending on welfare, such as unemployment benefits or pensions. Government purchases consists of two categories - **current purchases (G1)** and **capital purchases (G2)**. Current purchases finances the day-to-day business of government such as wages and salaries, and purchases of goods and services for the many government departments including education and health. Capital purchases refer to investment spending on public infrastructure such as power and water supply, schools, roads, and communication networks such as the NBN. Over the past 25 years, government purchases has averaged 24 per cent of GDP.

Net exports (X-M) is the final component of aggregate expenditure. Foreign purchases of goods and services produced in Australia are exports in Australia's national accounts, and add to aggregate expenditure. Imports occur when Australian households, firms, and governments purchase goods and services from overseas. Imports are a leakage from the circular flow of income, and are subtracted from aggregate expenditure. Net exports can be either positive or negative depending on whether exports are greater than

or less than imports. In 2023-24, net exports equalled \$70 billion which represented 3 per cent of total expenditure. Interestingly, the average value for net exports over the past 25 years is actually zero!

Figure 8.1 reveals some interesting recent trends. First, consumption as a proportion of aggregate expenditure has fallen since 2016. This was exacerbated by the Covid pandemic, when shutdowns affected normal buying patterns and household savings increased. Second, since 2018, net exports have been positive, and at record levels - up to 6 per cent of GDP! This was due to record commodity prices boosting the value of Australia's mineral and energy exports. The third trend is that government spending has increased quite substantially since 2016.

The value of exports is added to aggregate expenditure while the value of imports is subtracted.

Factors affecting aggregate expenditure

Factors affecting consumption

The most important factor affecting aggregate consumption is the level of **disposable income** (Y_d) - the income households have available after tax. 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 household 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 aggregate expenditure model developed in this chapter.

Households often borrow to finance discretionary consumption spending, 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.

Household wealth is an important factor affecting consumption. Household wealth is the difference between a household's assets and its liabilities. Household assets comprise financial assets such as bank deposits, shares, superannuation balances and non-financial assets, which include housing and motor vehicles. Household liabilities include residential mortgages and credit card debt. There is a positive and stable relationship between household wealth and consumption spending - an increase in wealth will

increase consumption spending, especially on discretionary items such as motor vehicles and other durable goods. A household's wealth will increase if property and/or share prices increase.

Consumer expectations about future income, prices and employment play an important role in spending decisions. News concerning economic growth, changes in interest rates and movements in the share and property markets effect **household confidence**. The impact of changing expectations on non-discretionary spending 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.

Government economic policy, such as fiscal and monetary policy, can also influence household consumption. The Commonwealth Government (Treasury) can change personal income tax rates which will have a significant impact on household disposable income. Other taxes such as the GST and excise duties on petrol, tobacco and alcohol can also affect consumer spending. The Reserve Bank of Australia administers monetary policy using the 'cash rate'. A rise in the cash rate, for example, will flow on to other interest rates including mortgages and personal loans, increasing repayments for households with loans.

Factors affecting consumption	
<i>Factor</i>	<i>Impact</i>
<i>Disposable Income</i>	<i>An increase in Y_d will increase C</i>
<i>Interest rates</i>	<i>An increase in interest rates (r) will decrease C</i>
<i>Household confidence</i>	<i>An increase in household confidence will increase C</i>
<i>Consumer expectations</i>	<i>An increase in consumer expectations will decrease C</i>
<i>Wealth</i>	<i>An increase in household wealth will increase C</i>
<i>Inflation</i>	<i>An increase in inflation will decrease C</i>
<i>Population</i>	<i>An increase in population size will increase C</i>

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 24 per cent of the total over the past 25 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.

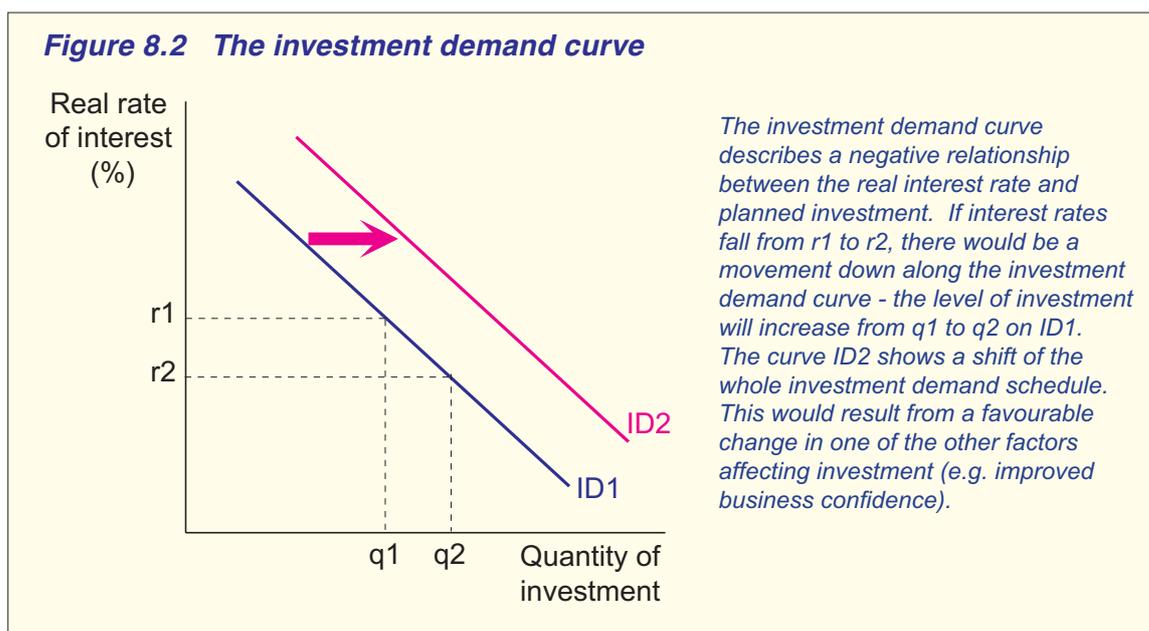
Many factors can influence risk, including political decisions; international events; and changes in consumer sentiment.

The **rate of interest** plays a key role in business investment decisions. Interest rates and the level of investment expenditure are negatively related. This concept is illustrated by the investment demand curve, illustrated in figure 8.2. If interest rates fall from r_1 to r_2 , there would be a movement down along the investment demand curve ID_1 and the quantity of investment would increase from point q_1 to point q_2 .

There are two explanations for this negative relationship. First, interest rates represent the price of borrowed money, so when rates rise, so do the periodic repayments on borrowed funds. Second, 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 before a rational firm would consider the investment to be a prudent decision.

The difference between the nominal and the **real rate of interest** is important. 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 3 per cent, then the real rate of interest is 5 per cent. Real rates of interest are more important to decision-makers than nominal rates because they reflect the 'true cost' of borrowed money.

Investment is negatively related to the rate of interest - an increase in i/r s will decrease the quantity of investment



In figure 8.2, the investment demand curve ID2 represents an increase in 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 is clear, the responsiveness of investment spending 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 phase 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.

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.

An improvement in business confidence or profitability will shift the investment demand curve to the right

Business expectations are an important determinant of investment – what business thinks about the current level of economic activity and trends in the near future. 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. The company tax rate on corporate profits is currently 30 per cent for large companies and 25 per cent for smaller companies. Reductions in company tax will have a positive effect on business investment. The Government also provide tax incentives for firms to increase their investment in research and development. The Reserve bank sets short term interest rates through its control of the cash rate.

The government's record in achieving key macroeconomic objectives such as economic growth, price stability and full employment help to foster a positive business environment. A stable macroeconomic environment is important for long-term private sector investment projects, such as construction, mining and transport.

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, the size of that spending is governed by the need to fund essential services such as health, defence and education, 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. Infrastructure can be likened to the ‘bricks and mortar’ that allow an economy to function. It includes public buildings like hospitals and schools, roads and bridges, and also the ‘poles and wires’ that deliver essential electricity. 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 increase supply bottlenecks and add to inflationary pressure.

Infrastructure refers to the ‘bricks and mortar’ that allow an economy to function.

Factors affecting net exports

Exports and imports of goods and services are relatively volatile components of aggregate expenditure, particularly in Australia. **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 income 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 become relatively cheaper. An appreciation also means that overseas residents can buy fewer units of the Australian dollar, so Australian exports become less competitive in overseas markets. This means that an appreciation of the currency will have 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 increase. 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 the value of both exports and imports. Australia's exports are dominated by mineral and energy commodities. An increase in economic growth in the major world economies such as China and the United States will increase demand for commodities, especially for iron ore, coal and natural gas. This will increase commodity prices, boosting Australia's export price index. This means that Australia's export income rises and Australian mining companies will receive a double dividend – higher prices and higher sales. So an increase in the export price index will lead to an increase in the value of net exports, increasing aggregate expenditure. An increase in the import price index will normally have the opposite effect. Refined petroleum is one of Australia's main imports. A rise in the price of oil will increase Australia's import price index and increase the value of imports since the demand for oil is relatively inelastic. This will cause net exports to fall and decrease aggregate expenditure.

Figure 8.3 The determinants of AE

<p>Factors influencing aggregate consumption expenditure</p> <p>C</p>	<ul style="list-style-type: none"> • disposable income (Y_d) • interest rates (r) /cost of credit • expectations • availability of credit • stock of wealth (property, shares)
<p>Factors influencing aggregate investment</p> <p>I</p>	<ul style="list-style-type: none"> • risk • business expectations • interest rates (r) • profitability • government economic policy
<p>Factors influencing government expenditure</p> <p>G</p>	<ul style="list-style-type: none"> • discretionary changes in accordance with government policy objectives • need to fund essential services • infrastructure • can be used to stabilise macroeconomic fluctuations
<p>Factors influencing net exports</p> <p>X - M</p>	<ul style="list-style-type: none"> • level of domestic and overseas economic activity • exchange rates • commodity prices • terms of trade

Review

1. A country has consumption expenditures of \$300 billion, investment expenditures of \$150 billion, government purchases of \$150 billion, exports of \$100 billion, and imports of \$150 billion. Aggregate expenditure for the country is _____ .
2. The largest component of aggregate expenditure in Australia is _____ while the smallest component is _____ .
 - a. consumption; inventories
 - b. government spending; imports
 - c. investment; exports
 - d. consumption; net exports
3. The factor that most affects household spending and household saving is
 - a. taxation.
 - b. interest rates.
 - c. exchange rates.
 - d. income.
4. Which of the following is the largest component of consumption spending?
 - a. non-durable expenditure
 - b. expenditure on durable goods
 - c. expenditure on essential and discretionary services
 - d. expenditure on welfare payments
5. The contribution of net exports to aggregate expenditure is likely to fall when
 - a. the terms of trade rises.
 - b. overseas economic growth rate rises.
 - c. domestic economic growth rate rises.
 - d. the value of the Australian dollar falls.
6. If the government increases its spending on pensions, which category of aggregate expenditure will increase?
 - a. Consumption
 - b. Investment
 - c. Government
 - d. Net exports
7. Consumption Expenditure (C) in Australia is most likely to be increased by
 - a. a decrease in consumer confidence.
 - b. an increase in domestic interest rates.
 - c. a drought across Australia.
 - d. a decrease in marginal rates of income tax.
8. Which of the following components of aggregate demand normally fluctuates the most?
 - a. Consumption expenditure (C)
 - b. Investment expenditure (I)
 - c. Government current expenditure (G1)
 - d. Government capital expenditure (G2)

The concept of macroeconomic equilibrium

The economy will be in equilibrium when total planned spending (aggregate expenditure) equals total production (Real GDP):

$$AE = \text{Real GDP}$$

Firms will have no incentive to change their production plans if all their current production is being purchased. If aggregate expenditure is less than GDP, then some production will not be purchased. Firms will have sold fewer goods and services than they had planned, so their inventories will increase. Remember that inventories are unsold goods. The increase in inventories is a signal for firms to reduce their production. This means that output and employment will fall and the level of economic activity will decline. If aggregate expenditure is greater than GDP, then the opposite scenario will occur. Firms will sell all their current production and will have to access their past inventory to match the higher level of spending in the economy. Inventories will now fall and this is the signal for firms to increase their production. Now output and employment will rise and the level of economic activity will increase.

Only when AE exactly equals GDP will firms sell what they expected to sell and inventories will not change. There will be no incentive to either increase or decrease production because sales match production plans. The economy will be in macroeconomic equilibrium. The relationship between aggregate expenditure and GDP is summarised below.

Equilibrium output is the level of GDP at which planned expenditure equals production.

<i>When</i>	<i>Then</i>	<i>And</i>
<i>AE < GDP</i>	<i>Inventories will increase</i>	<i>GDP and employment will decrease</i>
<i>AE > GDP</i>	<i>Inventories will decrease</i>	<i>GDP and employment will increase</i>
<i>AE = GDP</i>	<i>Inventories do not change</i>	<i>The economy is in macroeconomic equilibrium</i>

The aggregate expenditure model

To illustrate how macroeconomic equilibrium is determined, we develop a simple model based on the work of British economist John Maynard Keynes. Keynes developed his theory of macroeconomic equilibrium in the 1930s, in the midst of the Great Depression. During this time unemployment rates exceeded 25 per cent of the work force! Prior to the Depression, economists generally thought that the economy would always operate near full employment if prices and wages were flexible. They believed that there was no role for either fiscal or monetary policy.

Keynes, however, argued that it was aggregate expenditure that determined the overall level of economic activity and that inadequate spending could lead to prolonged periods of high unemployment. He proposed the active use of both fiscal and monetary policies to mitigate the adverse effects of business cycle recessions. His ideas were developed and popularised through the 1940s and 1950s, and came to be known as the 'Keynesian Revolution'. From the 1960s onwards, Governments became more active in attempting to stabilise the business cycle. As a result, both the frequency and severity of economic contractions was reduced.

The consumption function

The **aggregate expenditure (AE) model** is a graphical representation of the relationship between total spending and real GDP in an economy. The foundation for this model is based on the relationship between the level of disposable income received by households and the level of consumption. 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 (Y): spend it (C) or save it (S). In other words,

$$Y = C + S$$

A hypothetical consumption function for the economy is illustrated in figure 8.4, which shows the planned levels of consumption and savings at each level of income. Consumer spending is measured on the vertical axis, and disposable income is measured on the horizontal axis. The 45° line is equidistant between the two axes and shows points where planned spending equals total income. The graph shows both the consumption line and the savings line. As income rises, both consumption and saving increase. Notice that when the consumption function intersects the 45 degree line, at point X, spending (\$150bn) exactly equals income (\$150bn). This is the equilibrium level of income.

At income levels below \$150bn, consumption is greater than income which means that the economy is 'dis-saving' (negative saving). At income levels greater than \$150 billion, consumption is less than income which means that saving is now positive. For example, at an income level of \$400 billion, consumption is \$300 billion and saving equals \$100 billion.

The consumption function can be expressed as a linear or straight line equation:

$$C = a + bY$$

The variable 'a' is the vertical intercept – the point where the consumption function meets the y-axis. This is described as **autonomous consumption**. This is the level of spending independent of the level of income. The variable 'b' is the rate at which consumption (C) changes when income (Y) changes.

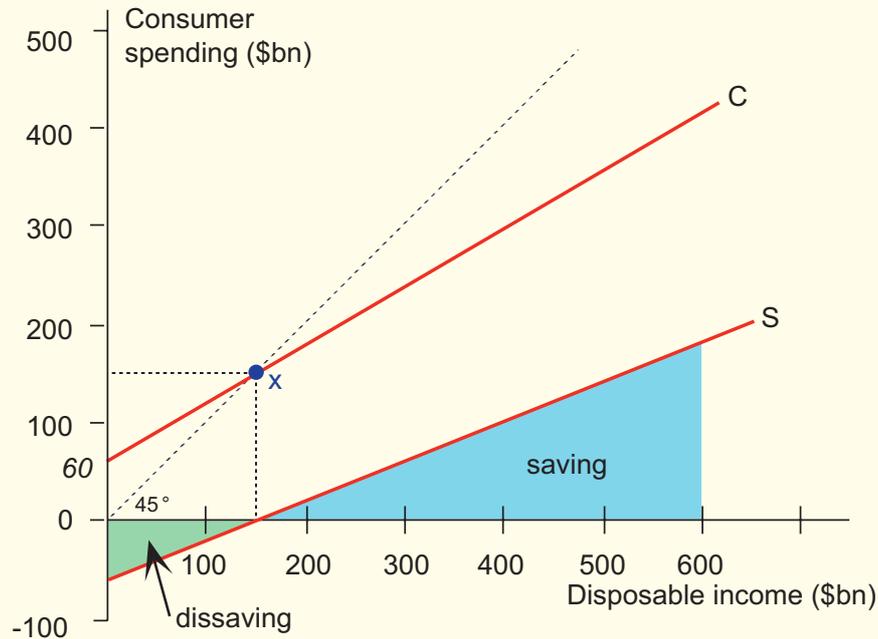
The consumption function shows the positive relationship between consumer spending and income.

Figure 8.4 The consumption function

The C function can be described in an equation $C = a + bY$, where 'a' represents the autonomous component of consumption and 'b' represents the marginal propensity to consume (MPC). The equation for the C function in this example is $C = 60 + 0.6Y$.

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



This is called the **marginal propensity to consume** or **mpc**. The mpc measures the proportion of any change in income that is spent on consumption. The mpc is equal to the slope of the consumption function.

$$\text{MPC} = \Delta C / \Delta Y \text{ (the symbol } \Delta \text{ means 'change in')}$$

In figure 8.4, 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 \$100 billion increase in disposable income, consumption will increase by \$60 billion and saving will increase by \$40 billion. The saving function, similar to the consumption function has a positive slope. In our example, the equation for the saving function is $S = -60 + 0.4Y$. The fraction of any change in income that is saved is known as the **marginal propensity to save** or **mps**. In our example, the mps is 0.4.

When income rises by \$100 billion, saving increases \$40 billion. The mps is defined as the change in savings divided by the change in income. The mps is equal to the slope of the saving function.

$$\text{MPS} = \Delta S / \Delta Y$$

Given that our simple model assumes that all income is either spent or saved, then the mpc and the mps must sum to one:

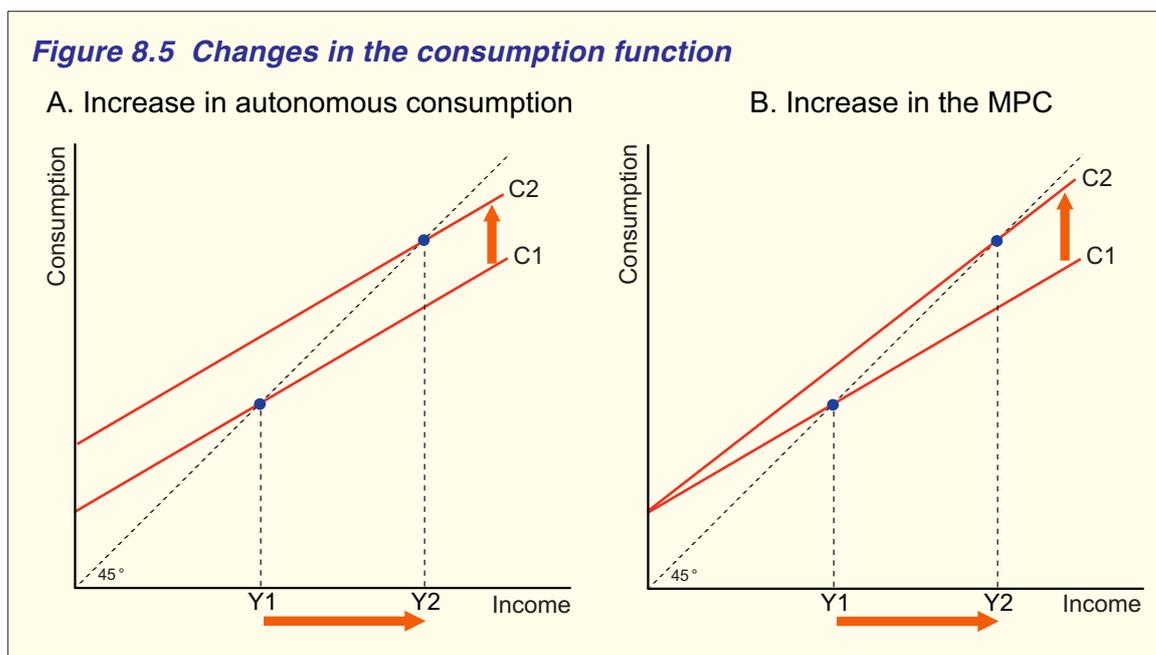
$$\text{MPC} + \text{MPS} = 1$$

The size of the mpc depends on the attitude of consumers to spending and saving. If the mpc increases, then the slope of the consumption function increases - it will become steeper. If the mpc increases, then the mps must decrease and the slope of the saving function will decrease - it will become flatter. For example, if the mpc were to equal 0.7, the mps would equal 0.3. Notice that if the mpc increases, then the equilibrium point - the point where the C line intersects the 45 degree line will move to the right. In other words, equilibrium will occur at a higher level of income. This is shown in Panel B in figure 8.5.

If the mpc increases, the slope of the C line increases - it becomes steeper.

What can shift the consumption function? Any factor that affects autonomous consumption - this means any factors other than income. For example, an increase in property and/or share prices will increase household wealth and shift the C line upwards, causing the equilibrium level of income to rise. An increase in consumer confidence or a decrease in interest rates would also increase autonomous consumption and cause the C line to shift up, increasing the equilibrium level of income. This is shown in Panel A below.

If autonomous consumption increases, the C line will shift up parallel.



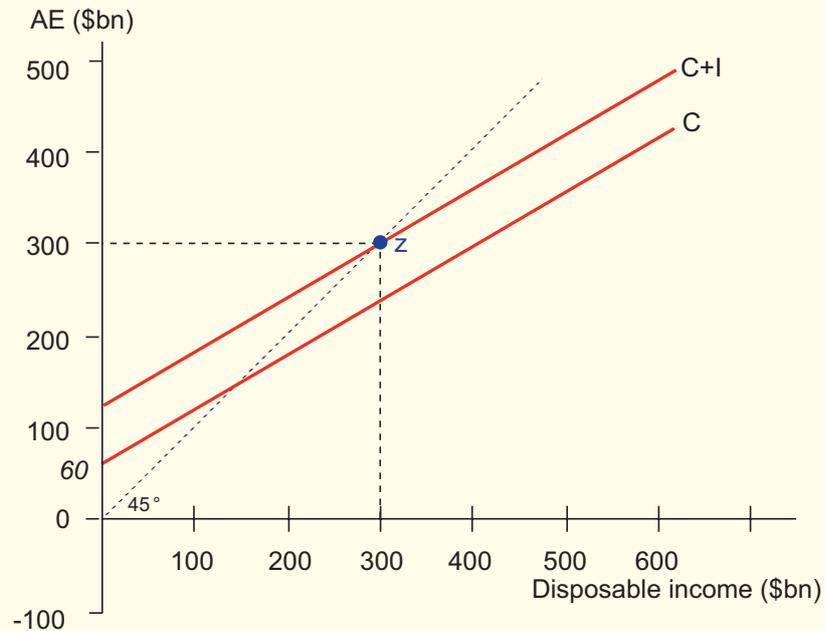
The financial sector

Figure 8.6 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. In our model we assume that planned investment spending is a fixed amount, independent of the level of income. In figure 8.6 it is assumed that business firms plan to invest \$60 billion. The level of aggregate expenditure is now equal to the sum of consumption plus planned investment: $AE = C + I$. Equilibrium now occurs where total planned spending equals income at \$300 billion. On the model the $C + I$ function intersects the 45° line at point z.

Figure 8.6 The model with 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

figures in \$bn



If the level of income is either above or below equilibrium, then planned spending will not equal output and firms' inventories will change, signalling to firms to either increase or decrease production. For example at an income level of \$400 billion, planned spending equals \$360 billion. Firms will have unsold output (inventories) of \$40 billion – inducing them to decrease their output leading in a fall in income. On the other hand, if the level of income was \$200 billion, total planned spending would equal \$240 billion. 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.

Only when planned spending matches output, can the economy be in equilibrium. In figure 8.6, 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, spending is less than output so inventories rise, firms reduce production, and income falls towards the equilibrium level;
- when the C + I line is above the 45° line, spending is greater than output, so inventories fall, firms increase production and income increases towards the equilibrium level.

If planned spending does not equal output then inventories will change causing production to change.

The complete aggregate expenditure model

To determine the complete expenditure model, we relax the assumption that the economy has no government or overseas sectors. The table below shows the addition of government spending and net exports into the model. Total expenditure is now the sum of the four categories of AE:

$$AE = C + I + G + (X - M)$$

Similar to investment, we assume that both government purchases (G) and net exports (X-M) are autonomous and independent of the level of income or

Real GDP	C	I	G	(X - M)	AE	Δ Inventories	Real GDP will . . .
0	60	60	50	-10	160	-160	increase
100	120	60	50	-10	220	-120	increase
200	180	60	50	-10	280	-80	increase
300	240	60	50	-10	340	-40	increase
400	300	60	50	-10	400	0	be in equilibrium
500	360	60	50	-10	460	+40	decrease
600	420	60	50	-10	520	+80	decrease

figures in \$bn

real GDP. In our example $G = \$50$ billion, while net exports = $-\$10$ billion (a trade deficit of $\$10$ billion). We can now derive the total amount of aggregate expenditure by adding the four categories of expenditure (C, Ip, G and NX). In the table, equilibrium occurs at $\$400$ billion where aggregate expenditure equals real GDP.

The model in figure 8.7 is the complete aggregate expenditure (AE) model. Notice that 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 point E. At this point, GDP and AE are equal at $\$400$ billion and there is no change to inventories. If real GDP is below $\$400$ billion, aggregate expenditure will exceed output and inventories will fall. Firms will respond by increasing production causing the level of output to rise towards equilibrium. If real GDP is above $\$400$ billion, total spending will be less than output and inventories will rise. Firms will respond by decreasing production causing the level of output to fall back towards equilibrium.

In figure 8.8, we represent total spending as a single AE line, rather than the separate components of C, I, G and NX. On this model we can show what happens to the level of Real GDP if the economy is not at the equilibrium point. For example, if Real GDP was equal to Y_1 , total spending would exceed output and inventories would decrease, causing firms to increase production. At Y_2 , total spending is less than output and inventories would now increase, causing firms to decrease production.

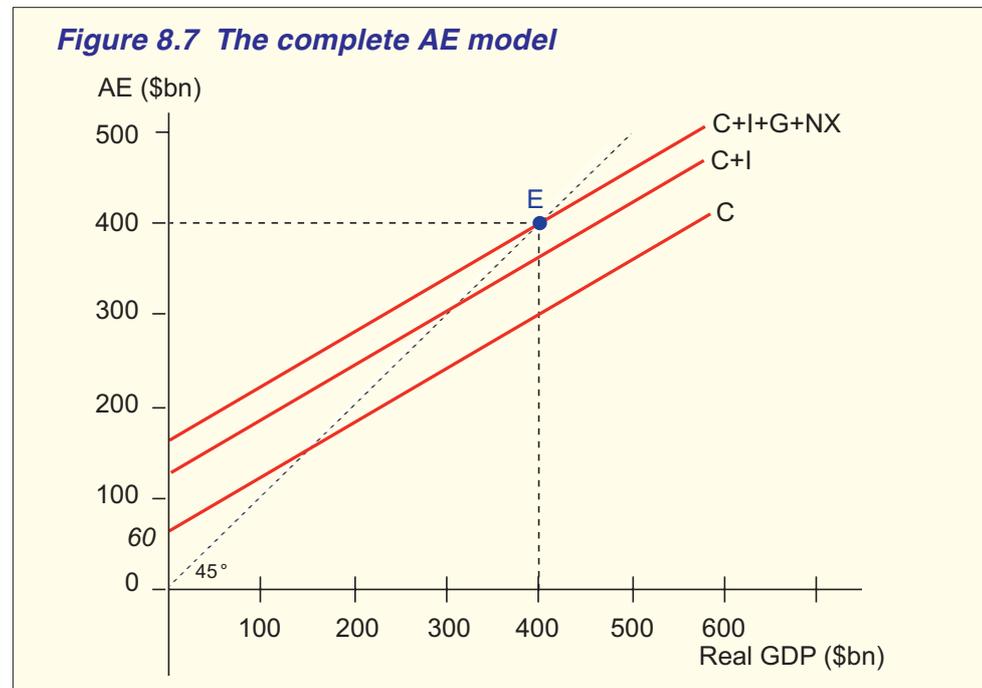
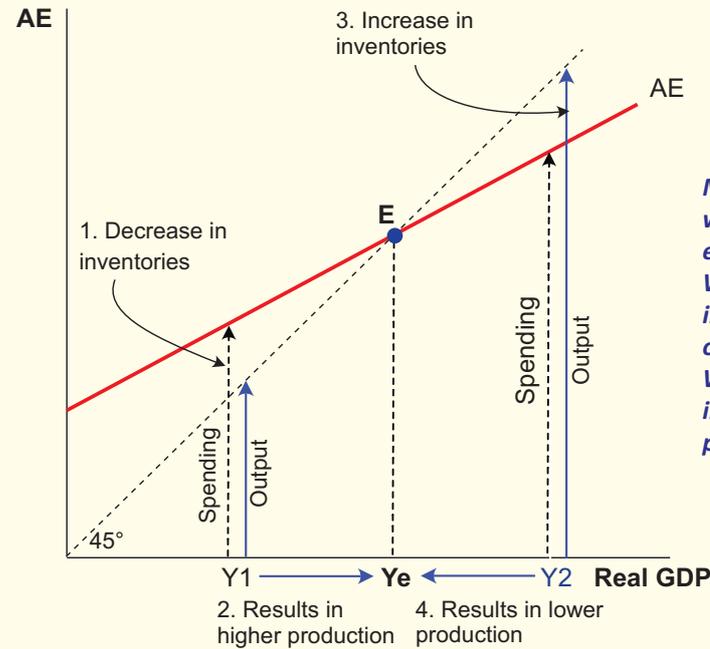


Figure 8.8 Macroeconomic equilibrium



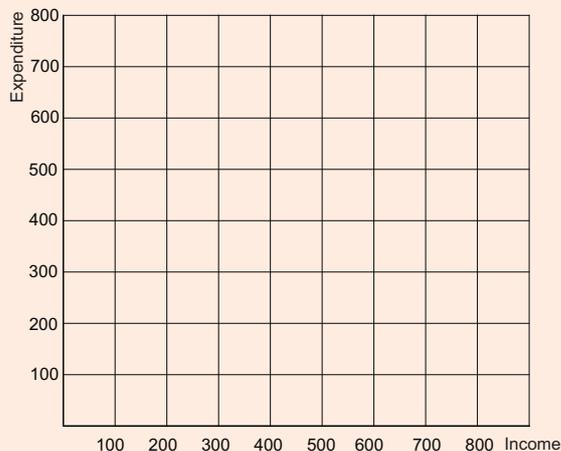
Macroeconomic equilibrium occurs when total planned spending equals production (point E). When spending > output (Y1), inventories decrease and the level of production rises. When spending < output (Y2), inventories increase and the level of production decreases.

Review

Refer to the table opposite.

1. Calculate the missing cells in the table.
2. Graph the C, C+I and 45° lines.
3. Calculate the MPC and the MPS.
4. Determine the equation for the consumption function.
5. Determine the equilibrium level of income.
6. If the level of income was 300, calculate the change in inventories.
7. Outline two factors that could cause an increase in investment.
8. Determine what would happen in this economy if the level of investment increased from its current level of 50 to a higher level of 80.

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	...



The concept of the multiplier

Up to this point we have shown how the level of aggregate expenditure determines the level of aggregate income or GDP in the economy. We have also explained how the economy adjusts to equilibrium if aggregate expenditure is either greater than or less than income through changes in inventories. The next step is to explore how a change in spending will affect the level of income.

For example, the following events would result in a higher level of aggregate expenditure – the AE function in our model would shift upwards at all levels of income:

- a rise in consumer spending due to an increase in household wealth
- the Government increases spending on healthcare
- an increase in net exports due to higher commodity prices
- an increase in business investment associated with increased profitability.

Any change in autonomous spending whether it is from C, I, G or NXs will immediately change income and this will then initiate further changes in consumption spending - known as **induced consumption**. Why? Because *'one person's spending is another person's income'*. Assume a mining company decides to spend \$100 million to develop a mine site in Western Australia. The new investment creates income for contractor firms and their employees, including engineers 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 effect describes how a change in autonomous spending will cause a larger change in income.

The **multiplier** refers to the proportion by which income will rise following an initial change in autonomous spending. If an increase in investment of \$100 million caused the level of income to rise by \$250 million, the value of the multiplier would be 2.5 – that is, the final impact on income is 2.5 times the new investment.

Figure 8.9 shows how the multiplier process works. We will assume a marginal propensity to consume of 0.6. The new \$100 million investment in the mining venture (column 2) initially creates new income of \$100 million for firms and people working on the project. In round 2, households will spend \$60 million on goods and services (called induced consumption). The \$60 million of spending will create additional income of \$60 million. In round 3, this will flow to other households and firms causing a further \$36 million of induced consumption.

Figure 8.9 The multiplier over several rounds of spending

Time period	Autonomous Investment	Additional Induced Consumption	Total Additional Spending = Total Additional Income
<i>assume MPC = 0.6</i>			
Round 1	\$100m	\$0	\$100m
Round 2	0	\$60m	\$160m
Round 3	0	\$36m	\$196m
Round 4	0	\$21.6m	\$217.6m
Round 5	0	\$13m	\$230.6m
Round 6	•	\$7.8m	\$238.4m
•	•	•	•
Round n	0	0	\$250m

In round 4, consumption increases by \$21.6 million ($0.6 \times \$26m$) and in round 5 the increase is \$13 million. Notice how in each round the change in consumption is decreasing - this is because the mpc is less than 1.

The cycle of 'one person's spending creating another's income' will continue over many periods until the incremental change in income is zero. After five rounds of the income/spending cycle, \$130.6 million of extra income has been created from the initial investment of \$100 million. If we follow the process to the end, to round n, we can show that the total change in income caused by the initial investment will be \$250 million.

We can now derive the value of the multiplier (using the symbol 'k'). The multiplier is the amount by which income changes after an initial change in autonomous expenditure. The value of the multiplier in our example is:

$$\begin{aligned}
 k &= \Delta Y / \Delta I \\
 &= \$250 \text{ billion} / \$100 \text{ billion} \\
 &= 2.5
 \end{aligned}$$

The value of the multiplier is determined by the marginal propensity to consume (mpc). The following formula can be used:

$$k = 1 / (1 - MPC) \quad (\text{or, } k = 1 / MPS)$$

Using our example, the multiplier equals 2.5:

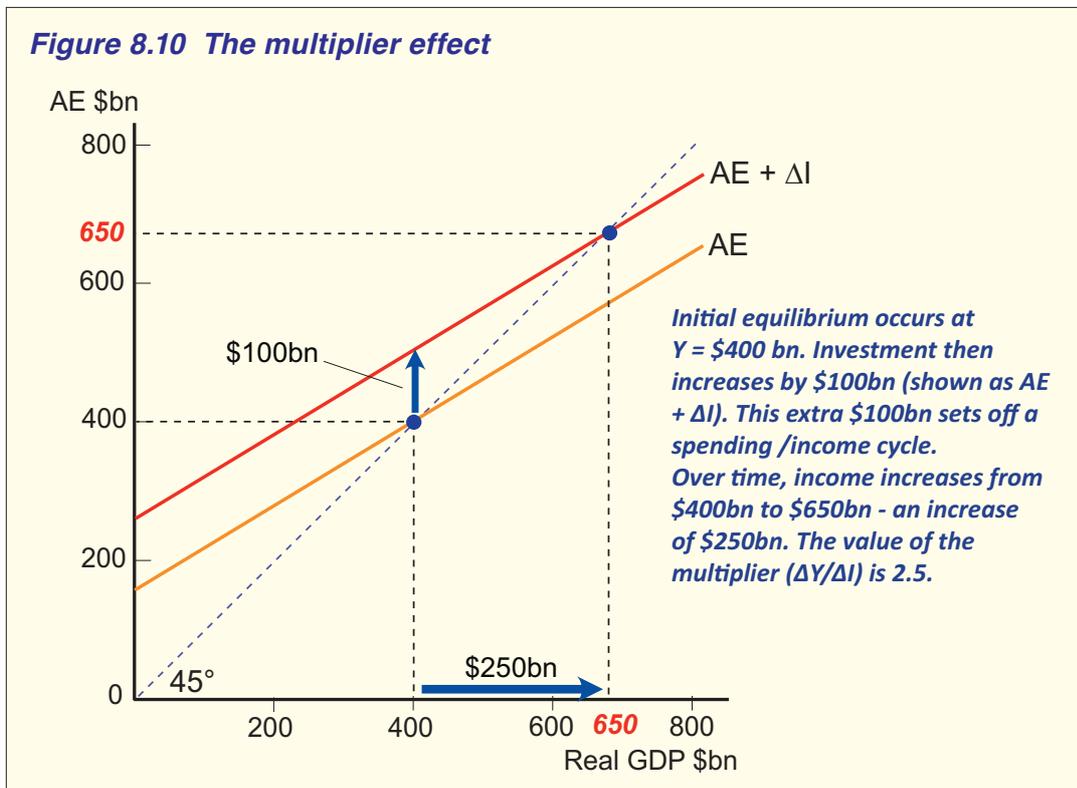
$$\begin{aligned}
 k &= 1 / (1 - 0.6) \\
 &= 1 / 0.4 \\
 &= 2.5
 \end{aligned}$$

MPC	MPS	Multiplier
0.33	0.67	1.5
0.50	0.50	2.0
0.60	0.40	2.5
0.67	0.33	3.0
0.75	0.25	4.0
0.8	0.2	5.0
0.9	0.1	10.0

What would happen if the mpc increased? This would increase the ‘re-spending’ 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 equal 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. If the mpc = 0, then the multiplier would equal 1 and if the mpc equalled 1, then the multiplier would equal infinity! In reality, the mpc will have a value of somewhere between 0 and 1. For Australia the economy wide mpc normally has a value of between 2 and 2.5.

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 aggregate expenditure model. Figure 8.10 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 $Y = \$400bn$.



Assume that planned investment increases by \$100 billion. The AE function will shift up to $AE + \Delta I$. 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 consumption spending via the marginal propensity to consume.

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 consumption, investment, government spending or net exports. Examples include:

- investment projects in the mining region of WA;
- government spending on defence; or
- increased exports due to higher commodity prices.

The multiplier process also works in reverse for any decrease in autonomous spending. For example, a decline in business confidence would decrease planned investment while a contraction in the Chinese economy would decrease the volume of Australia's exports. Each of these changes in autonomous spending would result in a larger decrease in real GDP due to the multiplier effect.

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 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. These factors are the 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 **complex multiplier** equation is one divided by the sum of the marginal leakages:

$$k = 1 / (MPS + MPT + MPM)$$

where:

- MPS = marginal propensity to save
- MPT = marginal propensity to tax
- MPM = marginal propensity to import

Assuming for example that the MPS is 0.15; the MPT is 0.2 and the MPM is 0.15, the combined leakages would be 0.5 of new income. This would imply that the multiplier would be

$$k = 1 / 0.5 = 2.0$$

The value of the multiplier decreases if leakages increase.

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 2.0 and 2.5. This is useful information for governments when formulating policy tools for different phases of the business cycle.

Review

1. Refer to the AE model below to complete (a) to (g).

a. Autonomous expenditure = _____

b. Equilibrium Real GDP = _____

c. The mpc = _____

d. The equation for AE = _____

e. The multiplier = _____

f. If Real GDP = \$100bn, inventories will decrease by _____

g. To increase equilibrium from \$200bn to \$300bn, AE must increase by _____

2. An increase in investment of \$100m changes the equilibrium level of income by \$300m.

What is the size of the mpc?

- 0.33
- 0.67
- 0.75
- 3.00

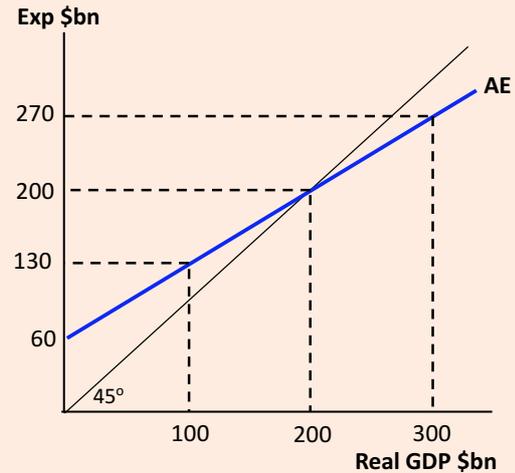
3. An increase in the level of investment in an economy, with an mpc of 0.8, leads to a total increase in income of \$350 million. What was the value of the change in investment?

- \$35 million
- \$70 million
- \$120 million
- \$280 million

4. Which of the following would cause a decrease in the value of the multiplier?

- The government increases income tax rates
- Investment spending declines
- The terms of trade falls
- The marginal propensity to save decreases

5. Draw a graph showing an AE function - label the axes, the 45° line and the equilibrium level of income (Y_e). Choose a point where real GDP is greater than aggregate expenditure and label it Y1. Explain what will happen to inventories if the economy is operating at this point. What signal does this send to firms?

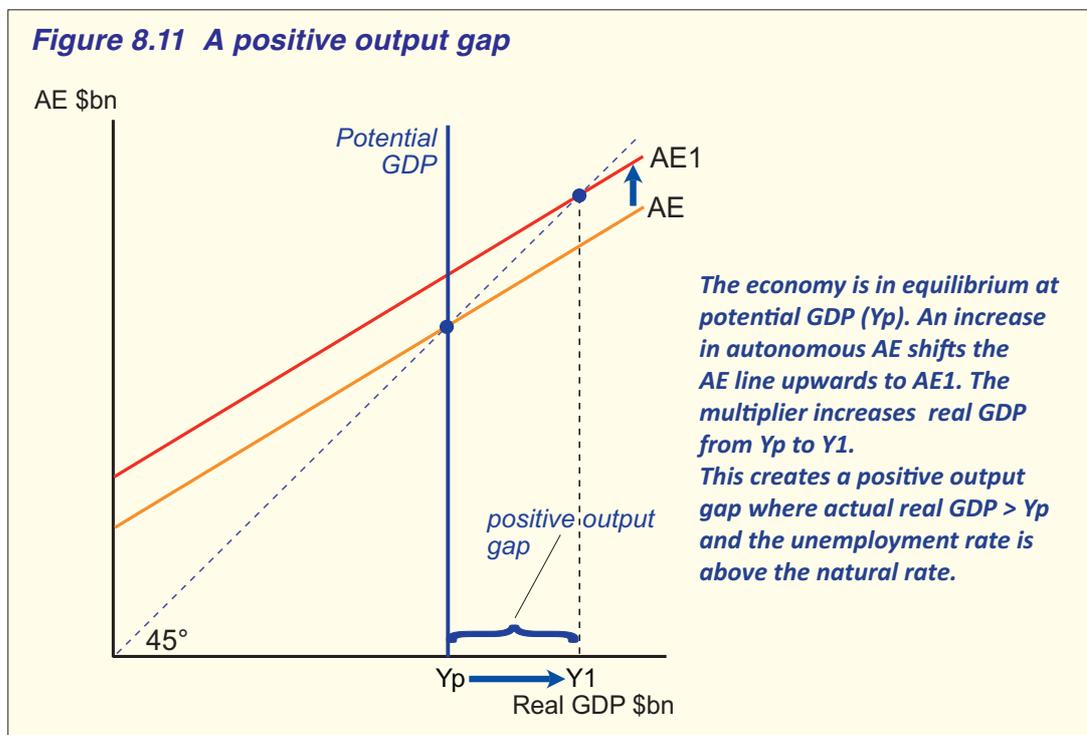


The impact of changes in aggregate expenditure

Using the aggregate expenditure model and the concept of the multiplier we can now see how business cycle fluctuations can occur. Any change in autonomous expenditure, whether it is an increase or a decrease, can, through the multiplier, lead to a much greater change in real GDP and national income. A sudden increase in private investment due to rising levels of business confidence, for example, can lead to an expansion in economic activity and increase the equilibrium level of income.

In figure 8.11 we have made one adjustment to our aggregate expenditure model by showing the level of potential real GDP. This is the level of real GDP when the economy is at full employment (the natural rate of unemployment). Assume that the economy is initially in equilibrium at potential GDP (Y_p). Suppose that net exports increase which shifts the aggregate expenditure function upwards to AE_1 . There will now be a positive multiplier effect causing real GDP to increase by a much greater amount than the rise in net exports. The economy will be in an expansion phase of the business cycle. For example, assume that the mpc was 0.75. This would mean that the multiplier would have a value of 4. If net exports increased by \$50 billion then real GDP would increase by \$200 billion. In figure 8.11, real GDP rises from Y_p to Y_1 .

A positive output gap occurs if equilibrium real GDP is greater than potential real GDP.



Because actual output is above potential output we refer to this as a **positive output gap**. At this point, the unemployment rate will have fallen below the natural rate and the inflation rate will likely increase. However, we can only infer this because the AE model does not include the price level.

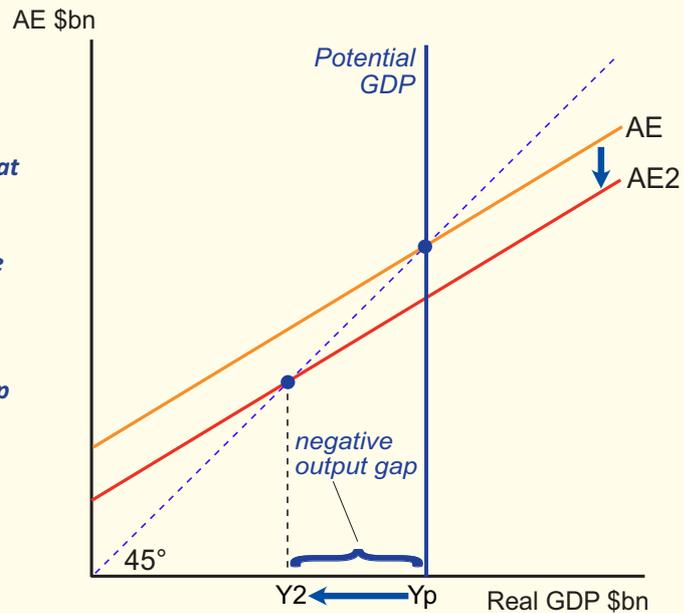
Figure 8.12 illustrates an opposite scenario where aggregate expenditure decreases resulting in a **negative output gap**. The economy is initially in equilibrium at potential real GDP (Y_p). Suppose that business confidence falls and investment spending declines. This will cause the aggregate expenditure (AE) function to shift downwards to AE2. There will now be a negative multiplier effect causing real GDP to fall by a much greater amount than the fall in investment. The economy will be in a contraction phase of the business cycle. For example, assume that the mpc was 0.67. This would mean that the multiplier would have a value of 3. If business investment fell by \$50 billion then real GDP would fall by \$150 billion.

A negative output gap occurs if equilibrium real GDP is less than potential real GDP.

In figure 8.12, real GDP falls from Y_p to Y_2 . Because actual output is below potential output we refer to this as a negative output gap. At this point, the unemployment rate will have risen above the natural rate and the inflation rate will likely decrease. The AE model and the multiplier concept help to explain why an economy might expand or contract over time resulting in fluctuations in economic activity. It also implies a role for Government policy to counteract changes in aggregate expenditure to stabilise the business cycle.

Figure 8.12 A negative output gap

The economy is in equilibrium at potential GDP (Y_p). A decrease in autonomous AE shifts the AE line downwards to AE2. The multiplier decreases real GDP from Y_p to Y_2 . This creates a negative output gap where actual real GDP < Y_p and the unemployment rate is above the natural rate.



Chapter Summary

- Aggregate expenditure is the sum of all expenditure on final goods and services undertaken in the economy during a specific time period.
- $AE = C + I + G + (X-M)$.
- Consumption expenditure (spending by households on goods and services) is the largest and most stable category of AE.
- The most important factor affecting consumption is disposable income.
- Consumption spending is positively related to both income and wealth and negatively related to the rate of interest.
- Investment spending is more volatile than consumption and includes business investment and residential investment.
- Investment spending is affected by the cost of borrowing, profitability and expectations.
- Investment spending is positively related to profit levels and negatively related to the rate of interest.
- The economy will be in equilibrium when total planned spending (aggregate expenditure) equals total production (GDP): $AE = \text{Real GDP}$
- The consumption function: $C = a + bY$
- The mpc measures the proportion of any change in income that is spent on consumption: $MPC = \Delta C / \Delta Y$
- A change in autonomous consumption will shift the whole C function, for example an increase in wealth will shift the C function upwards.
- A change in the mpc will change the slope of the C function, for example an increase in the mpc will increase the slope of the C function.
- If total spending is less than total output, then inventories will increase and firms will decrease production.
- If total spending is greater than total output, then inventories will decrease and firms will increase production.
- The multiplier effect describes how a change in autonomous spending will cause a larger change in income.
- The multiplier $k = \Delta Y / \Delta I$ and can be calculated using the formula: $1/(1 - mpc)$.
- If the mpc increases (mpc decreases) the value of the multiplier increases.
- If actual real GDP increases above potential GDP, then a positive output gap will occur and the economy will be in an expansion.
- If actual real GDP decreases below potential GDP, then a negative output gap will occur and the economy will be in a contraction.
- The AE model and the multiplier can help to explain fluctuations in the level of economic activity.

Chapter Review

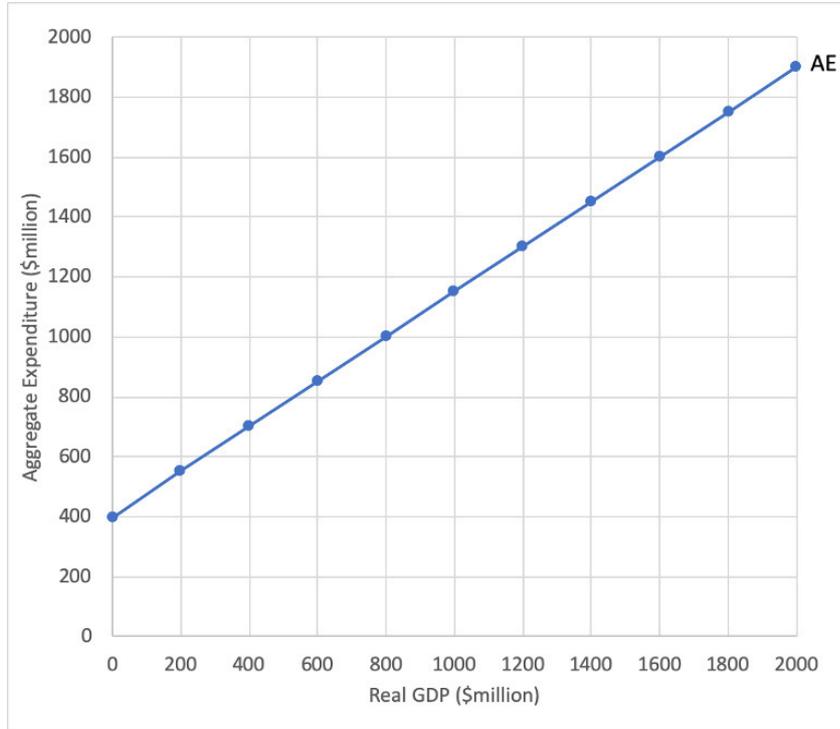
Multiple choice test

1. According to the aggregate expenditure (AE) model, when the level of income is below equilibrium, then the inventory levels of firms are
 - a. rising, which causes production to decrease.
 - b. falling, which causes production to decrease.
 - c. rising, which causes production to increase.
 - d. falling, which causes production to increase.
2. When disposable income is \$800 billion, consumption expenditure is \$500 billion; when disposable income is \$500 billion, consumption expenditure is \$320 billion. The marginal propensity to consume (mpc) is _____ .
 - a. 0.4
 - b. 0.6
 - c. 1.67
 - d. 2.5
3. Which of the following components of aggregate expenditure can be negative or positive?
 - a. Investment
 - b. Government expenditure on goods and services
 - c. Net exports of goods and services
 - d. None of the above because expenditure can never be negative.
4. If income decreases during a recession, there is
 - a. a downward shift in the AE function.
 - b. a movement downward along the AE function.
 - c. no change in aggregate expenditure.
 - d. an upward shift in the AE function.
5. If an economy saves 30 percent of any increase in income, then an increase in investment of \$3 billion can produce an increase in income of as much as
 - a. \$0.9 billion.
 - b. \$3.33 billion.
 - c. \$9 billion.
 - d. \$10 billion.
6. Suppose that real GDP equals \$2000 billion while potential GDP equals \$2100 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 \$33 billion if the MPC is 0.70.
 - c. increase its spending by \$25 billion if the MPC is 0.75.
 - d. increase its spending by \$15 billion if the MPC is 0.80.
7. For the consumption function expressed by the equation $C = 80 + 0.8Y$, the marginal propensity to save (MPS) is , and the multiplier is
 - a. -20; 1.25.
 - b. 0.2; 5
 - c. 0.2; 4
 - d. 0.8; 1.25

8. If the slope of the consumption function decreases (it becomes flatter), then
 - a. the value of the mpc increases.
 - b. the value of the mps decreases..
 - c. the value of the multiplier increases.
 - d. the value of the multiplier decreases.
9. 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
10. In the aggregate expenditure (AE) model, the AE line is most likely to shift downward when
 - a. asset prices, such as shares, fall.
 - b. the Reserve Bank of Australia lowers the cash rate.
 - c. the Government decreases tax rates.
 - d. the level of imports of goods and services falls.
11. Other things being equal, if an increase of \$90m in investment expenditure resulted in an increase in national income of \$135m, what is the value of the Marginal Propensity to Consume (MPC)?
 - a. 0.25
 - b. 0.33
 - c. 0.67
 - d. 0.75
12. The strength of the multiplier is determined by
 - a. the proportion of extra income spent within the economy.
 - b. the impact of interest rates on the level of disposable income.
 - c. the level of business and consumer confidence.
 - d. global economic conditions.
13. If the Australian economy is operating at a point of \$100 million below equilibrium, then restoring macroeconomic equilibrium will require
 - a. an increase in government spending of \$20 million if the mps is equal to 0.4.
 - b. a decrease in government spending of \$20 million if the mps is equal to 0.4.
 - c. an increase in government spending of \$20 million if the mps is equal to 0.2.
 - d. a decrease in government spending of \$20 million if the mps is equal to 0.2.
14. In an economy, the mpc is 0.2, the mps is 0.3, the mpt is 0.3 and the mpm is 0.2. What would be the most likely consequence of an increase in government expenditure of \$100m?
 - a. Consumption expenditure would increase by \$25m.
 - b. Import expenditure would increase by \$20m.
 - c. Tax revenues would increase by \$30m.
 - d. GDP would increase by \$200m.
15. A government decided to increase its expenditure on a major infrastructure project. What would decrease the multiplier effect of the project if it had occurred at the same time?
 - a. A decrease in imports.
 - b. An increase in the marginal propensity to consume.
 - c. A decrease in the rate of interest.
 - d. An increase in income tax.

Data Interpretation

1. Refer to the AE model below.



ai. Which component of aggregate expenditure increases as real GDP increases? (1 mark)

a.ii. Calculate the value for the marginal propensity to consume and the multiplier. (2 marks)

b. Draw the 45° line and determine the equilibrium level of real GDP. (2 marks)

c. If the actual level of real GDP was below the equilibrium level, explain how the economy would move back to equilibrium. (3 marks)

d. Describe the effect of the following on the AE curve and on the equilibrium level of real GDP:

i. A decrease in household wealth: _____ (2 marks)

ii. A decrease in the marginal propensity to save: _____ (2 marks)

2. Refer to the expenditure data below:

Real GDP \$ billions	Consumption \$billions	Investment \$billions
300	340	80
400	400	80
500	460	80
600	520	80
700	580	80
800	640	80
900	700	80

ai. Calculate the level of autonomous consumption: (1 mark)

ii. Write the equation for the consumption function: (1 mark)

iii. Calculate the marginal propensity to consume (mpc): (1 mark)

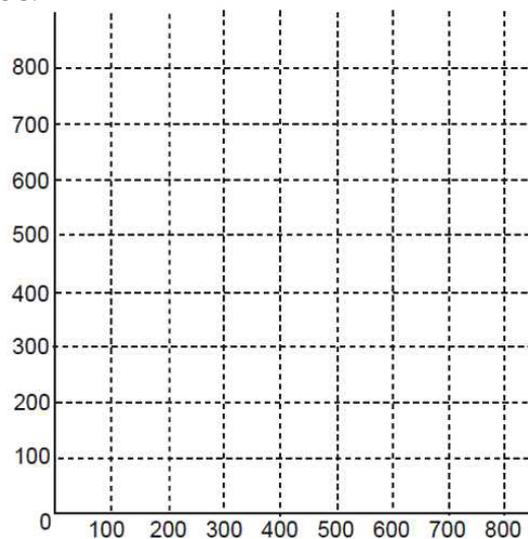
iv. Calculate the equilibrium level of real GDP: (1 mark)

b. Calculate the new equilibrium level of income if investment were to increase to \$140 billion. (3 marks)

c. Use the data to draw the consumption function on the graph below. Label all parts of the diagram, including the axes. Describe and illustrate the effects of

i. a rise in the marginal propensity to save (mps)

ii. a rise in consumer confidence. (4 marks)



Extended responses

Include models and examples where appropriate.

1. a. Explain the concept of macroeconomic equilibrium using the aggregate expenditure (AE) model. Demonstrate how the economy will automatically adjust to equilibrium if spending does not equal output. (8 marks)
- b. Use the aggregate expenditure (AE) model to explain the multiplier process given an increase in investment. (7 marks)
2. a. Define the four categories of aggregate expenditure and describe two factors affecting the category of consumption. (8 marks)
- b. Use a model of the consumption function to explain the effect of
 - i. an autonomous increase in consumption and
 - ii. an increase in the marginal propensity to consume. (7 marks)
3. a. Define private investment expenditure and explain why it is more volatile than consumption spending. (7 marks)
- b. Using an aggregate expenditure model, explain how each of the following would affect the level of real GDP.
 - i. A rise in interest rates.
 - ii. A rise in property prices. (8 marks)

Selected Answers

Review p. 191

1. \$550bn; 2d; 3d; 4c; 5c; 6a; 7d ; 8b

Review p. 199

3. $mpc = 0.7$; $mps = 0.3$

4. $C = 70 + 0.7Y$

5. Equilibrium income = 400

6. Inventories would decrease by 30

8. Equilibrium income would increase from 400 to 500

Review p. 204

1. a. \$60bn; b. \$200bn; c. 0.7; d. $60 + 0.7Y$; e. 3.33; f. \$30bn; g. \$30bn

2bc; 3b; 4a

Multiple Choice - p.204: 1d; 2b; 3c; 4b; 5d; 6c; 7b; 8d; 9c; 10a; 11b; 12a; 13c; 14a; 15d

Data Interpretation

1ai. consumption; aii. 0.75; 4; b. \$1600m; di. the AE curve would shift down and equilibrium income would fall; dii. the slope of the AE function would increase and equilibrium income would increase.

2. ai. \$160bn; aii. $C = 160 + 0.6Y$; aiii. 0.6; aiv. \$600bn; b. The multiplier = 2.5. If investment increases by \$60bn then income will rise by \$150bn, so the new equilibrium will be \$750bn.

Aggregate Demand and Supply



Key understandings

- *the aggregate demand (AD) curve and factors that can cause movements along and shifts of the AD curve*
- *the short-run aggregate supply (SAS) curve and factors that can cause movements along and shifts of the SAS curve*
- *the long-run aggregate supply (LAS) curve and factors that can cause shifts of the LAS 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*

Macroeconomics is about explaining fluctuations in the business cycle. The three most important economic indicators of the business cycle are real GDP, the unemployment rate and the inflation rate. A complete model of the macroeconomy should be able to explain changes in each of these indicators.

The aggregate expenditure (AE) model and the multiplier concept from chapter 8 provided a good introduction to understand how changes in expenditure can affect the level of output and employment in the economy. But economists are also interested in explaining fluctuations in the overall price level of the economy - the inflation rate. In the AE model, there is no inclusion of the price level, which means that it is not possible to explain changes in the rate of inflation. This is a major weakness of the AE model. Additionally, the AE model only focuses on changes in expenditure which represents 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 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). This model consists of three curves - the aggregate demand (AD) curve, the short run aggregate supply (SAS) curve and the long run aggregate supply (LAS) curve.

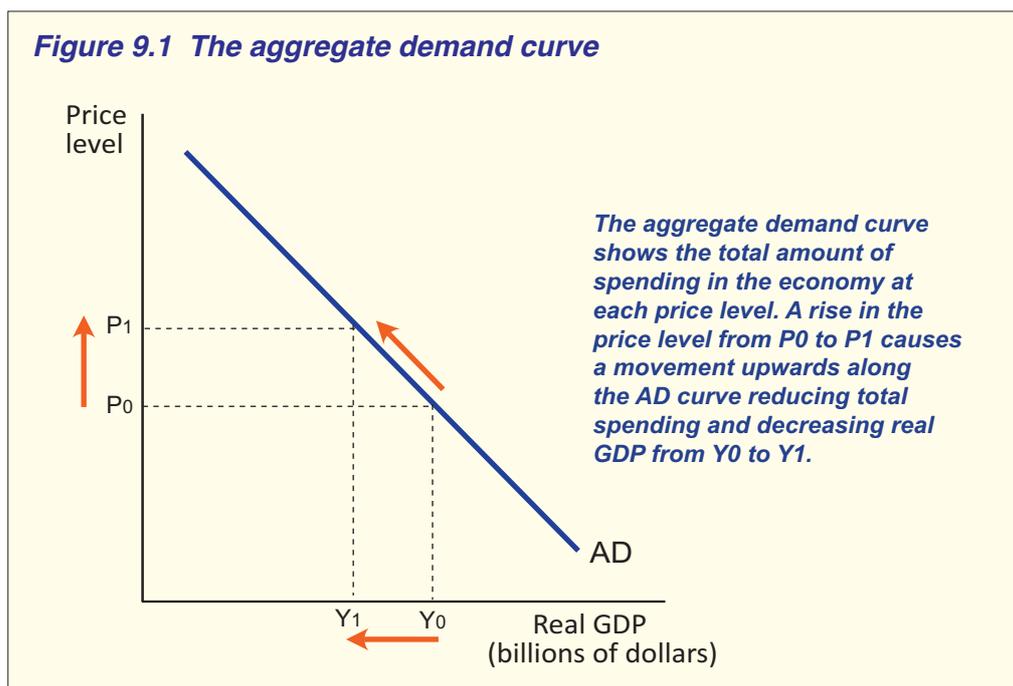
The aggregate demand curve

Aggregate demand is the sum of all spending on final goods and services in an economy at a given point in time. This is a similar definition to aggregate expenditure introduced in chapter 8. Remember that aggregate expenditure was equal to the sum of consumption, investment, government purchases and net exports. This means that AE also equals aggregate demand:

$$AE = C + I + G + NX = \text{Aggregate Demand (AD)}$$

To model the aggregate demand (AD) curve, we determine the effect of a change in the general price level on total spending. As illustrated in figure 9.1, the AD curve describes a negative (downward sloping) relationship between the level of spending and the overall price level. The x-axis shows the level of output produced in the economy - we label this as Real GDP. The y-axis shows the general price level for all goods and services based on a price index. Is there a general price level for the whole economy? Yes there is - its called the **GDP deflator**. This is a measure of the money price of all new domestically produced final goods and services in the economy. It is similar to the consumer price index (CPI) but rather than measure changes in just the price of consumer goods and services, it measures changes in the prices of all goods and services.

Aggregate demand is the amount of total spending on domestic goods and services in an economy.



There are three reasons that explain the negative relationship between the quantity of aggregate demand and the price level:

- the **wealth effect**;
- the **interest rate effect**; and
- the **international trade** effect.

First, a rise in the price level (inflation) reduces the purchasing power of household income or wealth. Wealth is the net value of your assets, including your money and savings. If prices were to rise by 5 per cent, 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 decreases, so consumption (a key component of aggregate demand) also decreases.

Second, changes in the general price level affect 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 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 both the investment and consumption categories of aggregate demand.

Third, the negative slope is partly explained by the ‘international trade’ effect. If the domestic price level 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 (imports) and less from domestic producers. In other words, an increase in the price level will decrease net exports ($X - M$). Notice that each effect focuses on a different component of aggregate demand. Notice also that a change in the price level does not affect government purchases (G).

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. 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. Do not confuse the aggregate demand with the demand curve from microeconomics. The demand curve for a normal good like pizza is downward sloping because as the price of pizza rises, consumers switch to other less expensive goods. But along the AD curve, a rise in the general price level means that all goods and services have become more expensive.

Shifts of the aggregate demand curve

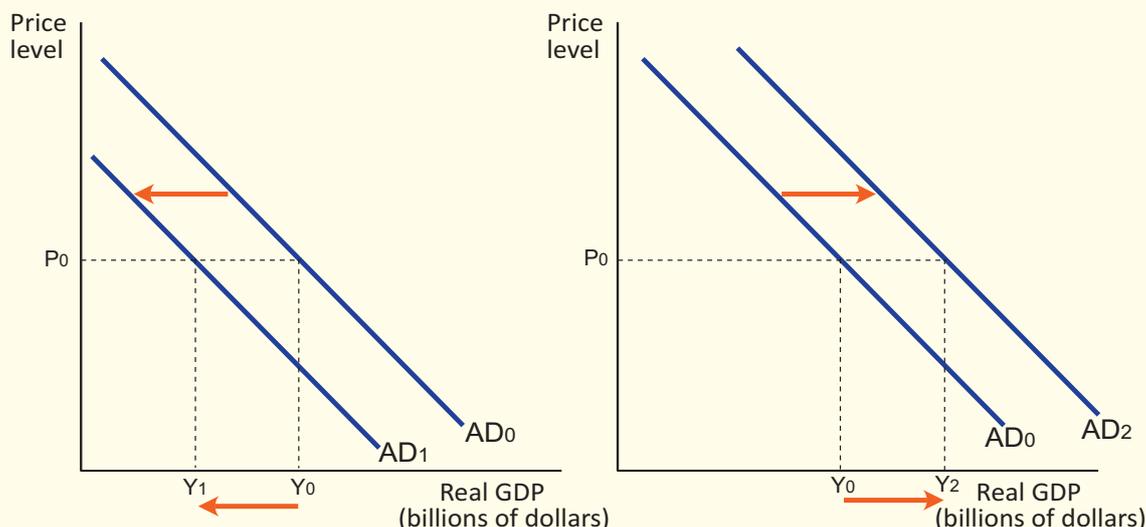
What happens when factors other than the price level change? For example if household wealth increases, then consumption will increase and the whole aggregate demand curve will shift to the right. This is called an **increase in aggregate demand**. If net exports were to decrease due to an increase in imports, the AD curve will shift to the left. This is called a **decrease in aggregate demand**. Figure 9.2 illustrates these two types of shift - an increase in AD and a decrease in AD.

The whole aggregate demand curve will only shift if factors other than the price level were to change. We can identify many factors that affect each of the components of aggregate demand - consumption (C), investment (I), government purchases (G) and net exports (NX). These are highlighted in figure 9.2. The multiplier concept developed in chapter 8 can also be applied to the aggregate demand curve. An autonomous change in any of the components of aggregate demand will have a multiplier effect. For example, if Government spending on healthcare were to rise by \$25 billion and the economy’s marginal propensity to consume (mpc) was equal to 0.75, then the aggregate demand curve would shift to the right by \$25 billion times the multiplier. Remember that the formula for the multiplier is equal to $1/(1-mpc)$. So in this example, the multiplier would equal 4 and total spending would increase by \$100 billion:

$$\Delta G (\$25bn) \times \text{multiplier } (4) = \Delta AD (\$100bn)$$

A change in aggregate demand will have a multiplier effect on the level of real GDP.

Figure 9.2 Shifts in the aggregate demand curve



A decrease in AD causes the AD curve to shift to the left, decreasing Real GDP from Y_0 to Y_1

An increase in AD causes the AD curve to shift to the right, increasing Real GDP from Y_0 to Y_2

A decrease in AD	An increase in AD
<p>Consumption</p> <ul style="list-style-type: none"> • a decrease in wealth • an increase in interest rates • a decrease in consumer confidence • an increase in taxes • a decrease in transfer payments 	<p>Consumption</p> <ul style="list-style-type: none"> • an increase in wealth • a decrease in interest rates • an increase in consumer confidence • a decrease in taxes • an increase in transfer payments
<p>Investment</p> <ul style="list-style-type: none"> • an increase in interest rates • a decrease in business confidence • a decrease in profitability • higher business taxes 	<p>Investment</p> <ul style="list-style-type: none"> • a decrease in interest rates • an increase in business confidence • an increase in profitability • lower business taxes
<p>Government purchases</p> <ul style="list-style-type: none"> • a decrease in spending on government services e.g. health and education • a decrease in government spending on capital goods e.g. transport networks 	<p>Government purchases</p> <ul style="list-style-type: none"> • an increase in spending on government services e.g. health and education • an increase in government spending on capital goods e.g. transport networks
<p>Net exports</p> <ul style="list-style-type: none"> • a decrease in commodity prices • a decrease in world income • an increase in domestic income • an appreciation in the AUD 	<p>Net exports</p> <ul style="list-style-type: none"> • an increase in commodity prices • an increase in world income • a decrease in domestic income • a depreciation in the AUD

Similarly, if the government increased welfare payments by \$25 billion to households, then this would increase disposable income and result in an increase in household consumption and a shift of the AD curve to the right:

$$\Delta C (\$25\text{bn}) \times \text{multiplier } (4) = \Delta AD (\$100\text{bn})$$

When the AD curve shifts to the right it results in an increase in the level of economic activity - real GDP and employment both increase. Investment spending comprises around 20 per cent of aggregate demand and can be quite volatile, responding to changes in business sentiment and future expectations. If for example investment spending decreased by \$40 billion because of a decline in business confidence, then the AD curve would shift to the left and would have a negative multiplier effect:

$$\Delta I (-\$40\text{bn}) \times \text{multiplier } (4) = \Delta AD (-\$160\text{bn})$$

A decrease in aggregate demand will decrease the level of economic activity causing real GDP, income and employment to fall. Changes in global economic growth can have a significant impact on Australia's net exports. Slower economic growth in China, for example, can decrease commodity prices for many of Australia's leading exports, such as iron ore, coal and natural gas. This will decrease the value of Australia's exports and shift the AD curve to the left, causing real GDP and employment to fall.

Review

1. *It is important to distinguish between shifts in aggregate demand and movements along the AD curve. For each of the following scenarios below determine whether there is a shift or a movement along the AD curve.*
 - a. *Firms respond to improved economic conditions by increasing investment in plant and machinery.*
 - b. *Due to higher domestic inflation, consumers switch to buying imported goods rather than domestic goods.*
 - c. *China and Japan, two of Australia's largest trading partners, experience an economic recession.*
 - d. *A decrease in the price level results in an increase in household wealth.*
 - e. *In response to a weakening economy, the government increases unemployment benefits and pension payments.*
2. *Determine whether each of the following statements are TRUE or FALSE*
 - a. *An increase in consumer debt will shift the AD curve to the left.*
 - b. *If interest rates rise, business investment will increase and the AD curve will shift to the right.*
 - c. *An increase in the price level causes the AD curve to shift to the left.*
 - d. *A decrease in the price level will cause a movement down the AD curve and increase the quantity of real GDP demanded.*
 - e. *Higher income taxes will decrease consumption and shift the AD curve to the left.*

The short run aggregate supply (SAS) curve

Aggregate supply is the total supply or production of final goods and services in an economy. While aggregate demand focused on the spending side of the economy, aggregate supply focuses on the production side of the economy (see figure 9.3 below). This side of the economy includes all the individual firms and industries that produce all the different types of goods and services that make up real GDP. Firms use resources or inputs such as raw materials, labour and capital to produce goods and services. Aggregate supply will be affected by both the availability of resources, such as labour and capital, but also the prices of these resources (the costs of production). We distinguish between two aggregate supply curve - the short run aggregate supply curve (SAS) and the long run aggregate supply curve (LAS).

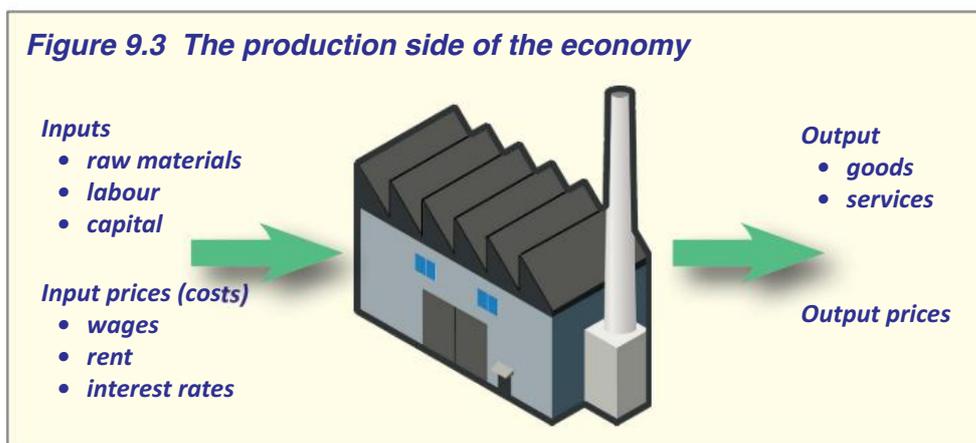
The short run aggregate supply (SAS) curve

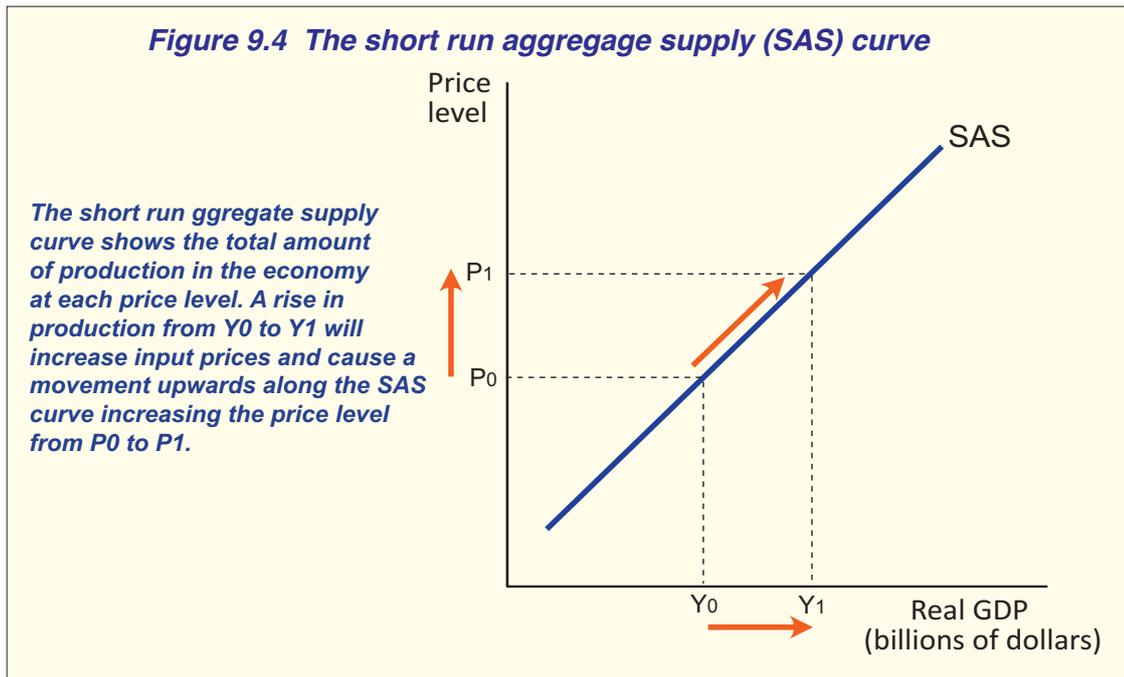
The short run aggregate supply (SAS) curve describes the relationship between the total production of goods and services in the economy and the general price level. The SAS curve is upward sloping (positive slope). This means that as the level of economic activity increases, the price level rises. Why does this occur? To increase production, firms require more resources - more labour, capital and natural resources. Increased demand for these resources will cause input prices to rise. The most important cost of production is the price of labour - wages. When production rises, higher demand for labour will see wages start to rise which will cause the general price level to rise. This is especially true as the economy approaches its potential capacity or full employment level of output.

In figure 9.4, an increase in real GDP from Y0 to Y1 will cause a movement up along the SAS curve and cause the price level to rise from P0 to P1. The increase in economic activity increases the demand for resources which results in input prices and production costs rising.

Aggregate supply is the total quantity of goods and services produced in the economy.

The SAS curve shows a positive relationship between the price level and the level of total production.





Shifts of the SAS curve

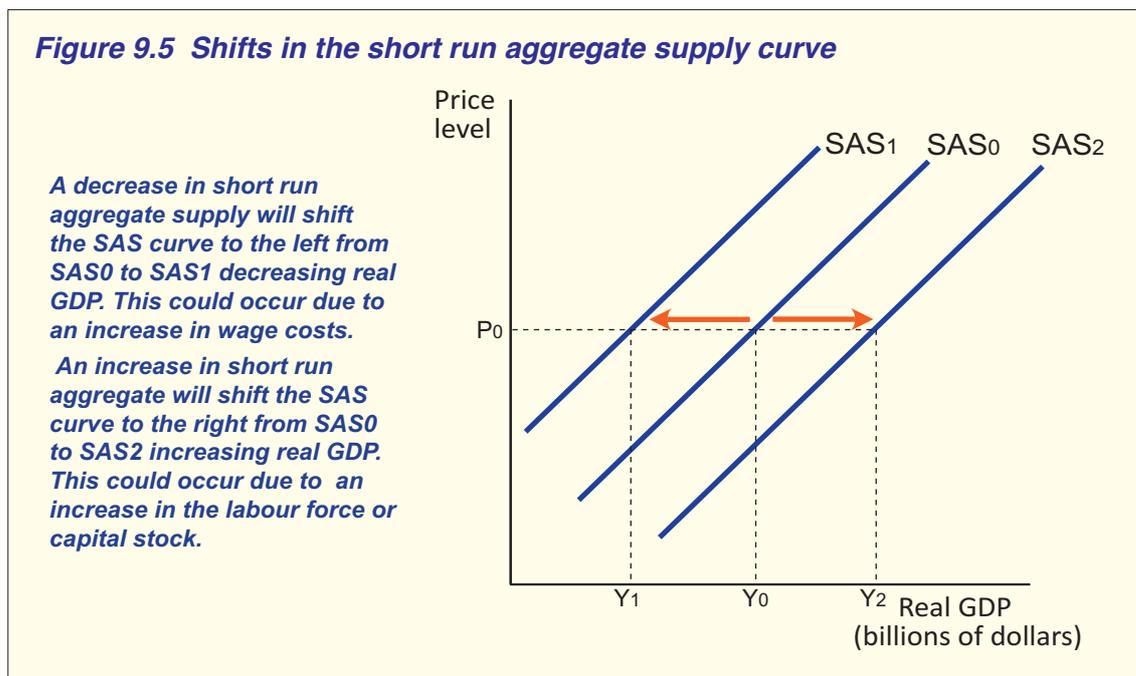
The SAS curve in figure 9.4 is drawn for a given quantity of resources and for a given level of technology and production costs. When these factors change, then the whole SAS curve will shift. Figure 9.5 shows both a decrease in short run aggregate supply and an increase in short run aggregate supply:

- A **decrease in SAS** - the SAS curve shifts to the left causing a fall in real GDP and employment
- An **increase in SAS** - the SAS curve shifts to the right causing an increase in both real GDP and employment

A decrease in short run aggregate supply could be caused by increases in input prices (e.g. wages or oil price) increasing costs of production or by decreases in the labour force or capital stock. An increase in short run aggregate supply could be caused by decreases in input prices (e.g. wages or oil price) decreasing costs of production or by increases in the labour force or capital stock. Unanticipated shifts of the SAS curve are referred to as '**supply shocks**'. A negative supply shock such as a natural disaster will cause a decrease in SAS (a leftward shift of the SAS curve). A positive supply shock such as the introduction **artificial intelligence** or 'AI' will cause an increase in SAS (a rightward shift of the SAS curve). Artificial intelligence (AI) refers to the ability of computer systems to perform tasks which normally require human intelligence.

AI refers to a set of technologies that enable computers to perform a variety of advanced functions.

Figure 9.5 Shifts in the short run aggregate supply curve



A decrease in SAS	An increase in SAS
<p>Input prices</p> <ul style="list-style-type: none"> • an increase in wages • an increase in energy prices (e.g. oil) • an increase in the price of raw materials • an increase in the cost of capital equipment • an increase in taxes on firms 	<p>Input prices</p> <ul style="list-style-type: none"> • a decrease in wages • a decrease in energy prices (e.g. oil) • a decrease in the price of raw materials • a decrease in the cost of capital equipment • a decrease in taxes on firms
<p>Labour force</p> <ul style="list-style-type: none"> • a decrease in the labour force • a decrease in human capital • a decrease in labour productivity 	<p>Labour force</p> <ul style="list-style-type: none"> • an increase in the labour force • an increase in human capital • an increase in labour productivity
<p>Capital stock</p> <ul style="list-style-type: none"> • a decrease in the capital stock • a decrease in government infrastructure 	<p>Capital stock</p> <ul style="list-style-type: none"> • an increase in the capital stock • an increase in government infrastructure • an improvement in the quality of capital
<p>Natural disasters</p> <ul style="list-style-type: none"> • an extensive flood or bushfire • a drought 	<p>Technology</p> <ul style="list-style-type: none"> • an improvement in technology • introduction of 'AI'

The long run aggregate supply (LAS) curve

The long run aggregate supply curve shows the level of potential GDP.

The economy's long run aggregate supply is the quantity of output produced when the economy is at full employment. This level of output is called **Potential GDP** (Y_p). When the economy is at full employment, the unemployment rate is equal to the natural rate of unemployment (U_N). The natural rate of unemployment consists of just frictional and structural unemployment.

For the Australian economy, the natural rate of unemployment is estimated to be around 4 per cent. At a given point in time, the level of potential GDP will be the maximum output that can be produced given full employment. This means that when we graph the long run aggregate supply (LAS) curve it will be a vertical line. In other words, the LAS curve is not affected by changes in the price level - refer to panel A in figure 9.6.

What factors shift the long run aggregate supply (LAS) curve? Are they the same factors that shift the short run aggregate supply (SAS) curve? The factors that shift the LAS curve are changes in the quantity and quality of resources and changes in technology. The key difference between the two aggregate supply curves is that changes in costs of production do not affect the long run aggregate supply curve.

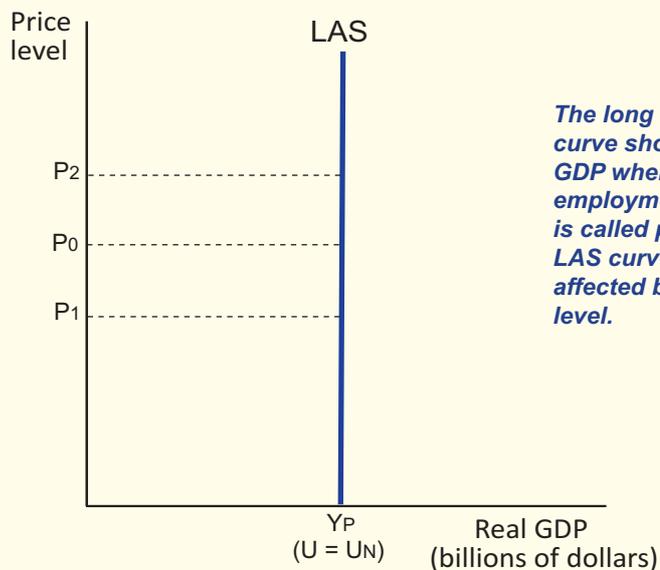
So both the LAS and the SAS curves will increase or shift to the right if

- the labour force increases
- the capital stock increases
- technology improves
- labour productivity increases

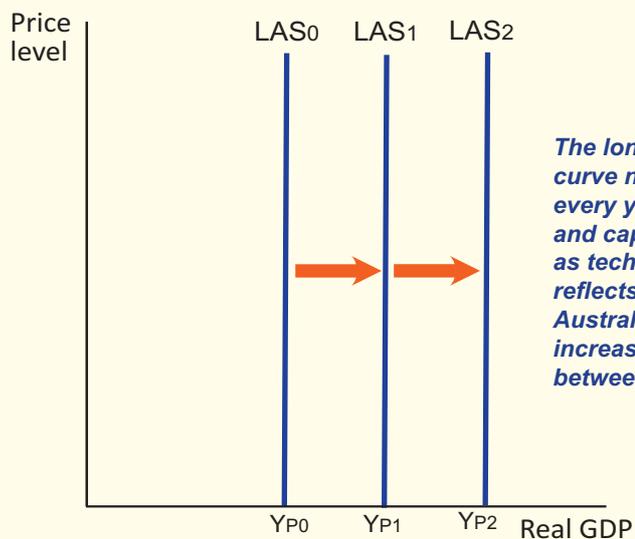
Shifts of the LAS curve to the right reflect economic growth taking place and is synonymous with the production possibility frontier (PPF) shifting to the right. The rate at which the LAS curve increases each year measures the growth rate of potential GDP. For Australia this is equal to approximately 2.5 to 3 per cent and reflects the growth in the labour force and productivity.

Any shift of the LAS curve will also shift the SAS curve.

It is important to remember that if the LAS curve shifts, then it will automatically shift the SAS curve as well. For example, an increase in the labour force or an improvement in technology will shift both aggregate supply curves to the right. Any changes in input prices, such as the price of oil or the price of labour (wages) will shift the short run aggregate supply (SAS) curve but not the LAS curve. What about a natural disaster, such as widespread flooding, a drought or extensive bushfires? Each of these events represent a temporary negative supply shock and they would cause a temporary increase in the costs of production. This would result in a decrease in the SAS curve (a shift to the left) which would have a negative effect on total production.

Figure 9.6 The long run aggregate supply (LAS) curve**Panel A: LAS = Potential GDP**

The long run aggregate supply curve shows the total level of real GDP when the economy is at full employment. This level of output is called potential GDP (Y_P). The LAS curve is vertical - it is not affected by changes in the price level.

Panel B: Shifts of the LAS curve

The long run aggregate supply curve normally shifts to the right every year as the labour force and capital stock increase and as technology improves. This reflects economic growth. For Australia, potential GDP (LAS) increases at an annual rate of between 2.5-3.0%

Review

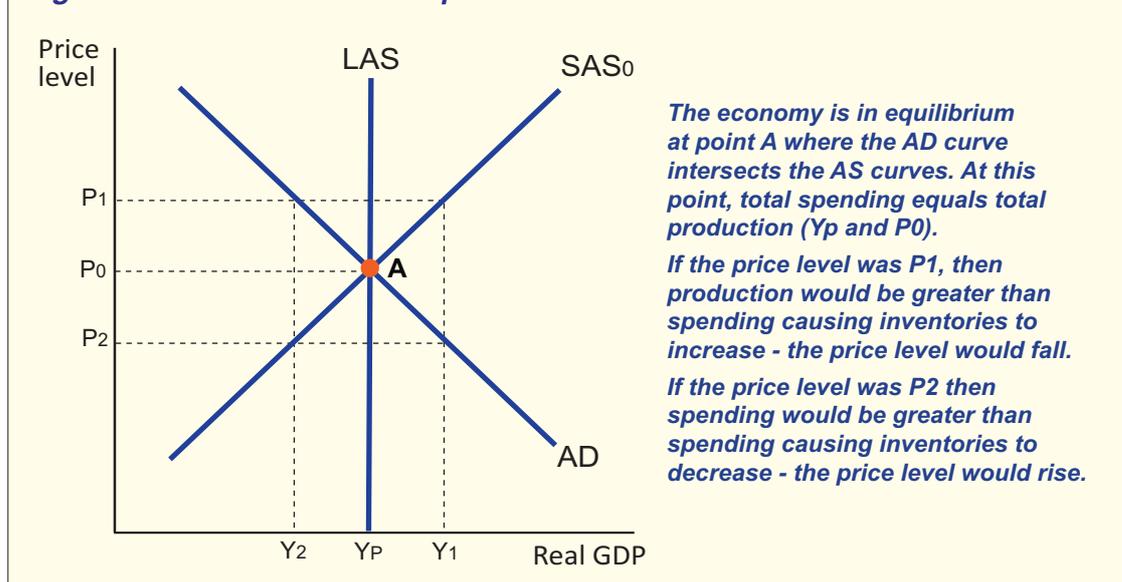
1. *It is important to distinguish between shifts in the SAS and LAS curves. For each of the following scenarios below determine whether there is a shift in the SAS curve, the LAS curve or both.*
 - a. *New natural gas reserves are discovered in Western Australia.*
 - b. *Widespread floods in Queensland devastate vegetable crops.*
 - c. *Tensions in the middle East increase oil prices.*
 - d. *Business investment increases as economic conditions improve.*
 - e. *Property prices rise boosting household wealth.*
2. *Determine whether the following statements are TRUE or FALSE.*
 - a. *If wages increase without an increase in labour productivity, the short run AS curve will shift to the left.*
 - b. *A leftward shift in the short run AS curve can cause cost push inflation.*
 - c. *The economy can never be in equilibrium above potential GDP.*
 - d. *Lower costs of production will shift the long run AS curve to the right.*
 - e. *An increase in the labour force will shift the long run AS curve to the right but not affect the short run AS curve.*

Macroeconomic equilibrium

The economy is in macroeconomic equilibrium when total spending is equal to total production.

When we combine the aggregate demand curve with the aggregate supply curves on the one diagram we can show where the economy will be in macroeconomic equilibrium. Our definition of equilibrium is the point where total spending is equal to total production. We can distinguish between short run equilibrium - where the AD curve intersects the SAS curve and long run equilibrium where all three curves intersect. Figure 9.7 shows the economy in long run equilibrium at point A where real GDP equals potential GDP (Y_P) and the price level equals P_0 .

How do we know that the economy will reach this position? Suppose that the price level was higher at P_1 . At this point, total production is Y_1 but total spending in the economy is lower at Y_2 . When spending is less than production firms' inventories will increase. This is the signal for firms to cut back production which will cause the price level to fall and the economy will adjust to the equilibrium output of Y_P . What if the initial price level was lower at P_2 ? Now total production would equal Y_2 while total spending would be greater at Y_1 . When spending is greater than production firms' inventories will decrease. This is the signal for firms to increase production which will cause the price level to rise and the economy will adjust to the equilibrium output of Y_P .

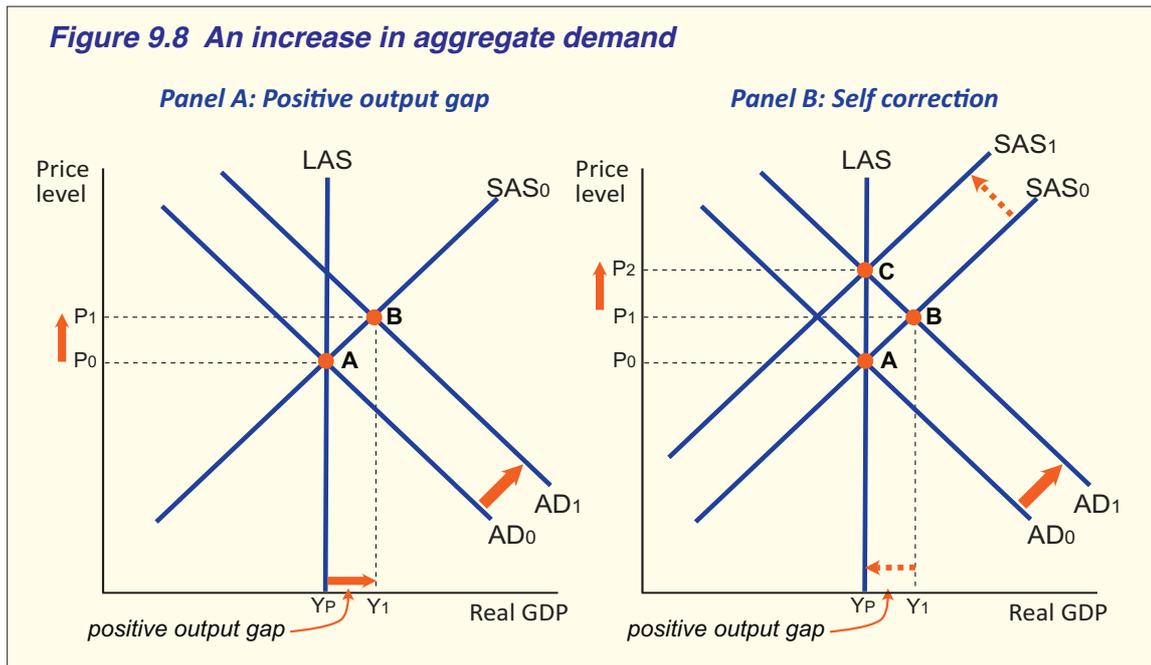
Figure 9.7 Macroeconomic equilibrium

From our study of the business cycle we know that the economy is always constantly changing, responding to various shocks from both domestic and external factors. These shocks can be either positive or negative causing the level of real GDP, the level of employment and the price level to rise or fall. Can our aggregate demand/aggregate supply (AD/AS) model explain the fluctuations that we see in economic activity over time? The answer, of course is a big fat yes! Whenever the aggregate demand or aggregate supply curves shift, then the economy will move to a new equilibrium level causing both real GDP, employment and the price level to change. Isn't economics wonderful that we can explain the whole business cycle using our simple macroeconomic model!

Changes in aggregate demand

Let's see what happens in our model when the aggregate demand curve shifts. Suppose that China grows faster and increases its demand for Australia's mineral and energy resources (iron ore and coal). This would increase the value of Australia's net exports and increase aggregate demand, shifting the AD curve to the right (AD_1). Panel A of figure 9.8 illustrates this scenario. The economy will shift from its long run equilibrium at point A to a new short run equilibrium at point B. Real GDP increases, the unemployment rate will fall and the price level will increase, causing demand inflation. Because real GDP is now above potential GDP, this is referred to as a **positive output gap**. The unemployment rate will now be less than the natural rate.

A positive output gap will occur if real GDP is greater than potential GDP.



When the economy experiences a positive output gap it is in an expansion phase of the business cycle or an economic boom. This was the situation for the Australian economy in the years after the Covid pandemic from 2022-24. For much of this period the unemployment rate was below 4 per cent while the inflation rate exceeded 3 per cent. The typical characteristics associated with a positive output gap are:

- wage inflation due to low unemployment and a tight labour market
- an increase in the participation rate, as people expect they will be able to find a job if they seek work
- low unemployment rate due to lack of cyclical unemployment
- high demand inflation as the economy reaches capacity constraints
- an increase in company profits and business confidence
- increased consumer confidence and sales of consumer durables and luxury goods
- reduced need for welfare payments, such as unemployment benefits
- higher interest rates to dampen spending and reduce inflation

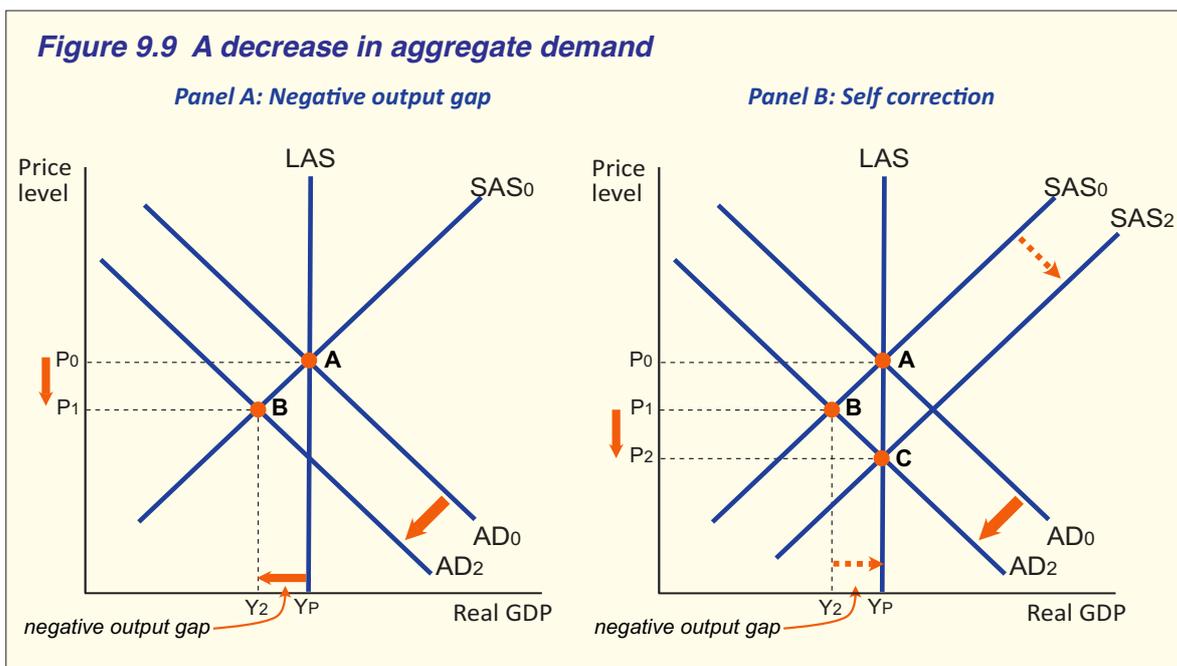
Will the economy automatically return back to its long run equilibrium on the long run aggregate supply curve? The answer is yes! The adjustment process is shown in panel B of figure 9.8. When the economy is at the short run equilibrium of point B, the very low unemployment rate will cause wages to rise. Higher wages will increase production costs and cause the short run aggregate supply (SAS) curve to shift up and to the left.

The economy will move to a new long run equilibrium at point C. Real GDP will return back to its potential level but the price level will rise to P_2 - a higher rate of inflation. So in response to an increase in aggregate demand, the economy will 'self correct' back to long run equilibrium on the long run aggregate supply (LAS) curve. This adjustment process, however, can take time. So it would be more prudent for the Government or Reserve Bank to intervene and use fiscal or monetary policy to counteract the initial shift in the aggregate demand curve. This would avoid the costly rise in inflation.

What will happen if there is a negative aggregate demand shock - a decrease in aggregate demand? For example, if household confidence falls, then consumption spending will decrease, shifting the AD curve to the left. This is illustrated in figure 9.9. The economy is initially in long run equilibrium at point A. Real GDP equals potential GDP (Y_P) and the price level equals P_0 . The decrease in aggregate demand moves the economy to a new short run equilibrium at point B. Real GDP decreases, the unemployment rate increases and the price level falls. Because real GDP is now below potential GDP, this is referred to as a **negative output gap**. The unemployment rate will now be higher than the natural rate.

A negative output gap will occur if real GDP is less than potential GDP.

When the economy experiences a negative output gap it is in a contraction phase of the business cycle or an economic recession. This was the situation for the Australian economy in 2020 due to the Covid pandemic. During this period real GDP fell and the unemployment rate increased to over 7 per cent. The price level fell resulting in a negative inflation rate in June 2020.



The typical characteristics associated with a negative output gap are:

- 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 and falling business confidence
- reduced spending on consumer durables
- increased need for social security and welfare payments
- lower interest rates to encourage spending

Will the economy automatically return back to its long run equilibrium on the long run aggregate supply curve? The answer is yes! The adjustment process is shown in panel B of figure 9.9. When the economy is at the short run equilibrium of point B, the relatively high unemployment rate will cause wages to fall. Lower wages will decrease production costs and cause the short run aggregate supply curve to shift down and to the right. The economy will move to a new long run equilibrium at point C. Real GDP will return back to its potential level but the price level will fall to P2 - a lower rate of inflation. So in response to a decrease in aggregate demand, the economy will 'self correct' back to long run equilibrium on the long run aggregate supply curve.

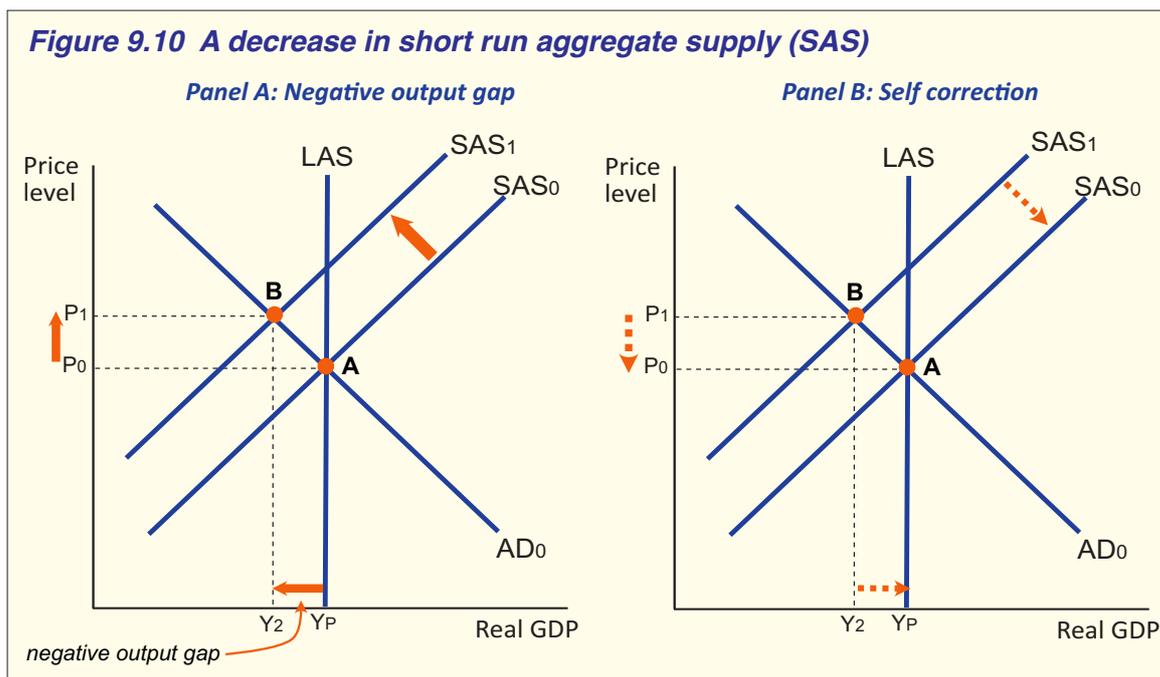
Will it take time for the economy to adjust and for wages to fall? The answer is yes, especially if wages are not that flexible downwards. This is why it would be prudent for the Government and/or the Reserve bank to intervene and use either expansionary fiscal or monetary policy to shift the aggregate demand curve back. This could save the economy from experiencing a prolonged recession and avoid high rates of unemployment.

When an economic shock moves the economy away from potential GDP, the economy will 'self correct'.

Changes in aggregate supply

Shocks to aggregate supply can also cause the economy to move to a short run equilibrium, either to the left or the right of the long run aggregate supply curve. Let's see what happens in our model when the short run aggregate supply curve shifts. Suppose that oil prices increase due to increased global conflict. Oil is a major industrial input affecting the cost of all goods and services. A rise in oil prices will cause a negative supply shock - the short run aggregate supply curve will decrease and shift to the left. Panel A of figure 9.10 shows this scenario. The economy will shift from its long run equilibrium at point A to a new short run equilibrium at point B. Real GDP decreases, the unemployment rate will increase and the price level will increase, causing cost inflation - often referred to as '**stagflation**'. Because real GDP is now below potential GDP, the economy is characterised by a **negative output gap**. The unemployment rate will have risen above the natural rate.

Stagflation occurs when real GDP contracts and both the unemployment and inflation rates rise.



Will the economy automatically return back to its long run equilibrium on the long run aggregate supply curve? The answer again is yes! The adjustment process will, as always, occur through the labour market. Panel B illustrates the 'self correction' process. When the economy is at the short run equilibrium of point B, the higher unemployment rate will cause wages to fall. Lower wages will decrease production costs and cause the short run aggregate supply curve to shift back down and to the right. The economy will move back to the initial long run equilibrium at point A. The price level will return to P_0 and real GDP will increase back to Y_P .

Should economic policy be used to counter an aggregate supply shock? The answer is No! Economic policy is effective in counteracting aggregate demand shocks rather than aggregate supply shocks.

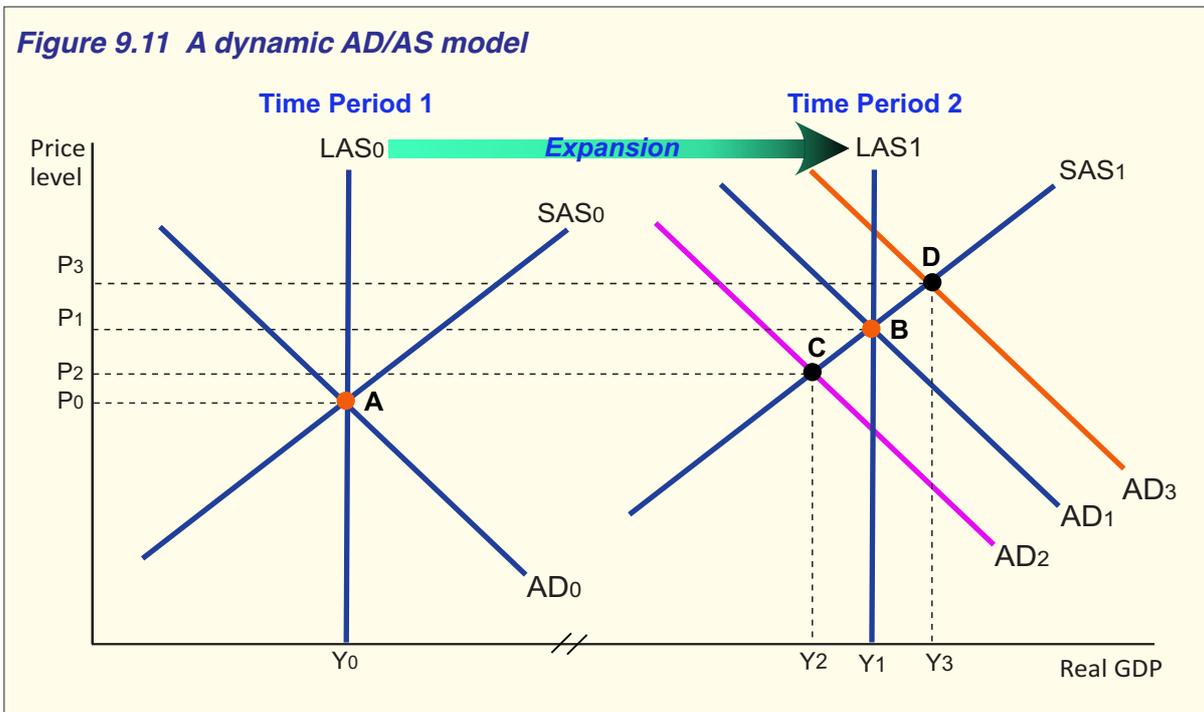
The AD/AS model and the business cycle

When we covered the business cycle topic in chapter 7, we noted that the normal state for the economy is to be in an expansion where real GDP increases each year. We know that potential GDP increases at an annual rate of between 2.5 and 3 per cent. This means that each year the long run aggregate supply (LAS) curve shifts to the right. This reflects growth in the labour force through population growth and migration. Additionally, the capital stock, consisting of machinery, business equipment, new housing

and construction also grows. The long run aggregate supply curve will also shift to the right as technological developments increase the productivity of resources. Whenever the LAS curve shifts to the right it takes the short run aggregate supply (SAS) curve with it.

Does the aggregate demand (AD) curve also normally shift to the right each year? The answer is yes! As the population increases and employment grows, then consumption spending and investment spending normally increase. Government spending also grows over time, especially on social services, education and health, as well as government investment on roads and public infrastructure. If all three curves (AD, SAS, LAS) increase at the same rate, then the economy moves along its trend line of economic growth - real GDP will match potential GDP and we achieve 'economic bliss'! But it is important to remember that the AD curve is independent of the AS curves and it may increase more slowly or more quickly than aggregate supply.

Figure 9.11 illustrates the business cycle using the AD/AS model. Initially the economy is in long run equilibrium at point A in time period 1. Real GDP is equal to potential GDP at Y_0 and the price level is equal to P_0 . Over a period of time the economy expands and the aggregate supply curves shift to SAS_1 and LAS_1 , shown as time period 2. If the AD curve increases at a similar rate then the economy will shift to a new long run equilibrium at point B. Real GDP will equal potential GDP (Y_1) while the price level would have increased to P_1 reflecting an inflation rate of between 2-3 per cent.



But there is no guarantee that the AD curve will shift to AD1 - it may shift to AD2 where real GDP (Y2) is below potential GDP (point C in time period 2). This represents a negative output gap and the unemployment rate will have increased to be above the natural rate. The second possibility is that the AD curve may grow faster than the AS curves shifting the economy to point D (AD3) in time period 2. Now there will exist a positive output gap where real GDP (Y3) will exceed potential GDP. The unemployment rate will fall below the natural rate while the inflation rate will accelerate shown by the increase in the price level to P3.

Figure 9.11 reveals how, over time, the economy can fluctuate around the level of potential GDP. An important point to remember from this simple analysis is that it is fluctuations in aggregate demand that produce most of the disturbances to the business cycle. This is why economic policy, both fiscal and monetary policy, are focused more on counteracting changes in aggregate demand in order to reduce the volatility of the business cycle.

Review

Complete the following table:

Change in AD/AS	Output Gap?	Macro Effects?
Increase in AD	Positive	Real GDP increases The price level increases The unemployment rate decreases
Decrease in AD	_____	Real GDP _____ The price level _____ The unemployment rate _____
Increase in SAS	_____	Real GDP _____ The price level _____ The unemployment rate _____
Decrease in SAS	_____	Real GDP _____ The price level _____ The unemployment rate _____

Chapter Summary

- Macroeconomics focuses on the performance of the whole economy – changes in economic output, inflation and unemployment.
- The goals of macroeconomics include economic growth, full employment, price stability and productivity growth.
- The business cycle refers to the fluctuating levels of economic activity in an economy over a period of time.
- Potential GDP is the maximum or full employment level of production that can be attained given the economy's factors of production and level of technology.
- When actual real GDP is above the trend line, then the economy experiences a positive output gap.
- When actual real GDP is below the trend line, then the economy experiences a negative output gap.
- The business cycle comprises four phases - the expansion, the upper turning point or peak, the contraction and the lower turning point or trough.
- Macroeconomists believe that the major cause of business cycles are external economic shocks .

Chapter Review

The AD/AS model

For each of the following events, determine whether the AD, SAS or LAS curve would shift and in which direction and state the effect on real GDP and the price level.

	Event	Curve (AD/SAS/LAS)	Effect	Effect on Real GDP	Effect on Price Level
1.	An increase in the labour force	SAS, LAS	Increase	Increase	Decrease
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.	Increase in share prices				
9.	A global financial crisis				
10.	Australia signs an FTA with China				

Multiple choice questions

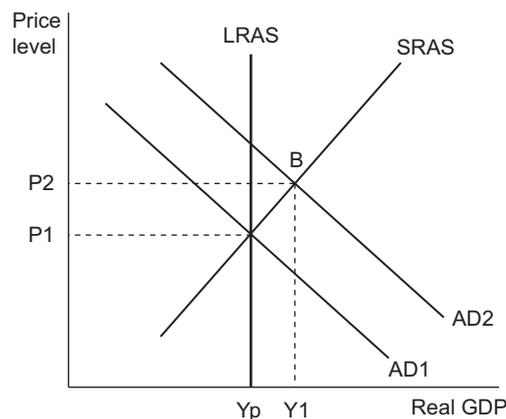
1. According to the AD-AS model, when real GDP exceeds potential GDP, the unemployment rate must
 - a. be rising.
 - b. be falling.
 - c. be greater than the natural unemployment rate.
 - d. be less than the natural unemployment rate.
2. How does a rise in the price of factors of production affect the short run AS (SAS) curve?
 - a. A move down and along the SAS curve
 - b. A move up and along the SAS curve
 - c. A shift to the left of the SAS curve
 - d. A shift to the right of the SAS curve
3. How will an increase in government spending on infrastructure affect the aggregate demand and short run aggregate supply curves?
 - a. The AD curve does not change; the SAS curve increases
 - b. The AD curve increases; the SAS curve decreases
 - c. The AD curve increases; the SAS curve does not change
 - d. The AD curve increases; the SAS curve increases
4. One reason that the aggregate demand curve slopes downward is because
 - a. higher price levels reduce net exports.
 - b. higher price levels increase real wealth and consumption.
 - c. higher price levels reduce interest rates.
 - d. higher price levels increase investment.
5. According to the AD/AS model, the effect of an increase in consumer confidence is likely to result in
 - a. a decrease in the general level of prices and a increase in real GDP.
 - b. an increase in the general level of prices and an increase in real GDP.
 - c. a decrease in the general level of prices and a decrease in real GDP.
 - d. an increase in the general level of prices and a decrease in real GDP.
6. Which one of the following policies will not lead to a long-term expansion of aggregate supply?
 - a. Lowering the company taxation rate
 - b. Increasing skilled migration by 5000 persons per year
 - c. Extending the solar energy rebate scheme for households
 - d. Increasing unemployment benefits by an amount equal to the rate of inflation
7. A technological advance _____ potential GDP, _____ aggregate supply, and shifts the aggregate supply curves _____.
 - a. increases; increases; leftward
 - b. increases; increases; rightward
 - c. decreases; decreases; leftward
 - d. increases; decreases; leftward
8. Of the following policies, which one is least likely to increase aggregate supply in the economy?
 - a. increased government spending on infrastructure
 - b. increased government spending on education and training
 - c. increased government outlays allocated to payment of unemployment benefits
 - d. a reduction in company tax rates

9. 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.
10. 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.
11. 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 decrease domestic aggregate demand.
 - d. reduce Australian net exports and increase domestic aggregate demand.
12. 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
13. 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.
14. 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 potential GDP will increase.
 - c. Neither the price level nor potential GDP will change.
 - d. Both the price level and potential GDP will decrease.
15. Which of the following is most likely to reflect government policy designed to increase efficiency and productivity in the economy?
 - a. The AS curves shift to the left.
 - b. The AD curve shifts to the left.
 - c. The AS curves shift to the right.
 - d. The AD curve shifts to the right.
16. 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.

17. Which of the following would shift the SAS 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 production of agricultural crops.
 - d. A fall in business confidence.
18. A global financial crisis decreases business confidence. How would this affect the AD curve?
 - a. It will move the economy up along the aggregate demand curve.
 - b. It will move the economy down along the 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.
19. 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.
20. The LRAS curve shifts to the right by 2-3% 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.

Data interpretation

1. The AD/AS model opposite illustrates an economy operating at point B.
 - a. Describe two events that might have caused the shift in aggregate demand from AD1 to AD2.
 - b. Briefly describe what this model tells you about the state of the economy - refer to unemployment, inflation & GDP growth.
 - c. Explain what you would expect to happen to return the economy to its long run potential GDP at Y_p .
2. Refer to the following economic indicators:
 - the real GDP growth rate for the past year is 3.2%;
 - the terms of trade have increased by 12% over the course of the year;
 - the unemployment rate has fallen from 5.0% to 4.0%; and
 - the current inflation rate of 3.5%.



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.

3. Refer to the extract below.

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.

- a. Use an AD/AS model to describe how “the collapse in investment” will affect the aggregate demand curve and the macroeconomy.
- b. Which curves in the AD/AS model are affected by slower productivity growth?
- c. Explain how the events discussed in the extract would impact on Australia’s growth in potential GDP.
- d. Suggest a government policy that could help to increase potential GDP and raise living standards.

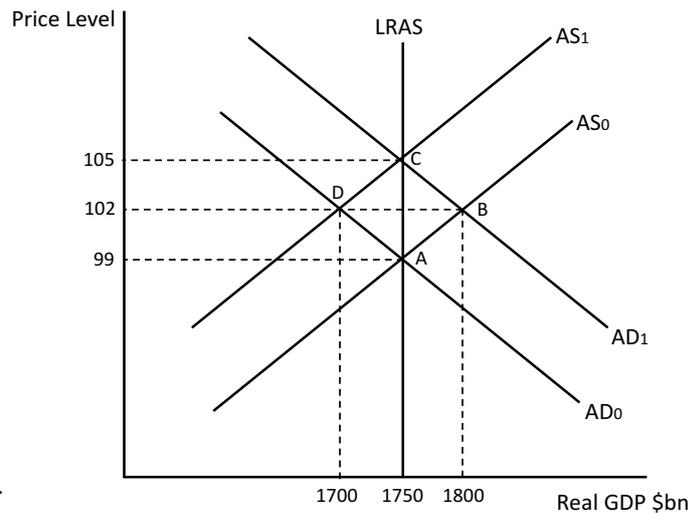
4. This question refers to the aggregate demand/aggregate supply model shown opposite. The economy is initially in equilibrium at point A.

- (a) Outline one reason why the aggregate demand (AD) curve has a negative slope and why the long run aggregate supply curve (LRAS) curve is vertical. (4 marks)

- (b) State two reasons why the LRAS curve shifts to the right each year. (2 marks)

- (c) Use the model to outline what may cause the economy to shift to point B. Calculate the rate of inflation and the rate of economic growth at point B. (4 marks)

- (d) Explain how the economy would automatically adjust from its short run equilibrium at point B back to the long run equilibrium at point D. (3 marks)



Worksheet

For each event, draw an AD/AS model on the graph provided showing just the AD and the SAS curves. Show the impact of each event on the model - determine which curve will shift and describe the effect on real GDP, unemployment and the price level.

1. There is an increase in costs of raw materials across the economy.



2. New technology and improved education increase labor productivity.



3. There is an economic recession in Japan.



4. The government reduces taxes and increases transfer payments.



The AD-AS Model

A longstanding way of thinking about the business cycle and economic management is in terms of aggregate demand and supply shocks. Aggregate demand shocks cause both output and the price level to move in the same direction. Aggregate supply shocks, on the other hand, tend to cause output and prices to move in opposite directions.

1. Give an example of a negative aggregate demand (AD) shock and an example of a positive AD shock for the Australian economy.
2. Draw an AD/AS model to demonstrate and explain the effects of a negative AD shock.
3. Give an example of a negative aggregate supply (AS) shock and an example of a positive AS shock for the Australian economy.
4. Draw an AD/AS model to demonstrate and explain the effects of a negative AS shock.

Extended responses

Each of the following questions should be answered in 1-2 pages of writing. Include models and examples where appropriate.

1.
 - a. Explain the meaning of the aggregate supply (AS) curve and distinguish between factors that can cause a movement along and a shift of the aggregate supply curve. (6 marks)
 - b. Use the AD/AS model to explain the impact of the following on the Australian economy:
 - i. An increase in global economic growth
 - ii. A prolonged drought
 - iii. An increase in infrastructure investment (9 marks)
2.
 - a. Distinguish between the causes of a movement along the aggregate demand curve and a shift of the curve. (6 marks)
 - b. Using an AD/AS model, explain the short and long run response to a negative aggregate demand shock. (9 marks)

Selected Answers

Review p. 218

1a Shift - increase; 1b Movement upward along; 1c Shift - decrease; 1d Movement down along;
1e Shift - increase

2a True; 2b False; 2c False; 2d True; True

Review p. 224

1a Both SAS and LAS shift right; 1b SAS shifts right; 1c SAS shifts left; Both SAS and LAS shift right
1e Neither curve shifts - this is an AD factor

2a True; 2b True; 2c False; 2d False; 2e False

Multiple choice p. 233

1d; 2c; 3d; 4a; 5b; 6d; 7b; 8c; 9a; 10c; 11c; 12b; 13a; 14b; 15c; 16c; 17c; 18d; 19c; 20c.

Fiscal Policy



Key understandings

- *the concept of fiscal policy*
- *the macroeconomic policy objectives of the Australian Government*
- *the different budget outcomes, i.e. balanced, surplus and deficit budgets*
- *the distinction between automatic fiscal stabilisers and discretionary fiscal policy*
- *methods of financing a budget deficit and the impact of government debt*
- *the impact of expansionary and contractionary fiscal policy stances using the AE and AD/AS model*
- *strengths and weaknesses of fiscal policy*

The concept of fiscal policy

Fiscal policy is the use of government spending and taxation to influence the level of economic activity.

Fiscal policy refers to the use of Commonwealth Government spending and taxation to affect the level of economic activity and to achieve specific economic and social objectives. The main economic objectives of the government include economic growth, full employment and price stability. The government may also have other social objectives such as reducing income inequality.

Fiscal policy first came into prominence during the Great Depression era of the 1930s when most economies suffered from unemployment rates that reached as high as 30 per cent of the workforce. Prior to 1930 it was considered prudent for the government to simply balance its budget and not interfere with the operation of the market economy. Since the economy was assumed to operate close to full employment, there was little need for the government to attempt to stabilise the business cycle.

Keynesian Economics believes that fiscal policy can be a powerful tool to stabilise the business cycle.

It was the British economist, John Maynard Keynes, who was able to show that economies could get stuck in prolonged economic contractions and that the Government, through fiscal policy, could stimulate the economy with increased government spending and/or tax cuts. The ‘Keynesian Revolution’ was born based on the premise that aggregate demand was the most important driving force of the economy and that fiscal policy could be used to ‘smooth’ the business cycle. Recent examples of Keynesian fiscal policy being employed effectively are the global financial crisis in 2009 and the Covid pandemic in 2020.

Fiscal policy operates through the Government’s annual **Budget Statement** setting out its main priorities and its estimates for expenses (spending) and revenue. Figure 10.1 highlights the main areas of government expenses and tax revenue. Government expenses can be divided into three broad categories:

Figure 10.1 Government expenses and revenue 2024-25

Government Expenses	\$ million	% of Total	Government Revenue	\$ million	% of Total
Social Security/ Welfare	266,693	6.6	Personal Income Tax	326,500	19.9
Education	53,046	7.3	Company Tax	139,100	6.9
Health	112,693	15.5	GST	87,673	12.6
Defence	47,986	36.7	Excise Duties	47,900	46.7
Total Expenses	726,732	100.0	Total Revenue	698,446	100.0

1. **Government purchases** of goods and services accounts for around 60 per cent of government spending. This includes spending in areas such as health, education, defence and general public services. An increase in government purchases will directly increase aggregate demand and increase real GDP and employment.
2. **Government investment** accounts for around 4 per cent of the government's spending. This includes spending on public infrastructure such as transport, including roads and bridges and public buildings such as schools and hospitals. An increase in government investment will directly increase aggregate demand and increase real GDP and employment. It will also increase aggregate supply by adding to the nation's capital stock.
3. **Government transfer payments** accounts for around 37 per cent of government spending. This includes spending on social security and welfare payments including the age pension, disability payments and unemployment benefits. An increase in transfer payments will increase household disposable income and increase consumption expenditure which will then increase real GDP.

Government taxation can also be divided into three main categories:

1. **Personal income tax** is a progressive tax levied on wage and salary earners. It is the Government's main source of income accounting for 47 per cent of the Government's total revenue. An increase in income tax rates will decrease consumption expenditure, shifting the aggregate demand (AD) curve to the left, decreasing real GDP and employment. An increase in income taxes may also affect the aggregate supply (AS) curves because it may reduce workers' incentive to supply labour and therefore decrease aggregate supply.
2. **Company tax** is a flat rate tax levied on company profits. It accounts for 20 per cent of the Government's revenue. An increase in the company tax rate will reduce corporate profits and decrease business investment, shifting the AD curve to the left, decreasing real GDP and employment.
3. **Consumption taxes (the GST and excise duties)** are indirect taxes levied on goods and services. These taxes account for around 20 per cent of the Government's revenue. An increase in these taxes will decrease consumption expenditure which will then decrease aggregate demand.

Personal income tax accounts for nearly half of the government's revenue.

Fiscal policy can have a powerful effect on the level of economic activity because it can directly affect the government purchases (G) component in aggregate demand and indirectly affect the consumption (C) and investment (I) components through taxes and transfer payments.

The Government's policy objectives

Every government, including Australia, pursues a set of macroeconomic policy objectives that ultimately aim to increase the living standards of the population over time. While there is no official statistic which can measure growth in living standards, most economists favour the real GDP per capita measure to provide an approximation. If this statistic rises then, on average, each person will receive a higher level of real income which will enable a higher level of consumption and therefore a higher standard of living.

The four most important macroeconomic policy objectives for the Australian government are:

1. *Sustainable economic growth*
2. *Full employment (low unemployment)*
3. *Price stability (low inflation)*
4. *Reduced income inequality*

Sustainable economic growth

Economic growth occurs when potential GDP increases. It can be illustrated by a shift of either the economy's production possibility frontier (PPF) to the right or the economy's long run aggregate supply (LAS) curve to the right. Economic growth means that there has been an increase in the productive capacity of the economy and is usually measured by an increase in real gross domestic product (real GDP) over time. Economic growth enables living standard to rise because it creates a 'bigger pie' enabling everyone to receive a greater 'slice'. Of course, if the population grows faster than output, then each slice will get smaller so economists often prefer to focus on the change in real GDP per capita.

What do we mean by **sustainable economic growth**? Adding the word 'sustainable' means balancing economic growth with environmental and social considerations such as health care and social equity to improve long-term prosperity. Pursuing sustainable growth means that we can improve current living standards without compromising the living standards of future generations. We can achieve this by preserving the natural environment, including the climate and natural ecosystems. Unsustainable growth would mean that natural resources are depleted and that the quality of the environment would deteriorate.

What should be the target growth rate for the economy? The government should aim for real GDP to match the growth in potential GDP. Each year, potential GDP increases by between 2.5 and 3 per cent - driven by the growth in the labour force and productivity. If actual growth is less than this, then unemployment will increase. If, on the other hand, growth exceeds this rate,

Sustainable economic growth allows current living standards to rise without compromising future living standards.

then inflation and the cost of living will rise. Australia's growth rate in real GDP over the past 20 years has averaged 2.7 per cent, while real GDP per capita has increased at an annual rate of 1.2 per cent.

Sustainable economic growth can be considered the most important objective because it is the means by which national income and average living standards rise over time. What is the most important determinant of economic growth? Output will always grow by simply increasing the quantity of resources, such as the labour force and/or the capital stock. But GDP per capita will only increase if labour productivity increases. This is why economists focus on growth in productivity as the key to improving prosperity. (Chapter 12 focuses on the importance of productivity).

Full employment

Full employment refers to the situation where everyone who is willing and able to work can find a job. This, of course, doesn't mean that the unemployment rate will equal zero! Two types of unemployment are always present in the labour market - frictional and structural - even when the economy is at full employment. **Frictional unemployment** is often referred to as 'search unemployment'. It occurs when people first enter the workforce or when people voluntarily quit their current job to search for a new job. This type of temporary unemployment usually equals around 1.5 to 2.5 per cent of the labour force.

Structural unemployment occurs if there is a mismatch of available and required skills for a particular geographical or occupational sector of the economy. It is often caused by changing technology making some jobs redundant. Structural unemployment will also equal between 1.5 to 2.5 per cent of the labour force. The sum of frictional and structural unemployment is equal to the **natural rate of unemployment (U_N)**. For Australia, the natural rate of unemployment is estimated to be around 4 per cent and this is the standard definition of full employment used by most economists.

Only when **cyclical unemployment** is zero, can we say that the economy is fully employed. This type of unemployment occurs when the economy's growth rate slows or contracts so that actual real GDP is less than potential GDP. In other words, this type of unemployment increases quite rapidly when the economy is in a recession and experiences a negative output gap.

The Reserve bank of Australia defines full employment as the maximum level of employment that is consistent with low and stable inflation. [When the economy is at full employment, demand and supply in the labour market are in balance. For this reason, the Reserve Bank prefers to use the **NAIRU** - the non accelerating inflation rate of unemployment as its estimate of full employment. This is the threshold rate of unemployment below which wage inflation begins to accelerate, indicating tightness in the labour market.

The natural rate of unemployment for Australia is estimated to be 4 per cent.

The estimate for Australia's NAIRU is around 4.5 per cent. Note that this is quite similar to the estimate for the natural rate of unemployment. The Australian economy experienced full employment conditions between 2022 and 2024 when the unemployment rate fluctuated between 3.5 and 4.2 per cent.

Achieving a low unemployment rate close to the natural rate is important because of the significant economic and social costs associated with high unemployment. There is a direct monetary cost because government welfare payments will increase, and at the same time, government tax revenue will fall. Of course, this also represents an opportunity cost because this money could have been spend on other government provided goods and services such as education or health-care.

High rates of unemployment will mean lower consumption spending which will have a negative impact on business confidence and therefore investment spending. Lower rates of investment will reduce future economic growth which means that average living standards will be potentially lower. Long term unemployment also imposes considerable personal and social costs on those who cannot find work affecting both their mental and physical health.

Price stability

Price stability means maintaining a low and stable rate of inflation over time. Why is this important? Because it helps to maintain the value of money. We all care about how much the things we buy cost, especially if prices change a lot in a short period of time or in an unpredictable way. Price stability ensures that the same quantity of money buys roughly the same amount of goods and services tomorrow as it does today.

Both the Reserve Bank and the Government agree that the appropriate target for consumer inflation is a rate between 2-3 per cent, on average, over the course of the business cycle. Achieving price stability is important because it avoids the damaging costs of high inflation:

- inflation increases the cost of living and erodes the purchasing power of household incomes reducing the livings standards of the average household;
- inflation will cause interest rates to rise, which will adversely affect business investment decisions and household spending on discretionary goods and services;
- 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 (e.g. property) which are likely to appreciate in value. Such 'speculative activity' reduces the potential output of the economy if it diverts resources away from productive investment.

Price stability is consistent with an inflation rate of 2-3 per cent.

- business investment decisions are more risky in an inflationary environment because rising prices make it more difficult to maintain costs and operate profitably.
- international competitiveness will be adversely affected if domestic inflation rates exceed those overseas - foreign demand for domestic goods and services will fall while domestic demand for imported goods and services will increase.
- high inflation will increase income inequality. High income groups are better able to 'insulate' themselves from inflation compared to low income groups by purchasing assets that rise in value with inflation. People on fixed incomes such as pensions and other government transfer payments will see an erosion in the value of their income.
- 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.

Reducing income inequality

Given that the overriding objective of the Government is to increase living standards across the population, then achieving a more equitable distribution of income is an important priority. The most common measure of inequality is the **Gini coefficient**, which is derived from the **Lorenz curve**. A Lorenz curve plots the cumulative percentage of total income received against the cumulative number of household, starting with the poorest household.

The Gini coefficient measures the extent to which the distribution of income deviates from a perfectly equal distribution. Its value ranges from zero to one, where zero represents perfect equality and one represents complete inequality. The Gini coefficient for Australia in 2020 was 0.32 which compares favourably against the United State with a value of 0.39 and the United Kingdom with a value of 0.37.

Fiscal policy is particularly well suited to reducing income inequality through its spending and taxing powers. The Commonwealth Government's main tax is personal income tax which is a progressive tax and accounts for nearly half of the Government's tax revenue. The current income tax scales are shown opposite. As income rises, the marginal rate of tax rises which means that higher income groups pay a greater proportion of tax than lower income groups. For example, a person earning \$50,000 would pay \$5,788 in tax which represents an average tax rate of 11.6 per cent. A person earning \$100,000 would pay \$20,788 which represents an average tax rate of 20.8 per cent.

Income \$	Tax Rate %
0 - 18,200	0
18,201 - 45,000	16
45,001 - 135,000	30
135,001 - 190,000	37
190,001 and over	45

The largest category of Commonwealth Government spending is social security and welfare. This accounts for more than one third of the Government's budget. Direct **transfer payments** (pensions and benefits) provide cash support for a number of groups of Australians – the aged; the unemployed; the sick and disabled; sole parents and families with children family allowance.

Indirect government payments (**social transfers in-kind**) also redistribute income from the highest earners to the lowest. Public services like education, social housing and health are provided at less than their full cost, as they are subsidised by government. These subsidies help to redistribute income and enable all Australians to have access to basic services. If these services were provided by the market, it is likely that some households would not be able to afford them, so they would be under-consumed. Fewer people would obtain educational qualifications, find housing or be able to seek medical treatment.

Review

1. *Define fiscal policy.*
2. *Which government department is responsible for fiscal policy?*
3. *Identify the two most important Commonwealth taxes in terms of revenue.*
4. *Identify the two largest areas of Government outlays.*
5. *Provide two examples of government investment.*
6. *State the Commonwealth tax that is progressive.*
7. *State the targets for the following three macroeconomic objectives:*
 - i. *Economic growth*
 - ii. *Full employment*
 - iii. *Price stability*
8. *Describe how an increase in transfer payments may affect the government's objective of full employment and income equality.*
9. *Describe how an increase in government investment may affect the government's objective of sustainable economic growth.*
10. *Which tax contributes to reducing income inequality?*
11. *Explain why the Government's objectives of price stability and full employment may conflict.*

Budget outcomes - balanced, surplus or deficit

The 'outcome' of the budget refers to the relationship between government revenue (T) and government expenses (G). Is government expenses the same as government purchases of goods and services that is recorded in the GDP statistics? The answer is no because government expenses includes spending on transfer payments which is not included in the 'G' component.

When the Government frames its budget each year, there are three possible outcomes:

- a **balanced budget**, where outlays equals revenue ($G = T$)
- a **budget surplus**, where outlays are less than revenue ($G < T$). A budget surplus means that the Government is saving.
- a **budget deficit**, where outlays are greater than revenue ($G > T$). A budget deficit means that the Government is dis-saving and will need to borrow to finance the deficit.

Should the Government always aim for a balanced budget? The answer is an emphatic no! The reason is that the Government can use fiscal policy as a means to target its economic objectives. For example, if the economy contracted and unemployment was rising, then the Government would aim for a budget deficit in order to inject more money into the economy and increase the level of economic activity. A budget deficit, in other words, will have an expansionary effect on the economy because it represents a net injection of government spending. If the government planned to balance its budget, this would plunge the economy deeper into recession.

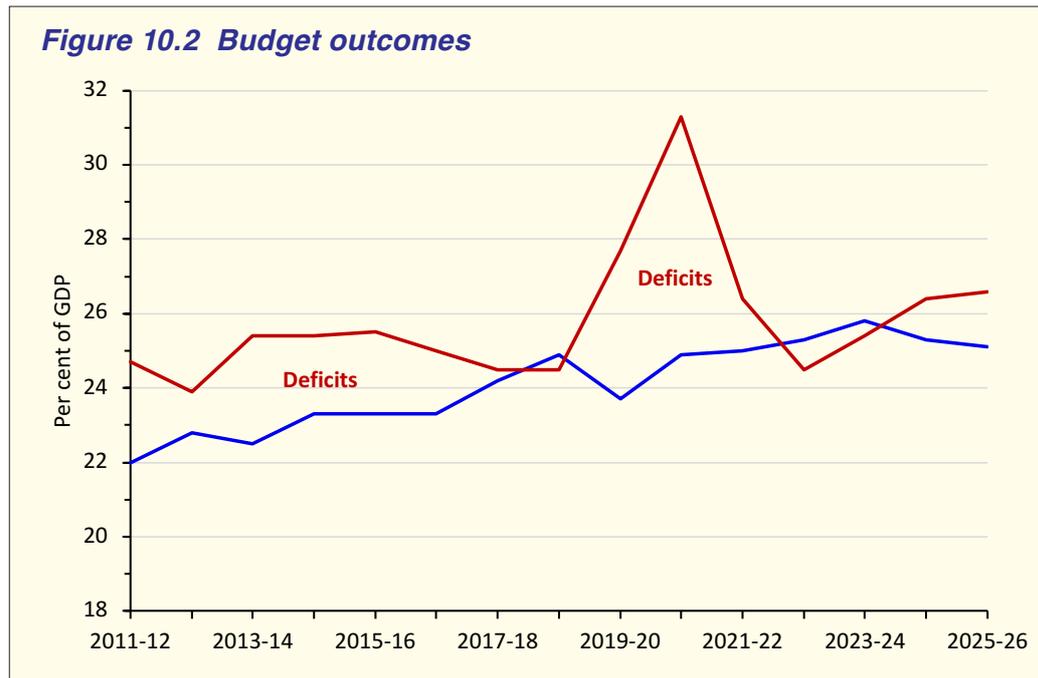
If, on the other hand, real GDP growth rate was excessive and the economy entered a boom with high inflation, then the Government would aim for a budget surplus in order to withdraw money from the economy and decrease the level of economic activity. A budget surplus, in other words, will have a contractionary effect on the economy, because it represents a net withdrawal of government spending.

What will be the impact of a balanced budget? This will have a neutral effect on the level of economic activity because the injection of government spending into the economy will exactly match the withdrawal of revenue.

Figure 10.2 shows the Government's annual budget outcome from 2011-12 to 2025-26, with government expenses and government revenue measured as a proportion of GDP. This provides a far better measure of the relative size of government spending and revenue over time than measuring in actual current dollars. The graph reveals some important points.

- First, the 'normal' value for both government expenses and government revenue is between 24 and 26 per cent of GDP.
- Second, government spending is more volatile compared with government revenue.
- Third, for 13 of the 15 years shown in the graph, the budget outcome was a deficit.

It is important to realise that the business cycle can play a major role in affecting the outcome of the budget in any particular year, and this is clearly evident from figure 10.2. In a period of expansion, for example, the



government's tax revenue will increase as employment grows and as firms profits increase. Revenue from the GST and excise duties will also grow as consumer spending rises. At the same time, spending on welfare will decline since unemployment is falling. When government revenue increases relative to government spending the budget balance will increase - either an existing budget surplus will get bigger or an existing budget deficit will get smaller. In a business cycle contraction, the opposite will happen where government tax revenue will fall while government spending on welfare will rise causing the budget balance to fall. Notice the massive spike in government spending during the Covid recession period of 2020-21 resulting in record budget deficits.

The planned budget versus the actual budget outcome

It is almost certain that the actual budget outcome at the end of the financial year will be very different from the planned outcome at the beginning of the year. Remember that when the Government prepares its planned budget for the coming year it must make assumptions about the expected rate of growth of not only real GDP, but for employment, inflation, unemployment, the exchange rate and commodity prices, to name just a few. If any one of these assumptions is inaccurate, then the Government's estimates of both revenue and outlays will change over the course of the year. To expect that the planned budget estimate will match the actual budget estimate is wishful thinking!

The actual budget outcome rarely equals the planned budget.

Suppose there is a downturn in economic activity causing business profits to fall and unemployment to rise. Taxation revenue from both households and businesses would decrease. This would mean that the actual budget balance will decrease compared with the planned budget. Alternatively, if there was an unanticipated upswing in economic activity after the announcement of the budget, then government revenues would rise while welfare spending would fall, causing the actual budget balance to be higher than forecast. Changes in the global economy could also impact on the budget outcome. For example, a fall in commodity prices (e.g. iron ore prices) would reduce the government's actual revenue from both resource royalties and company tax resulting in the actual budget balance to be lower than forecast.

Economic shocks could also cause the actual outcome to differ significantly from the predicted result. Events such as bushfires, floods and health crises such as the Covid pandemic could not have been anticipated in the Budget forecasts for the relevant years.

Financing a budget deficit

When the Government records a budget deficit, its expenditures exceed its revenue and therefore it needs to finance the difference. This is usually achieved through Government borrowing, although it could also raise funds through selling some government assets. For example, in the 2024-25 financial year, the Government's planned expenses amounted to \$798 billion while its planned revenue equalled \$698 billion. This left a shortfall of some \$28 billion which it needed to raise by selling new government bonds.

The four main methods a government can use to finance a budget deficit are:

- selling new government bonds to domestic residents;
- selling new government bonds to overseas residents;
- borrowing from the Reserve Bank; and
- selling government assets.

The Government borrows 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 2024, of the \$900 billion worth of CGS on issue, 48 per cent were owned by overseas residents, while 52 per cent were issued to Australian residents.

What is the impact of the government borrowing from domestic residents. Suppose that the government sells \$50 billion of government bonds to

A budget deficit must be financed by government borrowing.

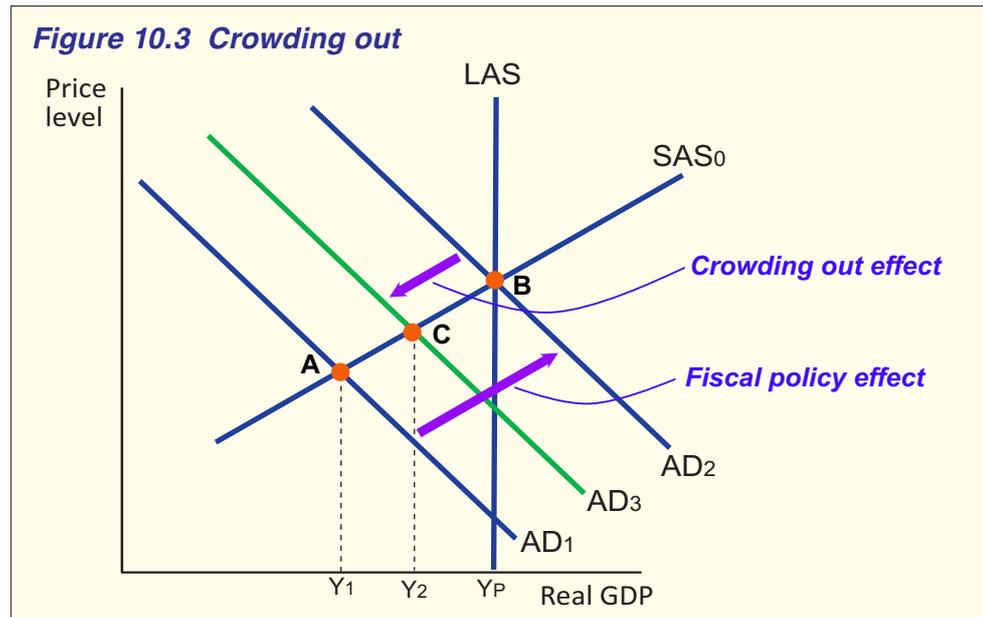
The Commonwealth Government issues bonds in order to finance a budget deficit.

households. This is \$50 billion that households now cannot spend and so consumption spending is likely to fall. What if households and firms use \$50 billion of their savings to purchase the bonds? In this case, national saving will fall by \$50 billion which will cause real interest rates to rise. Higher interest rates increase the cost of borrowing which will decrease investment - both business investment and residential investment. This has implications for future economic growth because investment adds to the economy's capital stock.

This negative impact of government borrowing on private spending - both consumption and investment - is referred to as '**crowding out**' (in other words, C and I have been 'crowded out' by G). Figure 10.3 uses the AD/AS model to show the impact of crowding out. Initially the economy is at point A with real GDP below to potential GDP at Y_P (a negative output gap). The government decides to increase its spending in order to move the economy to point B. The intention is to increase aggregate demand from AD_1 to AD_2 . However, if crowding out occurs, then consumption and investment will fall which will reduce the expansionary impact of the higher government spending. The AD curve will only shift to AD_3 .

Does 'crowding out' occur all the time? No, not if the economy is in a recession, because private spending is already low and unlikely to fall in response to government stimulus. The advantage of borrowing from domestic residents is that there is no increase in the money supply and so inflation is not likely to be a problem. Also, borrowing from domestic residents means that the government is effectively borrowing from itself - this means that interest payments on the bonds will be paid back to its own citizens.

Crowding out occurs when an increase in government spending decreases private spending.



If the government sells bonds to foreign residents, then crowding out is not an issue. However, interest payments on the issued bonds will now be sent to overseas residents which is a net leakage from the economy. The government's share of foreign debt will increase which may have implications for the government's credit rating in offshore markets.

A third method of financing the deficit is for the government to borrow from the Reserve Bank by selling government bonds. This is referred to as '**printing money**'. There is a direct injection of new funds into the economy which increases the money supply and therefore is highly inflationary. This method would only be appropriate if the economy was in a deep depression. The Reserve Bank has publicly stated that it will not facilitate this method because of its adverse effects on the rate of inflation.

The final method the government could use is to sell government assets. For example, in the past the government has privatised certain government business enterprises (GBEs). Examples include the Commonwealth Bank, Qantas, Telstra and Medibank Private. Selling government property such as public land and/or buildings is also an option to raise finance. The problem with selling assets is that it is limited to what the government owns and cannot be sold a second time. Privatising government enterprises may also have a negative impact on low income groups who may have relied on subsidised government services.

Budget deficits and government debt

When the government borrows to fund its deficit, it increases the level of government debt. Is this a problem? The total value of Australian Government Securities (AGS) on issue is known as the Government's gross debt. In 2015, this amounted to \$369 billion or 23 per cent of GDP. By 2024, this value had increased to \$904 billion or 34 per cent of GDP. This may sound alarming, but when compared to the government debt ratios of the United States (120 per cent), the United Kingdom (100 per cent) and Japan (250 per cent), Australia's ratio seems quite modest.

A budget deficit will increase the government's debt.

The annual interest bill on the Australian Government's debt is currently \$23 billion. This is not an insignificant amount. This is more than double the amount the Commonwealth Government spends on housing. So, this does represent a sizeable opportunity cost. If the Government had no debt, then it could allocate \$23 billion more to areas such as housing, education or healthcare. The counter argument is that 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.

Government investment spending not only increases aggregate demand, but also increases aggregate supply, causing potential GDP to increase. Investment in transport, energy networks and community facilities will

A SWF is a fund that invests government savings to benefit the country's residents.

last for many decades which means that future generations will benefit. It is for this reason that governments should always borrow to fund public infrastructure rather than pay out of current taxation. This helps to share the burden of borrowing between current and future generations and thereby promote 'intergenerational equity'.

What impact does a budget surplus have on public 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, or as a tax cut). A novel idea would be to 'bank' budget surpluses as a **sovereign wealth fund (SWF)**. In years where Government revenue was unusually high, the surplus revenue could be invested in the fund so that future earnings could be used to finance deficits. This is especially relevant for the Australian economy given that much of its income and wealth is derived from a finite supply of natural resources.

Automatic stabilisers and discretionary fiscal policy

Fiscal policy is divided into two parts - discretionary fiscal policy and automatic stabilisers. **Discretionary fiscal policy** refers to deliberate or purposeful changes in the government's spending decisions and/or rates of taxation. Examples of discretionary policy would include increased spending on defence equipment, a change to the marginal rates of personal income tax or specific changes in the excise duty on alcohol and tobacco. The annual Budget Statement specifies all the discretionary changes in expenditure made across the various functions of government.

Automatic stabilisers refer to the changes that occur automatically to government transfer payments and tax revenue due to changes in the business cycle. For example, if the economy contracts and real GDP falls, then automatically various welfare payments, including unemployment benefits, will automatically increase. At the same time, as economic activity declines, revenue from both personal income tax and company tax will decrease. If we combine these effects, then whenever the economy slows or contracts, the budget balance will fall and shift towards a deficit. Is this a 'good' feature of fiscal policy? Absolutely! Because it means that fiscal policy is automatically helping to stabilise the economy.

What if the economy expands and the level of economic activity accelerates - will there be an automatic stabilising effect? Again, the answer is yes, because now government spending on transfer payments will automatically fall, while tax revenue will rise. This will cause the budget balance to automatically increase and shift towards a budget surplus. So automatic part of fiscal policy is helping the government to 'smooth' the ups and downs of the business cycle.

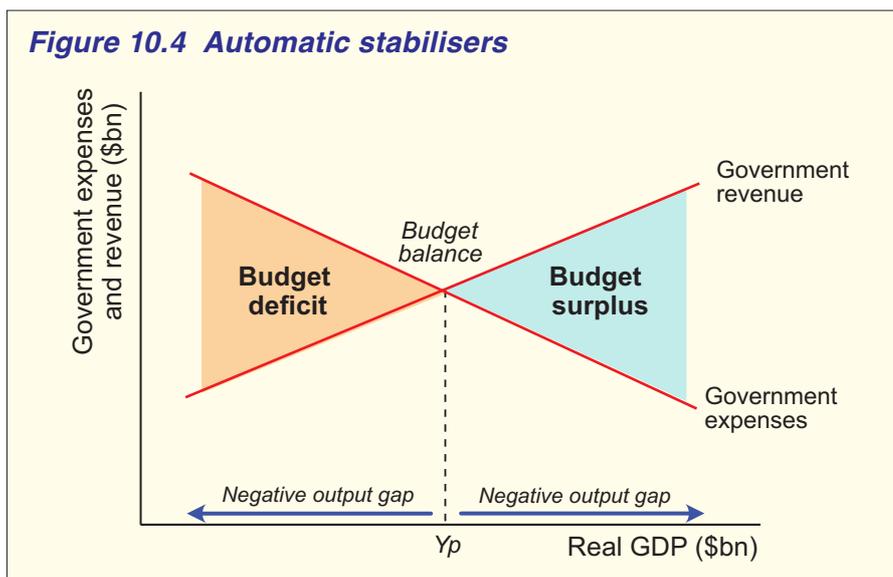


Figure 10.4 illustrates the effect of automatic stabilisers on the government's budget balance if the economy is either below potential GDP (a negative output gap) or above potential GDP (a positive output gap). When the economy is in a negative output gap, the budget will shift to a deficit. When the economy is in a positive output gap, the budget will shift to a surplus. Normally we would expect the budget to be balanced when the economy is at potential GDP.

Review

Determine whether each of the following statements are TRUE or FALSE

1. A balanced budget will have a neutral effect on the economy.
2. A budget surplus will have an expansionary effect on the economy.
3. The aim of fiscal policy is to achieve a balanced budget.
4. Government spending from year to year is usually more volatile than government revenue.
5. Over the past decade, the Australian Government has recorded more budget surpluses than budget deficits.
6. The Covid pandemic resulted in a record budget deficit for Australia.
7. The most important method to finance a budget deficit is increased taxation.
8. Borrowing from the Reserve Bank will increase the rate of inflation.
9. When the government issues new government bonds, the government's debt increases.
10. Government spending on education is an example of an automatic stabiliser.
11. If the government lowers the company tax rate from 30 to 25 per cent during a recession, this is an example of automatic fiscal policy.
12. The government should borrow to fund its infrastructure spending.

Expansionary fiscal policy

While automatic stabilisers are an important aspect of fiscal policy, they cannot prevent fluctuations in the business cycle. Their role is to support and complement discretionary policy in the Government's pursuit of its economic objectives.

The aim of expansionary fiscal policy is to close a negative output gap by increasing aggregate demand.

The Government will adopt an expansionary fiscal stance if the economy is experiencing a negative output gap, perhaps caused by the economy growing too slowly or by a negative shock that has caused the level of economic activity to fall. An expansionary stance will mean that the Government will decrease the budget balance by either increasing its spending and/or reducing rates of tax. In other words it will plan for a budget deficit. The aim of expansionary fiscal policy is to increase or shift the aggregate expenditure function upwards in the AE model or increase the aggregate demand curve in the AD/AS model.

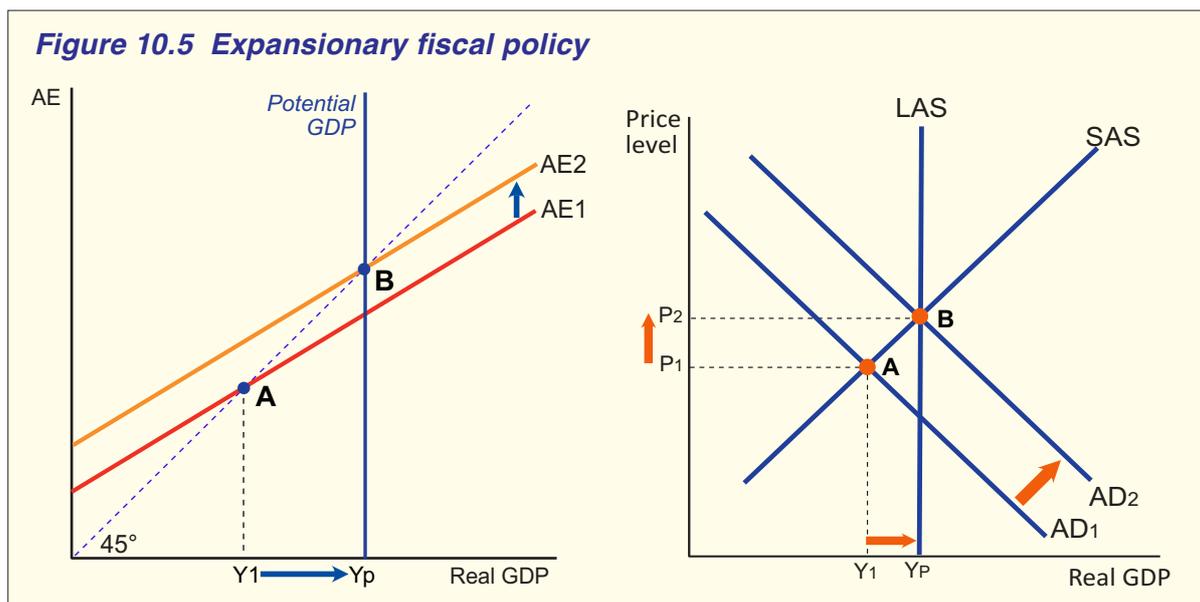
Figure 10.5 illustrates the use of expansionary fiscal policy using both the AE model and the AD/AS model. In each case, the economy is initially in equilibrium at point A where real GDP (Y_1) is less than potential GDP (Y_P). The unemployment rate at point A will be higher than the natural rate, while inflationary pressures are likely to be low because of a subdued economic outlook. The government will want to stimulate spending and raise the level of economic activity in order to close the output gap and move the economy closer to potential GDP and full employment.

How can it do this? Simply by increasing government spending (G) relative to government revenue (T), the government aims to shift the economy to point B and reduce the size of the output gap. In each case, the increase in government spending (and/or cut in taxes) will have a positive multiplier effect. However, in the AD/AS model the multiplier effect will be less than in the AE model because the price level will rise.

The AD/AS model shows that while expansionary fiscal policy will increase real GDP and reduce the unemployment rate, it will cause the price level to rise. Whether this will increase the rate of inflation depends on the size of the negative output gap. If the economy is relatively weak, then inflationary pressures are likely to be low due to excess capacity.

Specific policy measures that the Government could use to stimulate aggregate demand could include:

- increased spending in the government's main departments such as healthcare, education and defence sectors;
- increasing government investment spending on infrastructure, such as transport and communications projects;



- increased transfer payments to low income households;
- reducing personal income tax to increase household consumption spending;
- reducing the company tax rate to stimulate business spending on resources, employment and investment.

A budget deficit will always have an expansionary effect on the level of economic activity because there is a net injection of funds into the economy, even if the budget deficit was reduced from one year to the next. For example,

Fiscal policy and the multiplier

Will a change in government spending have the same multiplier effect as an equivalent change in income taxes? For example, will an increase in government spending of \$10bn have the same effect as an income 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 income 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 $1/mps$. So 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 . So if the $mpc = 0.6$, the tax multiplier = 1.5. If income taxes are cut by \$10bn, GDP will increase by \$15bn.

Steven's simple rule to remember - the tax multiplier is always 1 less than the spending multiplier. Try this rule using different values for the mpc .

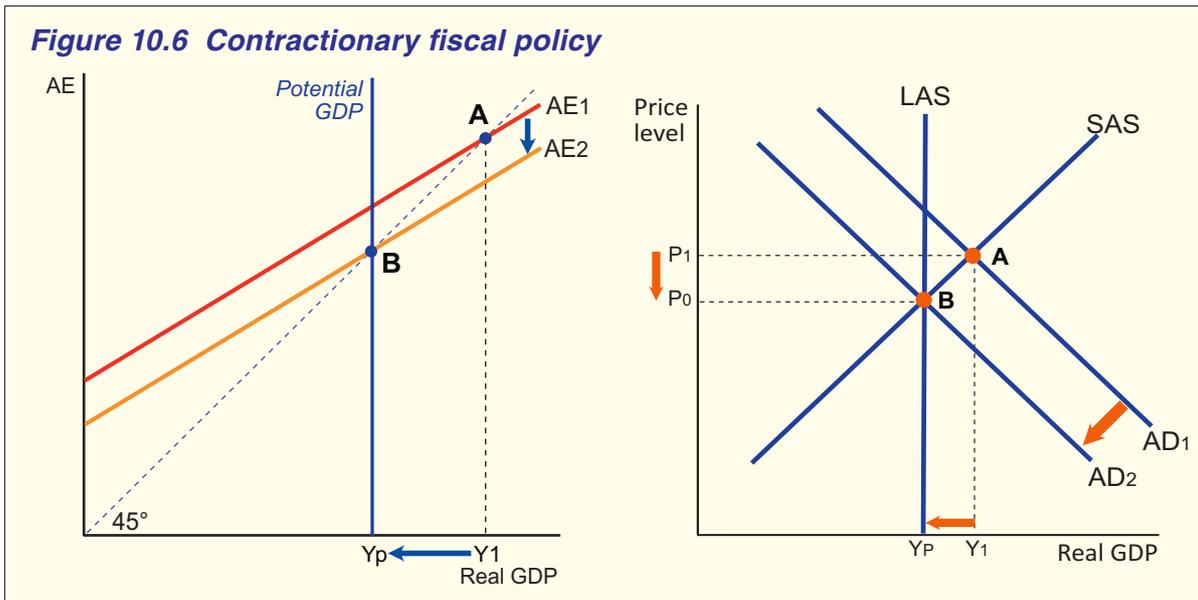
suppose that the deficit in year 1 was equal to \$20 billion and in year 2 the deficit had fallen to \$10 billion. What would be the impact? Assume the multiplier equals 2.5. In year 1, real GDP would increase by \$50 billion (20×2.5) while in year 2, real GDP would increase by \$25 billion. So a smaller budget deficit will still be expansionary.

Contractionary fiscal policy

The aim of contractionary fiscal policy is to close a positive output gap by decreasing aggregate demand.

The Government will adopt a contractionary fiscal stance if the economy is experiencing a positive output gap, caused by the economy growing too fast. The level of economic activity will have risen above potential GDP causing an increase in the inflation rate due to capacity constraints. A contractionary stance will mean that the Government will increase the budget balance by either decreasing its spending and/or increasing rates of tax. In other words it will plan for a budget surplus. The aim of contractionary fiscal policy is to decrease or shift the aggregate expenditure function downwards in the AE model or decrease the aggregate demand curve in the AD/AS model.

Figure 10.6 illustrates the use of contractionary fiscal policy using both the AE model and the AD/AS model. In each case, the economy is initially in equilibrium at point A where real GDP (Y_1) is greater than potential GDP (Y_P). The unemployment rate at point A will be lower than the natural rate, while inflationary pressures are likely to be very high because of boom like conditions. The government will want to reduce spending and decrease the level of economic activity in order to close the output gap and move the economy closer to potential GDP and full employment.



How can it do this? Simply by decreasing government spending (G) relative to government revenue (T), the government aims to shift the economy to point B and reduce the size of the output gap. In each case, the decrease in government spending (and/or increase in taxes) will have a negative multiplier effect. However, in the AD/AS model the multiplier effect will again be smaller than in the AE model because the price level will fall.

Specific policy measures that the Government could use to decrease aggregate demand could include:

- decreased spending in the government's main departments such as healthcare, education and defence sectors;
- decreasing or postponing government investment spending on infrastructure, such as transport and communications projects;
- decreased transfer payments to low income households;
- increasing personal income tax to decrease household consumption spending;
- increasing the company tax rate to reduce business spending on inputs, employment and investment.

Normally contractionary fiscal policy focuses on cuts in government spending rather than increases in personal income or company tax because of the political unpopularity of taxes. But even cutting government expenditure across various government departments can be difficult since a high proportion of department spending is on wages and salaries.

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. A budget surplus will also always have a negative multiplier effect on the level of economic activity.

Review			
<i>Complete the following table describing the countercyclical role of fiscal policy.</i>			
<i>Problem</i>	<i>Type of policy</i>	<i>Government actions</i>	<i>Impact</i>
<i>Economic contraction Negative output gap high unemployment</i>	<i>Expansionary</i>	<i>1. Increase government spending 2. _____ rates of tax</i>	<i>1. Increase in AD 2. Increase in real GDP 3. _____ in the price level 4. _____ in unemployment</i>
<i>Economic boom Positive output gap High inflation</i>	_____	<i>1. _____ government spending 2. _____ rates of tax</i>	<i>1. _____ in AD 2. _____ in real GDP 3. _____ in the price level 4. _____ in unemployment</i>

Fiscal policy and aggregate supply

Fiscal policy primarily works by affecting the aggregate demand curve - through direct changes in government expenditure and indirectly through changes in tax rates which affect consumption and investment expenditure. But fiscal policy has an advantage in that it can also affect the aggregate supply curve - both the long run (LAS) and the short run (SAS) curves. It does this through government investment spending and changes in tax rates.

We noted in chapter when we studied the AD/AS model, that any increase in investment expenditure, whether it be private or government - would affect not only the AD curve, but also the aggregate supply curves. Investment increases the capital stock which adds to the productive capacity of the economy. So government investment in essential infrastructure will increase both aggregate supply curves to the right. Government spending on education is regarded as investment in human capital because it can increase the skills and productivity of labour so this is another way the government can affect the supply side of the economy.

If the government decreases the marginal rates of personal income tax, this will increase the incentive for people to work more and will therefore expand the labour force. Increases in the labour force also add to the economy's productive capacity and will shift the AS curves to the right. A cut in the company tax rate will increase the profitability of firms, which is a key determinant of business investment. An increase in private investment by adding to the capital stock will also shift the AS curves to the right helping to increase potential GDP.

Figure 10.7 The impact of fiscal policy on AS

If the government uses tax cuts or infrastructure spending as part of its expansionary fiscal policy stance, then it will shift all three curves to the right. Effectively this means there is a double multiplier effect resulting in an increase in potential GDP with minimal effect on the price level.

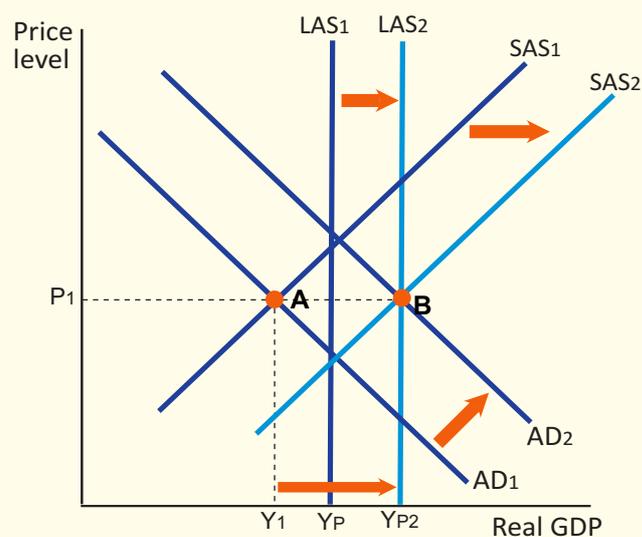


Figure 10.7 illustrates this additional power of fiscal policy to affect the 'supply side' of the economy. The significance of this is that a decrease in tax rates (either income tax or company tax) will have a 'dual' effect on the level of economic activity and real GDP. There will be an initial multiplier effect from the increase in aggregate demand and then a further stimulus from the increase in aggregate supply. In other words, all three curves in our model will shift to the right - the AD, the SAS and the LAS curve. But that's not all - the bonus is that there will be little impact on the price level because aggregate supply has increased. Don't you pinch yourself because Economics is so great!

Strengths of fiscal policy

Fiscal policy has a number of advantages in helping the government to achieve its economic objectives. First, fiscal policy is a very direct policy to affect aggregate demand. Revenue and spending measures announced in the Budget can be implemented relatively quickly. For example, stimulus payments were sent to all households and firms at the start of the Covid pandemic. This represents an immediate injection of funds into the economy. 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 income tax from a specific date. Consumers feel the impact of these decisions as soon as the government legislation is passed.

A second advantage of fiscal policy is that government spending can be targeted to specific groups or sectors of the economy. This means that the government could target low income groups for special income payments or target high income groups with higher taxes on luxury products. Many government services are means tested to ensure that the services are provided to those most in need.

A major strength of fiscal policy is that it is very effective in times of a recession. The government can open a 'spending tap' to increase the level of aggregate demand in order to boost employment and output. This will have an immediate multiplier effect and cushion the impact of the business cycle contraction. During the Covid recession of 2020, the Australian government undertook massive stimulus measures to keep households and firms spending, and to save jobs and businesses.

All types of government policy are faced with the problems of time lags. These lags can be split into two broad types - the **inside lag** and the **outside lag**. The inside lag refers to the time it takes to undertake a policy action and includes the **recognition**, **decision** and **implementation** lags. The outside lag refers to the time it takes for the policy to actually affect the level of economic activity. This is also known as the **effect lag** and it is where fiscal policy shines!

Fiscal policy is most effective in a contraction.

Fiscal policy has a relatively short effect lag.

Fiscal policy has a very short effect lag because changes in both government spending (G) and tax rates (T) will have an immediate impact on both household consumption and business investment. An increase in G will directly increase aggregate demand creating a positive multiplier effect on the level of economic activity. Similarly, an income tax cut will immediately increase workers' pay-packets resulting in an increase in household consumption which will then flow on to stimulate further spending.

We have already mentioned other strengths of fiscal policy such as automatic stabilisers which helps to complement discretionary policy in ameliorating the effects of the business cycle. We also noted the positive effects fiscal policy can have on increasing aggregate supply through government investment reductions in income and company tax rates.

Weaknesses of fiscal policy

Fiscal policy has a relatively long decision lag.

Fiscal policy also has a number of disadvantages which can reduce its effectiveness in its countercyclical role. Let's begin with the time lags associated with economic policy. Fiscal policy has a relatively **long inside lag** which consists of the decision and implementation lags. Why? Because discretionary changes to fiscal policy have to be debated and voted on in the Parliament - both the House of Representatives and the Senate. This can 'eat up' valuable time which can delay the implementation of fiscal measures.

Fiscal policy is viewed as being relatively **inflexible**. The Budget is delivered once a year and while there is a mid year review, it is difficult to make wholesale change to its spending and revenue plans. Fiscal policy can be thought of as a 'supertanker' sailing in the ocean called the economy. Once moving it has considerable power, but if it needs to suddenly alter course or change direction, it may take considerable time to do so.

While fiscal policy is especially suited to stimulating an economy during a recession, it is less effective when trying to contract the economy. Decreasing government spending and/or increasing tax rates during boom conditions, for example, would not be popular with the electorate. In developing the Budget, Treasury may not be able to make large changes to the patterns of spending established from previous years. Both social and demographic constraints need to be considered. 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 may reduce incentives for people to work.

Fiscal policy is under the control of the incumbent political party that has been elected into power. This means that fiscal policy is very likely to suffer from '**political bias**'. The government, in seeking re-election, may use fiscal

policy to win favour with voters rather than address important economic and/or social issues. The Government, for example, would have an incentive to deliver an expansionary budget prior to an election in order to 'win' votes. However, this may exacerbate an existing inflation problem and create a conflict with the Reserve Bank and monetary policy. This situation, in fact was played out in 2024 when the monetary policy stance was contractionary, but the fiscal policy stance was expansionary. Fiscal and monetary policy should be working to achieve the same objectives rather than be in conflict.

Fiscal policy suffers from political bias.

An important effect of the budgetary process is its unintended impact on decisions taken in the private sector. The **crowding out** concept referred to earlier suggests that when the government runs a budget deficit it can decrease both consumption and investment spending. This means that the impact of the increased government spending will be partly cancelled out. There is both physical crowding out where the government competes with the private sector for limited resources and there is financial crowding out where the increased demand for funds increases interest rates. If the economy is in a recession, then the problem of crowding out will be minimal. But if the economy is operating close to full employment and the government pursues expansionary fiscal policy, then crowding out will be significant.

Fiscal policy suffers from the 'crowding out' of private spending.

Review

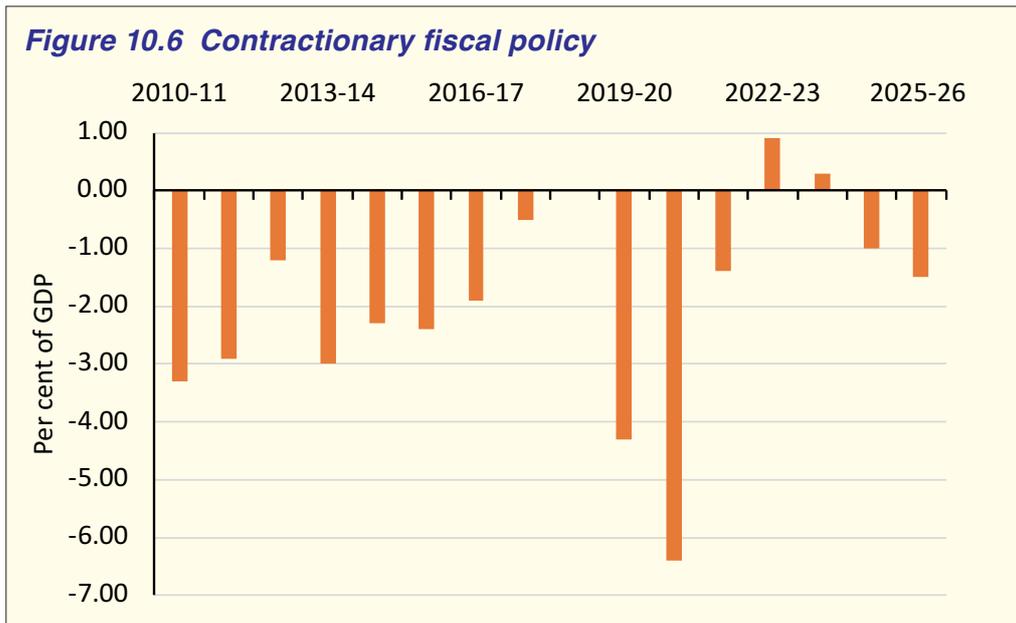
1. *The crowding out effect refers to the _____ from _____ in the government's budget deficit.*
 - a. *increase in consumption; an increase*
 - b. *decrease in consumption; a decrease*
 - c. *increase in investment; an increase*
 - d. *decrease in investment; an increase*
2. *Expansionary fiscal policy would involve _____, whereas contractionary fiscal policy would involve _____.*
 - a. *increasing the money supply; increasing personal income taxes*
 - b. *increasing transfer payments; increasing corporate income taxes*
 - c. *increasing corporate income taxes; raising interest rates*
 - d. *increasing government purchases; increasing transfer payments*
3. *Which one of the following fiscal policy initiatives is unlikely to increase aggregate supply?*
 - a. *An increase in pensions for retired couples.*
 - b. *A reduction in company taxes.*
 - c. *Increased spending on preventive healthcare.*
 - d. *The introduction of new subsidies for entrepreneurial pursuits*
4. *A possible weakness of fiscal policy in managing the Australian economy is that*
 - a. *it only operates indirectly by influencing interest rates.*
 - b. *it cannot be used in a selective fashion to target certain sections of the economy.*
 - c. *it can be difficult to change some expenditure settings because of political bias.*
 - d. *automatic stabilisers do not influence aggregate demand.*

Recent fiscal policy performance

Is there a simple rule that we can use to measure the effectiveness of fiscal policy over time? We can always measure the Government’s performance in terms of achieving its policy objectives such as sustainable growth, full employment and price stability. During 2024, the unemployment rate averaged 4 per cent, the inflation rate was 3.5 per cent and real GDP grew at just 1 per cent. So on the Government’s report card we would give an ‘A’ for full employment, an ‘F’ for inflation and a ‘D’ for economic growth.

Another criteria we could use is to compare the budget outcomes over an extended period of time when the economy has been through a full business cycle. Fiscal policy should aim to balance its budget, not each year, but over the course of the business cycle. This would mean that in years when the economy was buoyant with strong growth and low unemployment, the budget would record surpluses. While in years when the economy was weak and/or in recession, the budget would record deficits. If we summed the deficits with the surpluses over time, they should cancel out. This would also maintain a stable level of government debt.

Figure 10.8 illustrates Australia’s budget balance from 2010-11 to 2025-26. Of the 16 years covered in the graph, 12 years recorded a budget deficit, one year was in balance and just two years recorded a budget surplus. If we summed the 16 years will we get a zero balance? The answer is an emphatic no, which means that the economy’s fiscal performance has been less than optimal over this period.



Chapter Summary

- *The four most important policy objectives for the Australian government are: sustainable economic growth; full employment; price stability and reduced income inequality.*
- *There are three possible budget outcomes - balanced, surplus and deficit.*
- *The actual budget outcome rarely equals the planned budget outcome.*
- *A budget deficit must be financed by government borrowing.*
- *The Government borrows by selling government bonds, either to domestic or foreign residents.*
- *Fiscal policy is divided into two parts - discretionary and automatic.*
- *Discretionary fiscal policy refers to deliberate or purposeful changes in the government's spending decisions and/or rates of taxation.*
- *Automatic stabilisers refer to the changes that occur automatically to government transfer payments and tax revenue due to the business cycle.*
- *Expansionary fiscal policy involves the government decreasing the budget balance by increasing G relative to T.*
- *Contractionary fiscal policy involves the government increasing the budget balance by increasing T relative to G.*
- *Fiscal policy has a short effect lag but a long decision and implementation lag.*

Chapter Review

Multiple choice test

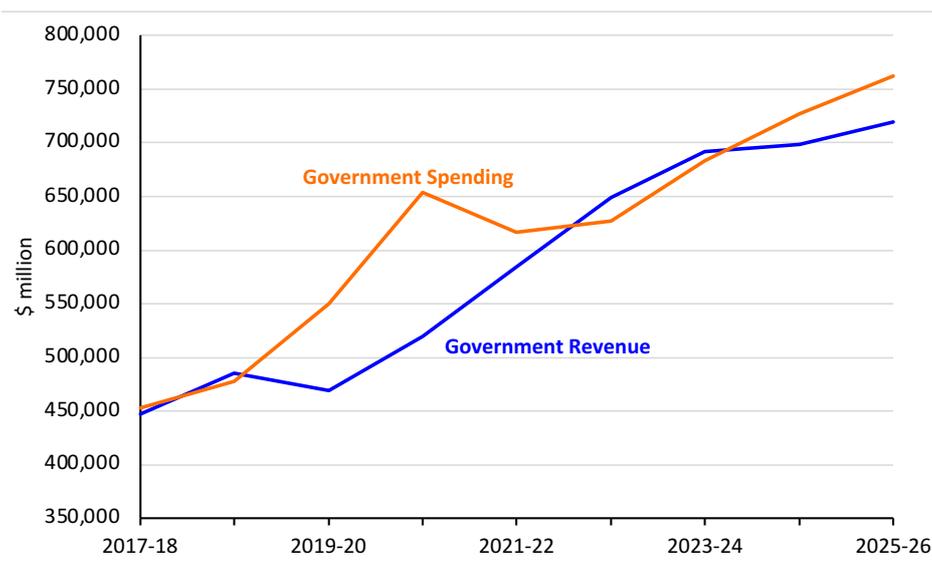
1. Which of the following is an example of an automatic stabiliser when the economy contracts?
 - a. Taxation revenue would rise, cutting household spending.
 - b. Welfare payments would rise, increasing household spending.
 - c. Taxation revenue would fall, causing reduced government spending.
 - d. Discretionary government spending would be expected to rise.
2. Which of the following is the preferred option for the Australian government to finance a budget deficit?
 - a. Selling government bonds.
 - b. Selling government assets.
 - c. Borrowing from the Reserve Bank of Australia.
 - d. Borrowing from overseas sources.
3. Imagine the Australian Government's budget is in surplus. If the rate of economic growth were to slow, this may result in a
 - a. smaller surplus budget, as receipts rise and outlays fall.
 - b. budget deficit, as receipts rise and outlays fall.
 - c. larger surplus budget, as receipts rise and outlays fall.
 - d. smaller surplus budget, as receipts fall and outlays rise.

4. Which one of the following policy initiatives is least likely to increase aggregate supply?
 - a. An increase in the skilled migration program
 - b. Increased government expenditure on education
 - c. The construction of a new freeway in Perth
 - d. A 10% increase in the Newstart Allowance (unemployment benefit).
5. 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 revenue and an increase in the budget surplus.
 - b. There will be an increase in tax revenue and a decrease in the budget surplus.
 - c. There will be a decrease in tax revenue and an increase in the budget surplus.
 - d. There will be a decrease in tax revenue and a decrease in the budget surplus.
6. Which of the following is most likely to promote the Government's objective of a more equitable distribution of income?
 - a. An increase in the minimum wage
 - b. A decrease in unemployment benefits
 - c. A decrease in the company tax rate
 - d. Lower government funding for education and training
7. Which of the following is most likely to occur if the Australian government finances a budget deficit by borrowing funds in the domestic money market?
 - a. Depreciation of the Australian dollar
 - b. Increased domestic money supply
 - c. Upward pressure on interest rates
 - d. A rise in the Australian government's share of foreign debt
8. Which one of the following is an example of discretionary budgetary policy?
 - a. A decrease in the cash interest rate target
 - b. A decrease in the company tax rate from 30 per cent to 28 per cent
 - c. An increase in welfare payments due to a rise in cyclical unemployment
 - d. Lower revenue from a minerals resource rent tax (MRRT) due to falling commodity prices
9. Which one of the following is not an example of an automatic stabiliser?
 - a. Unemployment benefits
 - b. Social welfare payments
 - c. Progressive income taxes
 - d. Salaries paid to public servants
10. 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.
11. 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.
12. 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.
13. The goal of fiscal policy is to _____, and typically focuses on _____.
- a. balance the budget; tax rates and tax revenues
 - b. reduce the severity of economic fluctuations; employment and production
 - c. stabilise the supply of money in the economy; price stability
 - d. eliminate balance of payments deficits or surpluses; exchange rate stability
14. Which of the following is an example of a fiscal policy that is both contractionary and discretionary?
- a. An increase in welfare spending due to unexpectedly higher unemployment.
 - b. An increase in infrastructure spending in rural regions.
 - c. A decrease in the tax-free threshold on income.
 - d. A decrease in unemployment expenditure due to higher than forecasted economic growth.
15. Which of the following is the preferred option for the Government to finance a budget deficit?
- a. Selling government bonds.
 - b. Selling government assets.
 - c. Borrowing from the Reserve Bank of Australia.
 - d. Borrowing from overseas sources.

Data Interpretation

1. This question refers to the graph below showing the Government's revenue and spending.



- a. Distinguish between a budget surplus and a budget deficit. (2 marks)

 - b. In which year did the Budget record the highest deficit. Determine the size of this deficit. (2 marks)

 - c. State the trend in the Budget balance between 2021-22 and 202-24 and outline two reasons for this trend. (5 marks)

 - d. Use an AD/AS model to explain the effects of reducing increased government investment in infrastructure . (5 marks)

2. This question refers to the extract below from the Government’s Budget strategy for 2024-25.

Tax cuts for every Australian taxpayer

Australian households and businesses are still under pressure from high inflation and high interest rates. In response the Government has legislated tax cuts for all 13.6 million Australian taxpayers from 1 July 2024 to provide cost-of-living relief, return bracket creep and boost labour supply.

The Government’s tax changes have been designed to ensure they will not add to the inflation outlook. The reductions in average tax rates provide all taxpayers, particularly low- to middle-income taxpayers, with greater protection against bracket creep. The tax cuts are expected to increase labour supply by around 1 million hours per week, equivalent to around 25,000 full time jobs.

Questions

- a. Which of the government’s taxes is the extract referring to? (1 mark)
- b. Describe how the proposed tax cuts will affect each of the following:
 - i. cost of living (2 marks)
 - ii. labour supply (2 marks)
- c. Define ‘bracket creep’ and explain how it affects a worker’s disposable income. (4 marks)
- d. Use an AD/AS model to describe the effects of the tax cuts on real GDP and the price level. (6 marks)

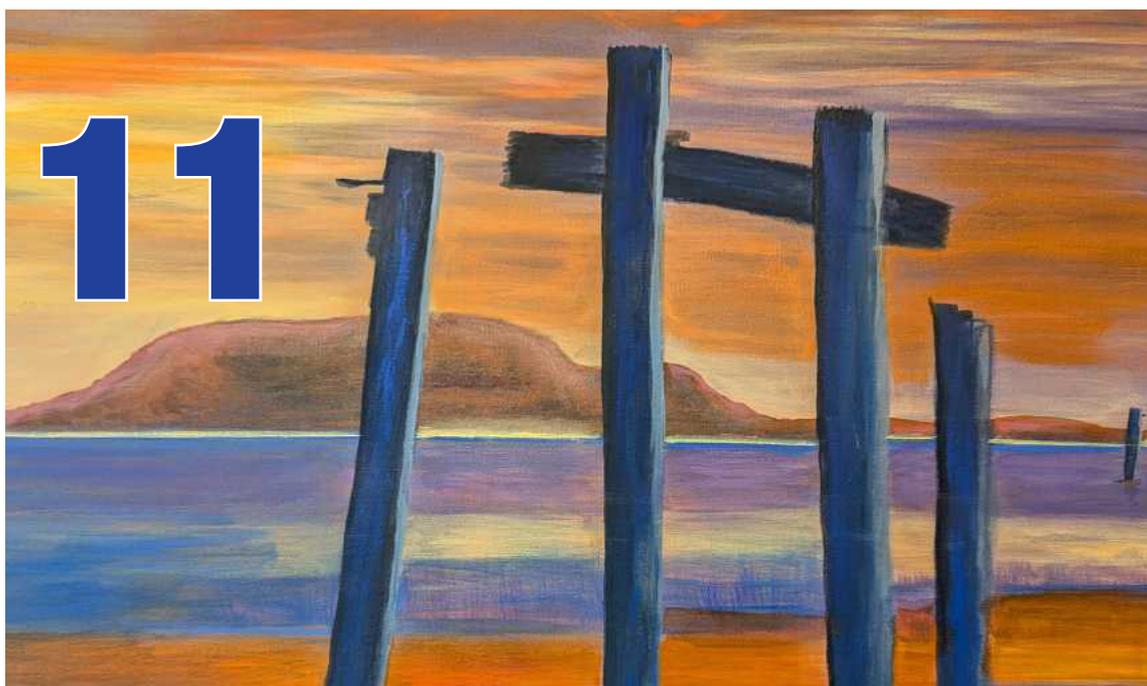
Selected Answers

Review p. 253: 1 T; 2 F; 3 F; 4 T; 5 F; 6 T; 7 F; 8 T; 9 T; 10 F; 11 F; 12 T.

Review p. 261: 1d; 2b; 3a; 4c.

Multiple Choice p. 263 1b; 2a; 3d; 4d; 5a; 6a; 7c; 8b; 9d; 10d; 11a; 12c; 13b; 14c; 15a.

Monetary Policy



Key understandings

- *the concepts of monetary policy and the cash rate*
- *the economic policy objectives of the Reserve Bank of Australia*
- *conventional and unconventional monetary policy*
- *how changes in the cash rate affects the level of economic activity, i.e. the transmission mechanism*
- *the impact of monetary policy stances on the level of economic activity using the AE and AD/AS models*
- *strengths and weaknesses of monetary policy*

Introduction

Monetary policy, similar to fiscal policy, is a demand management or countercyclical policy that is used to influence aggregate demand and therefore the level of economic activity. A stable financial system is a key ingredient in ensuring sustainable economic growth. A failure of financial institutions can quickly lead to a major economic recession, as occurred in the global financial crisis (GFC) of 2008-09. It is for this reason that every economy has a central bank to oversee and ensure the stability of the financial system.

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 European Union it is known as the European Central Bank (ECB). In each of these countries, the central bank is responsible for the maintenance of overall financial stability and the administration of monetary policy. Figure 11.1 below shows the three key economic indicators on the Reserve Bank’s website. This provides a snapshot of the main focus of monetary policy which we will explore in this chapter. Before we undertake our investigation into the world of monetary policy, we first examine the role of the financial sector (figure 11.2) and the importance of interest rates.

The financial sector

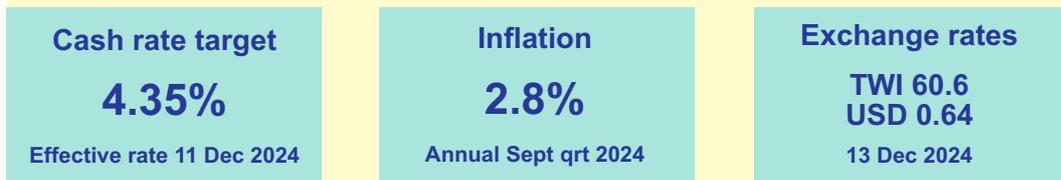
Financial markets are the intermediary between savers and investors, or lenders and borrowers of funds. A range of financial institutions – banks, building societies, finance and insurance companies, merchant banks and credit unions – serve this intermediary role. They are termed financial intermediaries because they ‘mediate’ or come between people who have surplus funds and those who want to borrow funds.

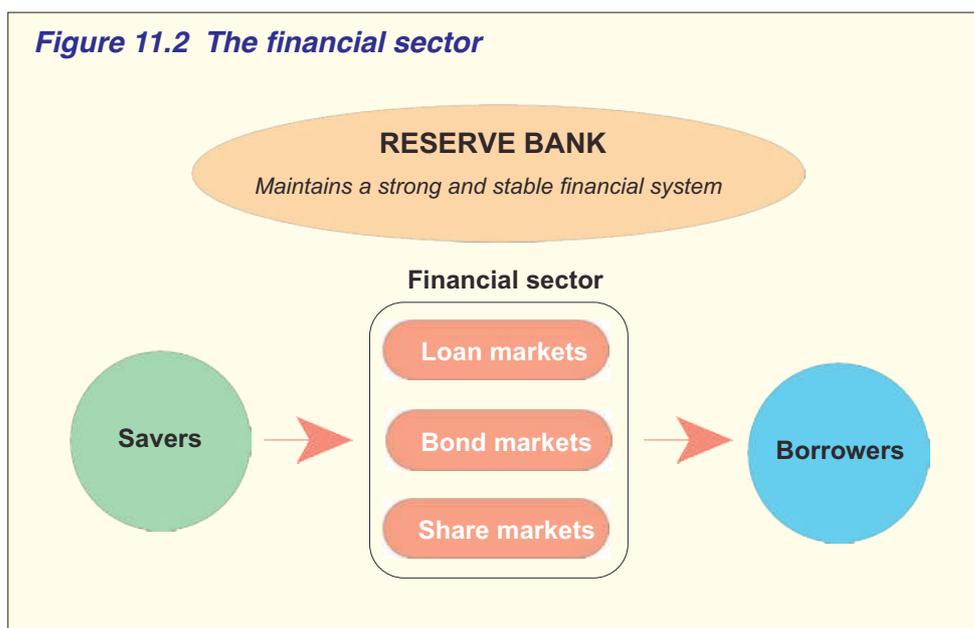
There are three main types of financial markets:

- 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

Financial markets are essential to channel funds from savers to lenders to facilitate investment.

Figure 11.1 Snapshot from the Reserve Bank Website





- 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 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.

To perform these functions well, it is important that the value of money should remain relatively stable. High inflation erodes the value of money and reduces the ability of money to perform its key functions. This is why the Reserve Bank pursues the goal of price stability – keeping inflation low to protect the value of money and promote the stability of the financial system.

Interest rates represent the price of money and are an important determinant of saving and investment.

Interest rates

Interest rates represent the price of money in the savings or loanable funds market. In this market there are savers and borrowers. Savers (mainly households) supply funds to the market while borrowers demand funds to invest or to purchase assets. The interest rate in a particular market will be the price that equates the supply of funds and the demand of funds. At higher interest rates, savers will want to supply more funds while borrowers will want to demand less funds. To the borrower, the interest rate represents the cost of borrowing money over a period of time. Interest rates also represent the reward for saving or supplying funds. A large proportion of transactions in the economy involving both consumption and investment are based on credit and borrowing. Changes in interest rates can therefore have a significant effect on the level of spending and economic activity.

It is important to distinguish between **nominal interest rates** and **real interest rates**. The 'real' rate is the nominal rate minus the rate of inflation. For example, if the nominal interest rate is 5 per cent and the expected inflation rate is 3 per cent, then the real interest rate is 2 per cent. The real rate of interest is a measure of how much borrowers actually pay and how much savers 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. Whenever inflation rises, nominal rates will also rise by the same margin in order to maintain the same constant real rate.

Monetary policy and the cash rate

The cash rate is the main monetary policy tool of the Reserve Bank.

Monetary policy refers to the interest rate decisions taken by the Reserve Bank of Australia (RBA) to affect monetary and financial conditions in the economy, with the aim of achieving low inflation and full employment. The Reserve Bank indirectly affects interest rates throughout the economy by its ability to set the interest rate on overnight loans in the money market. This rate is called the **cash rate**. Banks need to manage their liquidity by either depositing funds with or borrowing funds from the Reserve Bank in this overnight money market. The Reserve Bank's power to influence all interest rates across the economy comes from its ability to control the cash rate.

The Reserve Bank monitors domestic and international economic conditions. It needs to be aware of changes in a number of leading economic indicators to assess the strength or weakness of the economy and the position of the economy in six to twelve month's time. The Reserve Bank not only monitors changes the rate of inflation, but closely tracks changes in wages, the labour market, the housing sector, business investment, the exchange rate, the terms of trade and the national accounts as well as international economic data.

The Reserve Bank needs to assess the state of the economy and it needs to know the position of the economy in the business cycle. Monetary policy is meant to be '**forward looking**'. This means that the Reserve Bank's actions will affect the economy in six to twelve months time. For example, if the Reserve Bank believes that inflationary expectations are beginning to rise, then they will increase interest rates before the inflation rate increases.

If the Reserve Bank announces that it intends to raise the cash rate, then the monetary policy stance is said to '**tighten**'. Increases in the cash rate will cause other interest rates to rise, for example, deposit rates, personal and business loans and mortgage rates. Both the cost of borrowing and the reward for saving will increase. Private spending will fall, decreasing aggregate demand. Monetary policy is said to have adopted a **contractionary stance**.

Contractionary monetary policy involves increasing the cash rate.

If the Reserve Bank announces that it intends to lower the cash rate, then the monetary policy stance is said to '**ease**'. Decreases in the cash rate will cause other interest rates to fall, for example, deposit rates, personal and business loans and mortgage rates. Both the cost of borrowing and the reward for saving will decrease. Private spending will rise, increasing aggregate demand. Monetary policy is said to have adopted an **expansionary stance**. Changes in interest rates also influence the exchange rate which affects net exports. So monetary policy, through changes in interest rates, can affect three of the components of aggregate demand or aggregate expenditure - C, I and NX. In this way, monetary policy has an important effect on the level of output, employment and prices.

Expansionary monetary policy involves decreasing the cash rate.

It is the **Reserve Bank Board** that makes the decision to change the cash rate. The Board comprises the Reserve Bank Governor and Deputy Governor, the Secretary to the Treasury and six other people appointed by the Government (drawn from the public, including business people and academics). The Reserve Bank Board meets eight times a year - usually associated with the release of key economic data, such as the national accounts, labour market conditions and inflation data. After each meeting, the monetary policy decision is published on the Reserve Bank's website at 2.30pm (EST). If the cash rate target is changed, then it is implemented from the next day. Changes to the cash rate are generally made in small amounts, often 25 basis points.

The economic policy objectives of the RBA

The Reserve Bank conducts monetary policy so as to achieve the objectives set out in the Reserve Bank Act of 1959. This Act refers to three specific objectives:

- the stability of the currency (low and stable inflation rate)
- the maintenance of full employment (low unemployment) and
- the economic prosperity and welfare of the people of Australia.

New laws were passed by the Government in November 2024 which updated this Act to reconfirm the Reserve Bank's objectives (refer to the box below). The main change is that the third objective - the '**economic prosperity and welfare of the people of Australia**' - has been elevated to become the overarching objective of monetary policy. Underneath this broad aim, now sit the dual objectives of price stability and full employment.

The first of these objectives is the stability of the currency. This actually means **price stability** or the achievement of a low and stable inflation rate. It is important not to confuse the word 'currency' with the exchange rate. The word 'currency' used here relates to the value of money. Persistent inflation will erode the value of money over time and will have a negative impact on both business and consumer confidence.

The Reserve Bank adopted a formal '**inflation-target**' in 1993, after previous approaches to monetary policy had not delivered acceptable macroeconomic outcomes. The Reserve Bank now targets an annual inflation rate of between 2-3 per cent. The reason for the range is that it is difficult to 'fine tune' inflation to a specific number. It is also a relatively flexible target as it allows for changes in the business cycle. For example, when the economy is strong, inflation is likely to rise above the target range and when the economy is in a recession, the inflation will fall below the target. During the Covid pandemic, Australia's inflation rate actually became negative in June 2020.

Figure 11.3 illustrates Australia's inflation performance from 2014 to 2024. Notice that between 2014-20, annual inflation was mostly below the lower limit of the target range. But in the period from 2021 onwards, the rate of inflation increased to be well above the 3 per cent limit. The main reason was that the economy experienced boom type conditions after the Covid recession of 2020. It wasn't until late 2024 that Australia's headline inflation rate returned to its target range.

The Reserve Bank's target rate for annual inflation is 2-3 per cent.

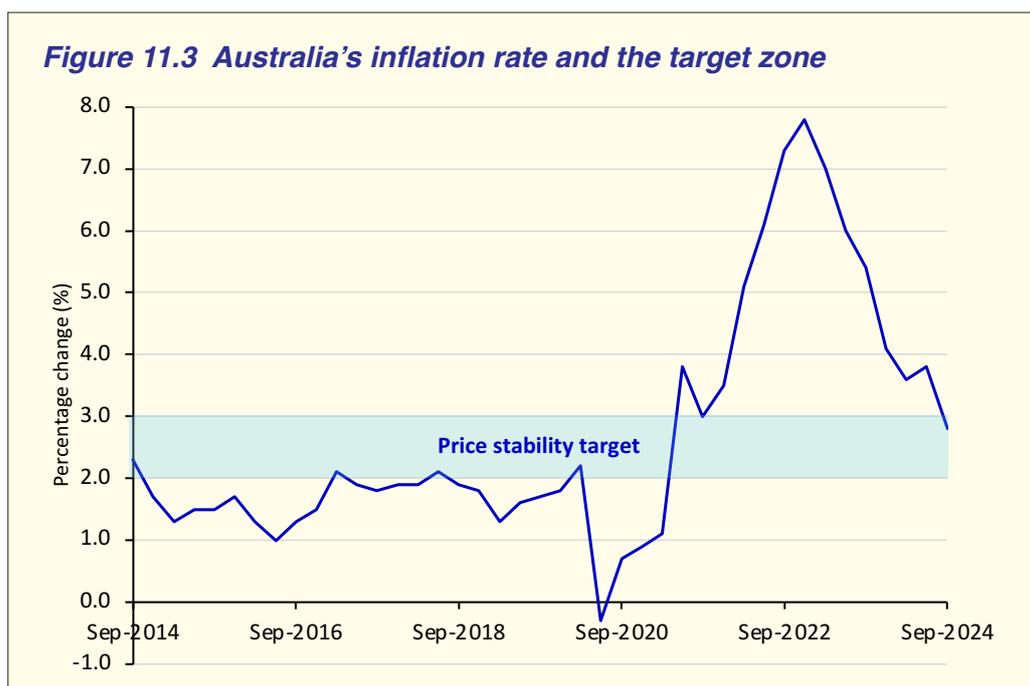
New laws to strengthen and modernise the Reserve Bank

These laws will reinforce the Reserve Bank's independence and clarify its mandate. The review of the Reserve Bank of Australia that was undertaken in 2024 has resulted in new laws being passed to reinforce the Reserve Bank's independence in the operation of monetary policy and renew the Bank's statutory objectives.

The key points from these new laws are

- *that the RBA's overarching objective is to "promote the economic prosperity and welfare of the people of Australia, both now and into the future"*
- *that monetary policy should have dual objectives of price stability and full employment*
- *that the RBA has a responsibility to contribute to financial system stability.*

Australian Department of Treasury, November 2024



Why is price stability considered important? Because high rates of inflation impose considerable costs on the economy. The benefits of low inflation include:

- protecting the value of household savings;
- reducing uncertainty which promotes long term growth and job creation;
- lowering interest rates, creating an incentive for private sector borrowing and spending;
- increasing a country's international competitiveness;
- encouraging investment in productive assets.

Figure 11.4 shows Australian annual inflation data 2021 and 2024. The CPI is the '**headline rate**' that summarises price movements across all classes of household expenditure and is the measure referred to by the media. The headline rate, however, can be subject to wide variation and may not reflect the 'true' or 'core' rate of inflation. For this reason, the Reserve Bank monitors a range of measures of **underlying** inflation since they are more likely to reflect current inflationary pressures. One measure simply excludes those items that are relatively volatile due to supply disruptions. Examples include fruit and vegetable prices which are affected by seasonal conditions, and petrol prices which are affected by movements in the world oil price. The Reserve Bank also monitors two statistical measures known as the 'weighted median' and the 'trimmed mean'.

Figure 11.4 Measures of consumer inflation

Year ended	Headline CPI %	Excluding volatile items %	Weighted median %	Trimmed mean %
Sept 2021	3.0	2.5	2.2	2.1
Dec 2021	3.5	2.6	2.6	2.6
Mar 2022	5.1	4.0	3.4	3.8
June 2022	6.1	5.3	4.4	4.9
Sep 2022	7.3	6.7	5.0	6.0
Dec 2022	7.8	7.6	5.7	6.8
Mar 2023	7.0	7.3	5.8	6.5
Jun 2023	6.0	6.5	5.4	5.8
Sep 2023	5.4	5.5	5.2	5.1
Dec 2023	4.1	4.1	4.4	4.1
Mar 2024	3.6	3.7	4.4	4.0
Jun 2024	3.8	3.7	4.1	3.9
Sep 2024	2.8	3.1	3.8	3.5

Source: RBA Measures of Consumer Inflation, Dec 2024

The **trimmed mean** is the average rate of inflation after ‘trimming’ away the items with the largest price changes. The **weighted median** is the inflation rate of the item at the middle of the price changes in the CPI basket. Of the two measures, the Reserve Bank favours using the trimmed mean as its estimate of underlying inflation.

Australia is not the only country to have adopted inflation targeting as the guiding objective for monetary policy. The central banks in the United States, New Zealand, Canada, the United Kingdom and Sweden have also adopted specific targets. The importance of announcing, and pursuing, an inflation target lies in influencing the expectations of firms and households. Since implementing inflation targets, central banks, including Australia, have had greater success in achieving their price stability objective.

Keeping inflation low also helps to achieve the second policy objective of full employment. Low inflation promotes business and consumer confidence and encourages investment, which underpins employment growth. The Reserve Bank defines **full employment** as the maximum level of unemployment that is consistent with maintaining low and stable inflation. Is there an estimate for this rate of unemployment? Yes - its called the **NAIRU** - the non accelerating inflation rate of unemployment and the Reserve Bank estimates it to be around 4.5 per cent.

There is a second measure of full employment which is called the '**natural rate**' of unemployment. This rate is estimated to be around 4 per cent. 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 1990s for example, the natural rate of unemployment was above 5 per cent. It has declined over time, because the labour market has become more flexible.

The Reserve Bank believes that by achieving the two objectives of price stability and full employment it can achieve the over-arching 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.

Conventional and unconventional monetary policy

Conventional monetary policy refers to the Reserve Bank using the cash rate - its primary monetary policy tool - to achieve its economic objectives of price stability and full employment. By changing the cash rate, the Reserve Bank can change other interest rates, which influence the cost of borrowing and saving. This affects business and household decisions to invest and/or consume. In this way, by changing aggregate demand, the Reserve Bank can affect the level of real GDP, employment and inflation.

For example, when the economy contracts (a negative output gap) and unemployment increases, the Reserve bank will lower the cash rate to stimulate the economy. When the economy's growth rate increases (a positive output gap) causing an increase in inflationary pressures, then the Reserve Bank will increase the cash rate.

Unconventional monetary policy was born of necessity during the Covid pandemic when the global economy suffered a deep recession. This was such a powerful economic shock that official interest rates in most countries, including Australia, were reduced to zero - referred to as the '**zero lower bound**'. When the cash rate reaches this level, the Reserve Bank is unable to stimulate aggregate demand through conventional monetary policy. The cash rate lever is now totally ineffective. So, what can monetary policy do, other than pray? It turns to unconventional methods.

Unconventional monetary policy represents the use of Reserve Bank policy tools other than the cash rate to affect the level of economic activity. The Reserve Bank of Australia made use of two main types of unconventional monetary policy - 'quantitative easing' and 'forward guidance'. **Quantitative easing (QE)** refers to the Reserve Bank purchasing assets, mainly government bonds, in the 'secondary market'.

Unconventional monetary policy is required when the cash rate reaches the ZLB.

Government bonds pay a lower rate of interest than corporate bonds because they are risk free.

The Government issues bonds called Commonwealth Government Securities (CGS), which tend to pay a lower rate of interest than corporate bonds. This is because they are guaranteed by the Government and therefore risk free. The Reserve Bank purchases these government bonds from banks, other financial institutions and the general public. The purpose is to pump cash into the economy and increase liquidity. By doing this it hopes that private spending will increase which will increase the level of economic activity.

A second and equally important effect of quantitative easing is that it causes the interest rate, or yield, on government bonds to fall. Most government bonds that are issued are long term - for example, five and ten year terms. So when the yields on these bonds fall, it causes other long term interest rates to fall, including mortgage rates. This would help to stimulate longer-term investments and hence aggregate demand

Forward guidance refers to the practice by a central bank of announcing and providing information about its future policy intentions. Macroeconomists believe that monetary policy works more effectively if the central bank's communicates its intentions to the public. For example, the Reserve Bank announces that the cash rate is likely to remain low in the future. Banks would then be more likely to set the interest rate for long term loans at a lower level. This means businesses could get cheaper loans and households would get lower mortgage rates for housing.

Review

1. What three indicators are listed on the RBA's website?
2. The RBA's main policy tool is the _____.
3. The real rate of interest = nominal interest rate - _____.
4. The RBA's overarching priority is to increase _____.
5. The RBA's two main economic objectives are _____.
6. The RBA's target rate of inflation = _____.
7. The CPI is known as the _____ rate of inflation.
8. The RBA's preferred measure of underlying inflation is the _____.
9. Deflation occurs when the inflation rate is _____.
10. For Australia, the NAIRU is estimated to be around _____.
11. During 2024, the RBA's main priority was _____.
12. If the inflation rate rises above 3%, then using conventional monetary policy, the RBA will _____ the cash rate.
13. If the economy slows and the unemployment rate rises above 5%, then using conventional monetary policy, the RBA will _____ the cash rate.
14. Unconventional monetary policy will be used when the cash rate falls to the _____.

The transmission mechanism

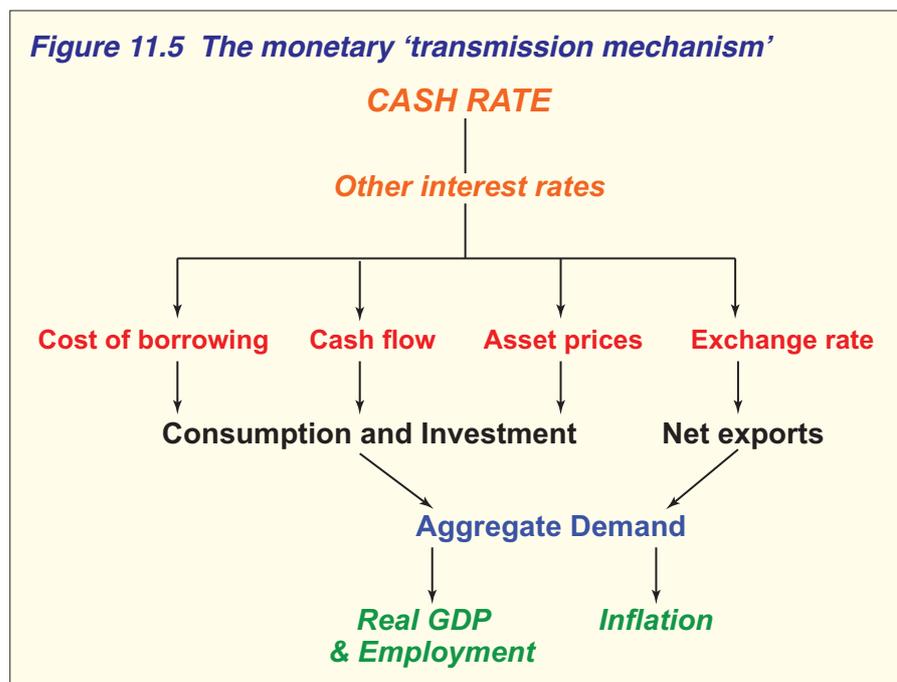
The process by which changes in interest rates affect the level of economic activity and inflation in the economy is referred to as the '**transmission mechanism**' of monetary policy. Compared with fiscal policy, monetary policy works in a more indirect manner to affect aggregate demand because it has to rely on interest rates to influence the behaviour of both households and firms.

For this reason, the transmission mechanism of monetary policy is characterised by variable and uncertain time lags which can make it difficult to predict the precise effect of monetary policy actions on the economy. The transmission mechanism consists of four separate channels by which a change in interest rates will flow through to affect aggregate demand. These are illustrated in figure 11.5.

The four channels are:

- the cost of borrowing channel;
- the cash flow channel;
- the asset price channel; and
- the exchange rate channel

To analyse how each of these channels works, we will assume that the Reserve bank has increased the cash rate - in other words it has adopted a contractionary stance. This will cause other interest rates to rise and will increase the **cost**



The transmission mechanism has four channels by which a change in the cash rate will change aggregate demand and affect output and inflation.

of borrowing for both households and firms. The demand for loans by new borrowers will fall, because higher rates act as a disincentive. Households will decrease their consumption spending on durable goods and housing and increase their saving since interest rates on deposits will have increased. Businesses often borrow to invest, so a rise in interest rates will reduce the demand for investment funds because it will affect the profitability of many investment projects.

Interest rates can also affect the **cash flow** position of households and firms. A rise in interest rates for people with mortgages or personal loans, will increase their repayments and reduce the amount of income available to spend on other goods and services. The average size mortgage in Australia in 2024 was \$640,000. Mortgage payments represent one of the major items of household expenditure. Even a small rise in the home loan rate can have a dramatic effect on a household's cash flow. Most firms are net borrowers, which means that interest payments on their overdraft and loan accounts represent a significant portion of their profits. If interest rates rise then firms will have less cash to pay expenses and are not likely to expand production or increase employment.

The third channel of the transmission mechanism operates through **asset prices**. The main assets for households are property and share portfolios, including superannuation accounts. Assets are important because they contribute to a household's **wealth**. Interest rates and asset prices have a negative relationship - a rise in interest rates will tend to decrease both share-market and property prices. For example, suppose that you are thinking of purchasing some shares with your surplus funds. If interest rates rise, then you may prefer to buy a government bond or save your money in an interest earning account with your bank. This reduces the demand for shares which decreases their price. The important point is that, when asset prices fall, wealth falls and households will decrease their spending because they feel poorer.

Interest rates also affect the **exchange rate** through foreign investment flows. For example, imagine you are a foreign investor with several billion dollars to invest. Do you want to earn a high rate of return or a low rate? To a lender, high interest rates are attractive. So a rise in domestic interest rates relative to overseas rates (the **interest rate differential**) will increase foreign portfolio investment ('hot money') into the economy. This will increase the demand for the Australian dollar and result in an exchange rate appreciation. A higher exchange rate will increase export prices to foreign buyers and will decrease import prices for Australian consumers and businesses. This will decrease net exports and contribute to a decrease in aggregate demand. The important point to remember, is that interest rates and exchange rates have a strong positive relationship.

We are now in a position to analyse the impact of expansionary and contractionary monetary policy stances on the level of economic activity.

Hot money is the flow of funds from one country to another to earn a short-term profit on interest rate differences.

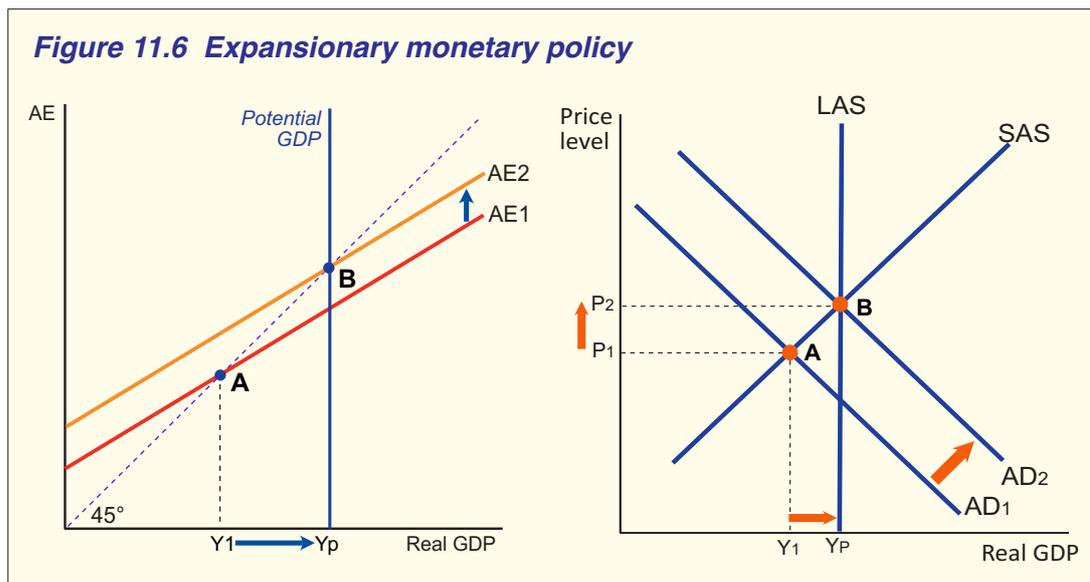
Expansionary monetary policy

The Reserve Bank will adopt an **expansionary stance** whenever any of the following scenarios occur:

- the economy is weak or has been hit by a negative aggregate demand shock
- the economy experiences a negative output gap where real GDP falls below potential GDP
- the unemployment rate rises above the natural rate or the NAIRU
- the inflation rate falls below the target range (< 2 per cent)

When the economy slows or contracts, real GDP will fall, the inflation rate will fall and the unemployment rate will rise. The Reserve Bank's main priority will be the full employment objective. The Reserve Bank will decrease the cash rate to reduce interest rates in the economy and increase aggregate demand. A cut in interest rates will help to stimulate the economy and keep inflation from falling below the target threshold of 2 per cent. Low interest rates will have a positive effect on private spending, especially durable consumption and investment spending via the cost of borrowing, cash flow and asset price channels. A cut in interest rates will also cause Australia's interest rate differential to decline resulting in a depreciation of the Australian dollar, increasing net exports.

The impact of expansionary monetary policy is shown in figure 11.6 using both the aggregate expenditure and AD/AS models. In each case, the economy is initially in equilibrium at point A where real GDP (Y_1) is less than potential GDP (Y_P). The unemployment rate at point A will be higher than the natural rate,



while inflationary pressures are likely to be low because of a subdued economic outlook. The Reserve Bank will want to stimulate spending and raise the level of economic activity in order to close the output gap and move the economy closer to potential GDP.

How can it do this? It will cut the cash rate to reduce interest rates in the economy in order to stimulate consumption, investment and net exports through the various channels of the transmission mechanism. In the AE model, the aggregate expenditure line will shift up with a positive multiplier effect to move the economy to point B. In the AD/AS model, the aggregate demand curve will shift to the right but with a smaller multiplier effect due to the rise in the price level.

The Covid pandemic - expansionary policy in action

In early 2020, the Australian economy was hit by one of the biggest economic shocks since the Great Depression of the 1930s. Both the Australian and global economies were plunged into recession. The Reserve Bank's cash rate was already relatively low at 0.75 per cent. In March 2020, the Reserve Bank

Date of change	Cash rate target
1 October 2019	0.75
4 March 2020	0.50
20 March 2020	0.25
4 November 2020	0.10

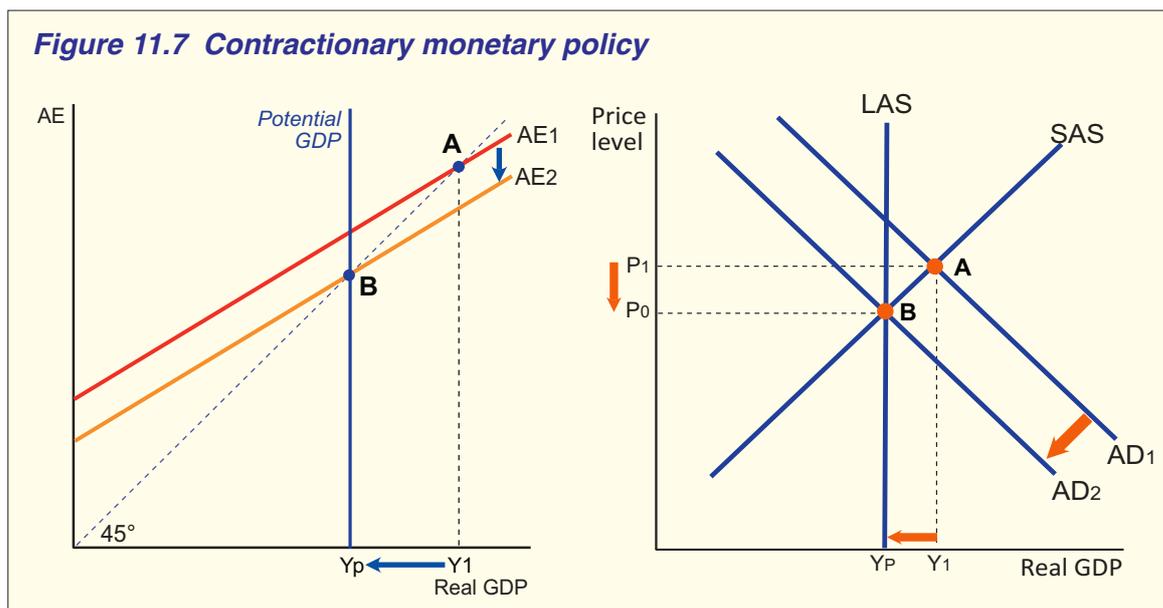
twice cut the cash rate by 25 basis points to a target of 0.25 per cent. The unemployment rate rose quickly during 2020 from 5 per cent in February to 7.5 per cent in July. In November, the Reserve Bank again cut the cash rate to 0.1 per cent, its lowest recorded level. This was an indication of how severe the economic contraction had become. The cash rate remained at 0.1 per cent until May 2022 - a period of 18 months. The cash rate had effectively reached its zero lower bound which meant that the Reserve Bank had to employ unconventional monetary policy measures

to encourage private sector spending. The main measure that was used was quantitative easing where the Reserve Bank bought a total of \$281 billion of government bonds. This had the effect of massively increasing liquidity into the financial system, helping to reduce long term interest rates.

Contractionary monetary policy

The Reserve Bank will adopt a **contractionary stance** whenever any of the following scenarios occur:

- the economy is 'overheating' and growing too fast or has been hit by a positive aggregate demand shock
- the inflation rate rises below the target range (> 3 per cent)
- the economy experiences a positive output gap where real GDP rises above potential GDP
- the unemployment rate falls below the natural rate or the NAIRU



When the economy expands quickly, real GDP will rise, the inflation rate will rise and the unemployment rate will fall. The Reserve Bank's main priority will be the price stability objective. The Reserve Bank will increase the cash rate to increase interest rates in the economy and decrease aggregate demand. A rise in interest rates will help to contract the economy and keep inflation from rising above the target threshold of 3 per cent. High interest rates will have a negative effect on both consumption and investment spending via the cost of borrowing, the cash flow and asset price channels. A rise in interest rates will also cause Australia's interest rate differential to rise resulting in an appreciation of the Australian dollar and a decrease in net exports.

The impact of contractionary monetary policy is shown in figure 11.7 using both the aggregate expenditure and AD/AS models. In each case, the economy is initially in equilibrium at point A where real GDP (Y_1) is greater than potential GDP (Y_p). The unemployment rate at point A will be higher than the natural rate, while inflationary pressures will be high because of capacity constraints. The Reserve Bank will want to decrease spending and reduce the level of economic activity in order to close the output gap and move the economy closer to potential GDP.

How can it do this? It will raise the cash rate to increase interest rates in the economy in order to decrease consumption, investment and net exports through the various channels of the transmission mechanism. In the AE model, the aggregate expenditure line will shift down with a negative multiplier effect to move the economy to point B. In the AD/AS model, the aggregate demand curve will shift to the left but with a smaller multiplier effect due to the fall in the price level.

The post Covid recovery - contractionary policy in action

By the end of 2021, The Australian economy had recovered from the Covid recession, with the unemployment rate falling below 5 per cent and the inflation rate rising above 2 per cent. Aggregate demand was growing strongly and the economy was returning to potential GDP. The Reserve

Bank responded by raising the cash rate in May 2022 from 0.1 per cent to 0.35 per cent. Throughout 2022, the Reserve bank continued to increase the cash rate to return it to more 'normal' levels.

By the end of 2022, the unemployment rate fell to just 3.5 per cent while the monthly inflation rate increased to 8.4 per cent. The economy was now experiencing boom conditions. Several economic commentators criticised the Reserve Bank for not acting more quickly to rein in the inflationary pressures. The cash rate was raised several more times during 2023 to reach 4.35 per cent in November, but the inflation remained above target for all of 2023 until the end of 2024. Economic commentators were not expecting a rate cut until the first half of 2025.

Date of change	Cash rate target	Inflation (monthly)
4 May 2022	0.35	6.1
8 June 2022	0.85	6.8
5 July 2022	1.35	6.1
2 August 2022	1.85	7.2
7 Sept 2022	2.35	7.2
5 Oct 2022	2.60	7.0
2 Nov 2022	2.85	7.4
7 Dec 2022	3.10	8.4
8 Feb 2023	3.34	6.8
8 Mar 2023	3.60	6.3
3 May 2023	3.85	5.5
7 June 2023	4.10	5.4
8 Nov 2023	4.35	4.3

Review

1. ***Interest rates are sometimes raised to control inflation. Why might this policy be effective?***
 - a. ***Government spending may decrease.***
 - b. ***Consumers may save more.***
 - c. ***Investment may be encouraged.***
 - d. ***The exchange rate may fall.***
2. ***Which one of the following is least likely to result from lower interest rates?***
 - a. ***An increase in borrowing for housing investment***
 - b. ***An increase in consumption from lower asset prices***
 - c. ***A decrease in imports resulting from a fall in the Australian dollar***
 - d. ***An increase in exports resulting from a fall in the Australian dollar***
3. ***If the RBA implements a contractionary monetary policy, then***
 - a. ***consumer spending will fall and the household savings ratio will rise.***
 - b. ***consumer spending will rise and the household savings ratio will fall.***
 - c. ***consumer spending will fall and the household savings ratio will fall.***
 - d. ***consumer spending will rise and the household savings ratio will rise.***

Strengths of monetary policy

Monetary policy is recognised as being an important economic policy tool to influence economic activity because of its flexibility and the speed at which monetary policy decisions can be made and implemented. Changes in interest rates can have a powerful effect on the level of spending in the economy by affecting consumption, investment and net exports.

Arguably the greatest strength of monetary policy is its **flexibility**. Decisions about whether to raise or cut the cash rate are made constantly by the Reserve Bank. This means that monetary policy is far more flexible than other types of policy. It does not require specific authorisation by Parliament, which also adds to its flexibility. The Reserve Bank Board meets eight times during the year to review the state of the economy. This enables monetary policy decisions to be made and implemented relatively quickly. In other words, the decision and implementation time lags for monetary policy are relatively short compared with fiscal policy.

The Reserve Bank is an **independent** authority and is not aligned to the government in power. This means that monetary policy is free of political bias. Monetary policy is independent of the political process. Decisions made by the Reserve Bank are based on economic rather than political reasons. The transmission route for monetary policy is more subtle than that of other policies. Interest rates affect every sector of the economy, and people tend not to see the policy as particularly aimed at 'them'.

Both fiscal and monetary policy suffer from policy time lags. These lags can be split into two broad types – the **inside lag** and the **outside lag**. The inside lag refers to the time it takes to undertake a policy action. The outside lag refers to the time it takes for the policy to actually affect the level of economic activity and is also known as the **effect lag**.

The inside lag consists of:

- the **recognition lag**: the time taken to recognize a change in economic conditions
- the **decision lag**: the time taken to make a policy decision;
- the **implementation lag**: the time taken to implement the policy decision.

The inside lag for monetary policy is relatively short. This is a distinct advantage compared with fiscal policy where the inside lag is very long.

Monetary policy is recognised as being relatively effective in controlling and reducing inflation when the economy is in a strong expansion or boom phase of the business cycle. Raising interest rates to reduce aggregate demand can be effective in decreasing borrowing and making credit more expensive. For example, households with large mortgages are particularly sensitive to

Monetary policy has a short decision lag but a long effect lag.

increases in rates. Finally, there is an important positive link between interest rates and the exchange rate, which enhances the power of monetary policy. For example, if the Reserve Bank is pursuing a contractionary stance, then a rise in domestic interest rates will attract foreign investment into the economy causing the Australian dollar to appreciate. This helps to reduce net exports which reinforces the Reserve Bank's stance.

Weaknesses of monetary policy

The **effect lag** for monetary policy is much longer than for fiscal policy. This is because monetary policy works indirectly to influence the components of aggregate demand. The Reserve Bank, unlike the Government, cannot directly change consumption or investment spending. While it can change interest rates across the economy, it has to 'sit back' and wait for the channels of monetary policy to take effect, and this may take considerable time.

Monetary policy is less effective in a contraction or trough – low interest rates may not be sufficient to stimulate private spending when economic conditions are bleak. This ineffectiveness of monetary policy when the economy is in a recession has been referred to as 'pushing on a piece of string' or by the phrase 'you can lead a horse to water, but you can't make him drink'. The cost of borrowing channel is responsible for this weakness. Businesses and households may not react to lower rates if they are not confident about future economic prospects.

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 Reserve 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.

While monetary policy can be effective in slowing the economy and controlling inflation, the burden of monetary policy will hurt some groups in the economy more than others. For example, people with savings, such as retirees, will benefit from periods of high interest rates because their earnings from savings will increase. But those people who are net borrowers, such as younger people with large mortgages and low income groups, will be hurt by periods of high interest rates.

Monetary policy is relatively ineffective during a recession.

Chapter Summary

- Financial markets are essential to channel funds from savers to lenders to facilitate investment.
- Monetary policy refers to the interest rate decisions taken by the Reserve Bank of Australia (RBA) to affect monetary and financial conditions in the economy.
- The cash rate is the main monetary policy tool of the Reserve Bank.
- The Reserve bank's two main objectives are price stability and full employment.
- The Reserve bank's inflation target is a 2-3% annual rate of inflation.
- The Reserve Bank defines full employment as the maximum level of unemployment that is consistent with maintaining low and stable inflation.
- Conventional monetary policy refers to the Reserve Bank using the cash rate - its primary monetary policy tool - to achieve its economic objectives.
- Contractionary monetary policy involves decreasing the cash rate.
- Expansionary monetary policy involves increasing the cash rate.
- Unconventional monetary policy represents the use of Reserve Bank policy tools other than the cash rate to affect the level of economic activity.
- Quantitative easing (QE) refers to the Reserve Bank purchasing assets, mainly government bonds, in the 'secondary market'.
- Forward guidance refers to the practice by a central bank of announcing and providing information about its future policy intentions.
- The transmission mechanism has four channels by which a change in the cash rate will change aggregate demand and affect output and inflation.
- The four channels of the transmission mechanism include the cost of borrowing; cash flow; asset prices and the exchange rate.

Chapter Review

Multiple choice test

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. 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.
6. 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.
7. 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.
8. 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
9. In Australia, Quantative Easing by the RBA involves:
 - 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 from the Government resulting in higher bond yields.

10. 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.
11. 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.
12. 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.
13. Which of the following policy time lags is typically longer for monetary policy than for fiscal policy?
 - a. Recognition lag.
 - b. Effect lag.
 - c. Decision-making lag.
 - d. Implementation lag.

Data interpretation

This question refers to the following extract concerning the Reserve Bank's interest rate decision.

Monetary Policy Decision February 2024

At its meeting today, the Board decided to leave the cash rate target unchanged at 4.35 per cent. Inflation continued to ease in the December quarter. Despite this progress, inflation remains high at 4.1 per cent. Higher interest rates are working to establish a more sustainable balance between aggregate demand and supply in the economy. Accordingly, conditions in the labour market continue to ease gradually. Inflation is still weighing on people's real incomes and household consumption growth is weak, as is dwelling investment. While there are encouraging signs, the economic outlook is uncertain and the Board remains highly attentive to inflation risks. Domestically, there are uncertainties regarding the lags in the effect of monetary policy. The outlook for household consumption also remains uncertain. (Source: RBA Feb 2024)

- (a) i. How often does the Reserve Bank Board meet to determine the cash rate? (1 mark)
- (a) ii. Determine the value for the real cash rate in February 2024? (1 mark)
- (b) State the Reserve Bank's two main economic objectives and identify which objective is its main priority in 2024. (3 marks)
- (c) Describe two channels by which higher interest rates will reduce aggregate demand. (4 marks)
- (d) Explain the main lag affecting monetary policy. (3 marks)

Extended responses

Each of the following questions should be answered in 1-2 pages of writing. Include models and examples where appropriate.

1. a. Outline the concept of monetary policy and describe its two main economic objectives. (6 marks)
 b. Using an AD/AS model, explain how expansionary monetary policy will affect the level of economic activity. (9 marks)
2. Explain why the Reserve Bank would undertake contractionary monetary policy, and discuss the channels through which the policy would impact the economy. (15 marks)
3. a. Explain how the Reserve Bank of Australia (RBA) used conventional and unconventional monetary policy to stimulate economic activity during the pandemic period. (7 marks)
 b. Describe two strengths and two weaknesses of monetary policy. (8 marks)

Selected Answers

Review p. 276

1. The cash rate; the inflation rate; the exchange rate.
2. The cash rate; 3. inflation rate; 4. economic prosperity & welfare;
5. price stability & full employment; 6. 2-3%; 7. headline; 8. trimmed mean; 9. negative; 10. 4.5%;
11. price stability; 12. increase; 13. decrease; 14. zero lower bound.

Review p. 282

1.b; 2b; 3a

Multiple Choice - p.285: 1d; 2c; 3a; 4c; 5a; 6c; 7c; 8c; 9b; 10d; 11d; 12a; 13b

Labour Productivity



Key understandings

- *the importance of long-run economic growth*
- *the concept of labour productivity*
- *the factors affecting labour productivity growth, including human capital, physical capital (capital deepening), technological progress*
- *government policies designed to influence labour productivity and the achievement of economic growth*
- *the impact of changes in labour productivity using the AD/AS model and the Aggregate Production Function (APF)*

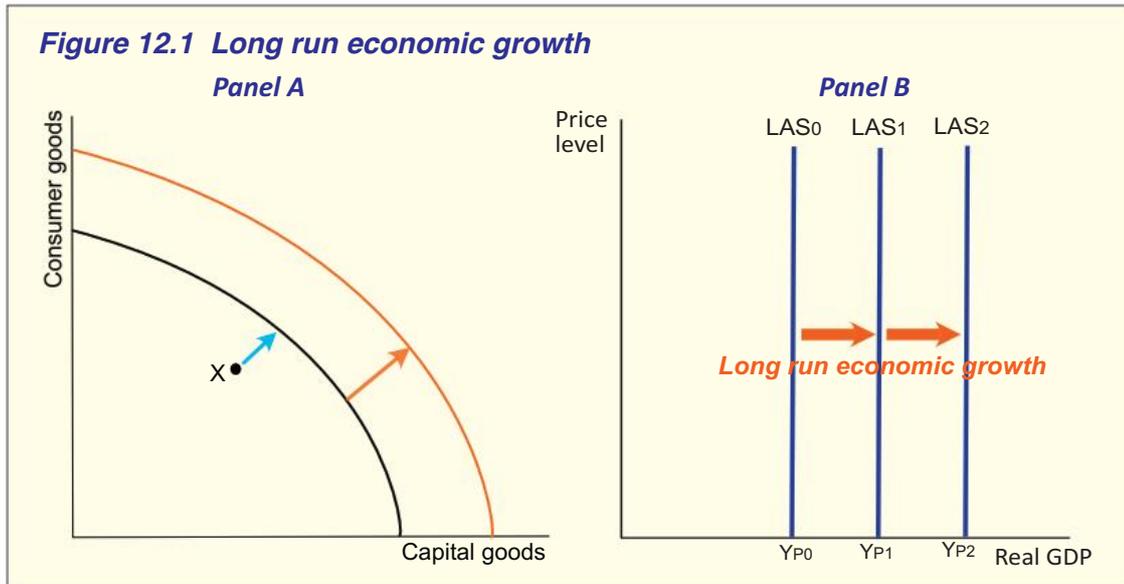
The importance of long-run economic growth

Long-run economic growth is the sustained increase in an economy’s production capacity or potential output over time. In year 11 economics you would have used the PPF model to illustrate the economy’s maximum or potential level of output that can be produced with the economy’s resources. Panel (A) in figure 12.1 demonstrates economic growth as a shift of the whole frontier to the right. If the economy was producing inside the frontier at point X and moved to the frontier, then real GDP has increased but it is not referred to as economic growth.

Long run economic growth is reflected by an increase in the LAS curve.

In chapter 9, we introduced the long run aggregate supply (LAS) curve to represent potential GDP. The LAS curve comprises all the supply side factors that determine the production of goods and services - resources such as land, labour, capital and enterprise as well as technology. Economic growth using this model is shown as a shift of the LAS curve to the right. This is illustrated in panel B below. When economic growth occurs, it means that the economy can expand without facing capacity constraints which helps to lower inflation.

Why is long run economic growth important? Because it is the means by which living standards are increased over time. Each generation has enjoyed a better way of life than the previous generation due to economic growth. This is measured by an increase in both the quantity and quality of goods and services consumed, by a reduction in the average number of working hours per week and by an increase in the average lifespan. This is all the product of economic growth.



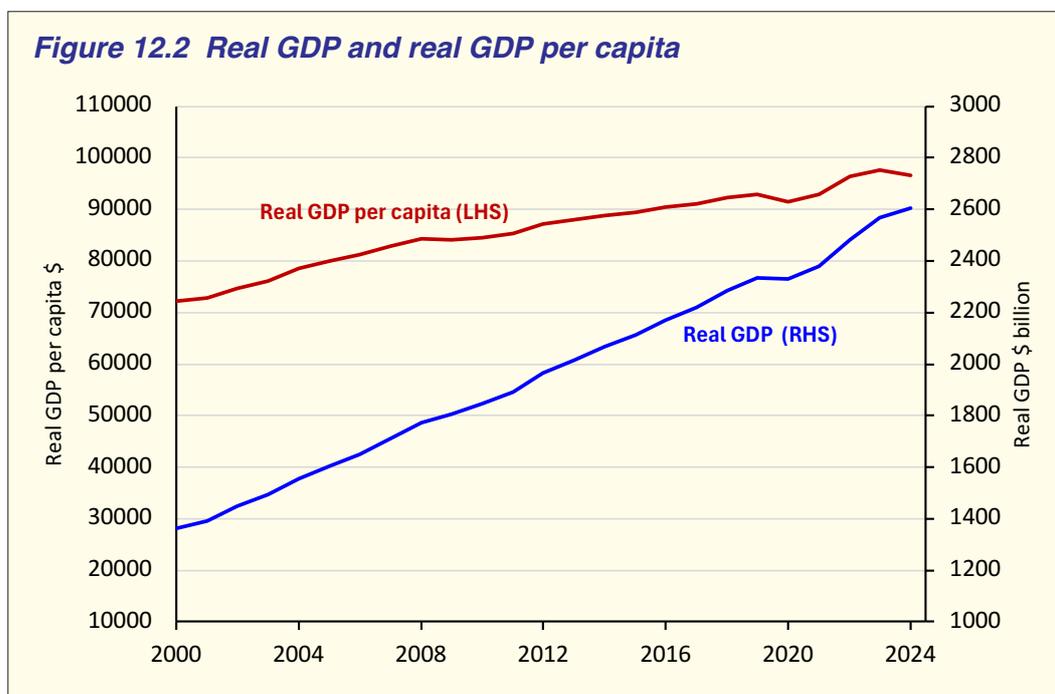
Can we measure the growth in living standards over time? The measure that economists favour is calculating real GDP per capita. This simply divides the total value of production - real GDP - by the size of the population. If real GDP per capita increases from one year to the next, then the average person can consume a greater quantity of goods and services.

Figure 12.2 compares the growth in both Australia's real GDP and real GDP per capita since 2000. Real GDP increased by 91 per cent over this 24 year period, which represents an annual rate of growth of 2.75 per cent. Has real GDP per capita increased at a faster or slower rate? If you study the graph you will notice that the real GDP per capita line has a shallower slope, indicating that it has not grown as fast. In fact, real GDP per capita over the 24 year period increased by 34 per cent. This represents an annual rate of growth of just 1.2 per cent - less than half the growth rate of output.

Australia's growth rate in real GDP per capita has declined.

What explains the difference? The simple answer is that the population of Australia has grown faster than GDP. This is not good news because it means that future living standards will not rise as quickly as in previous decades. This is why economic growth is important.

If Australia is able to boost its growth rate by just a small amount, it can have a considerable effect on improving long term living standards. For example, if real GDP per capita grows by 1 per cent each year, then it would take 70 years for living standards to double. But if the annual growth rate is increased to 2 per cent, then living standards will double in just 35 years!



The concept of labour productivity

Productivity refers to the efficiency with which an economy employs resources to produce economic output. Growth in productivity is the key driver of growth in real GDP per capita and living standards in the long run. Australia is over five times as productive as we were a century ago. Within the past 30 years, productivity has more than doubled. This has delivered substantial growth in people's average incomes and levels of consumption.

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” [Paul Krugman, 1992]

While we can measure the productivity of both labour and capital, it is simpler to focus on labour. Labour productivity is an important economic indicator that is closely linked to economic growth and living standards. We define **labour productivity** as the total volume of output (real GDP) produced per unit of labour (measured in terms of either the number of workers or the number of hours worked) during a given time period.

$$\begin{aligned}\text{Labour productivity} &= \text{Real GDP} / \text{quantity of labour input} \\ &= \text{Real GDP per worker} \\ &\text{or Real GDP per hour worked.}\end{aligned}$$

Labour productivity can be measured at the firm, industry or national level. For example if a factory has 100 workers and output equals \$100,000 per month, then the labour productivity for each worker would be \$1,000 per month. If the number of workers increased to 16 and total output increased to \$200,000 per month, then labour productivity has increased to \$12,500 per month. Higher productivity results in higher profits for firms, higher wages for workers, higher consumption for households and higher living standards across the economy. In other words, a ‘win-win’ scenario.

Economic growth boils down to two key factors:

- growth in the labour force; and
- growth in labour productivity.

So if the labour force grows by 2 per cent each year and labour productivity grows by 1 per cent each year, then the economy will grow by 3 per cent. What determines the growth in the labour force? There are three key factors - the growth in the population from natural increase; the growth in net migration and growth in the participation rate of the workforce.

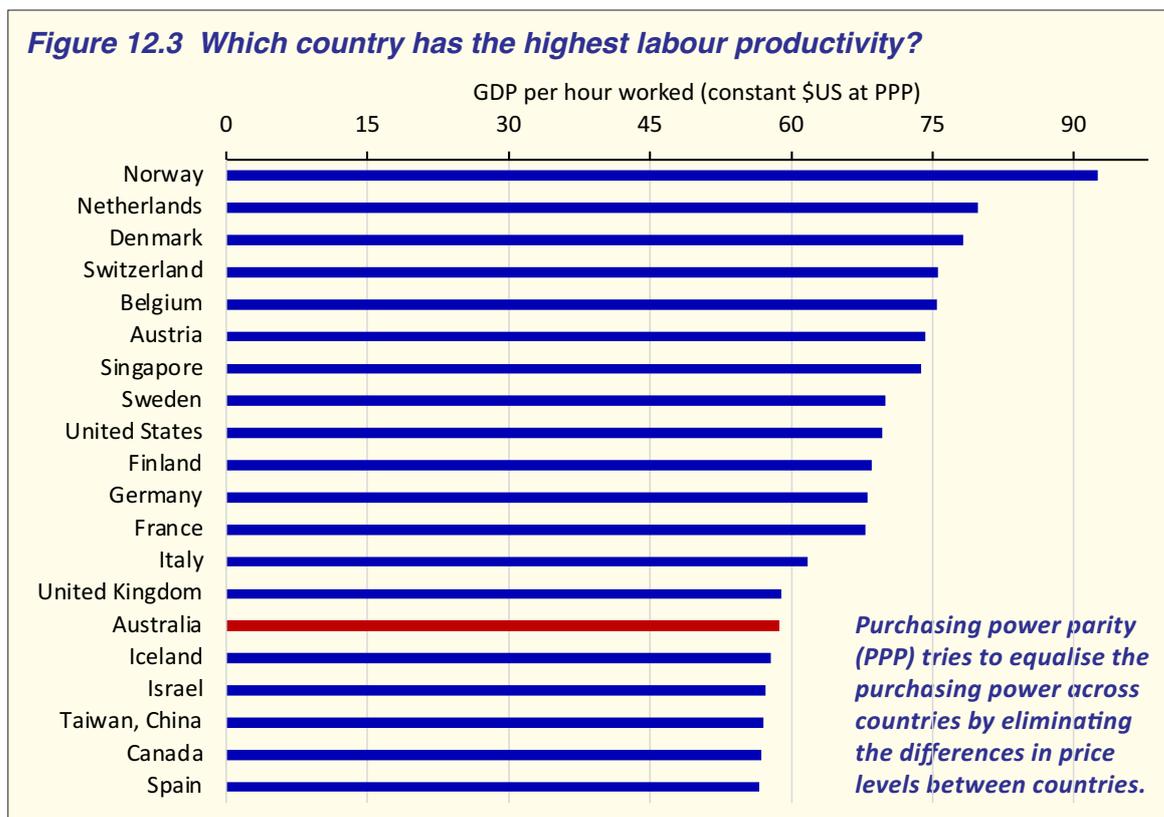
Productivity can be described as more and better products produced with fewer hours of work and fewer resources.

While increasing the quantity of labour over time will increase real GDP over time, it won't increase real GDP per capita. This means that growth in the labour force by itself cannot increase living standards. So where does that leave us? To the best kept secret in Economics - the only way to improve our living standards is to increase labour productivity! Aren't you glad that we saved the best topic till the end!

It is no mere coincidence that the economies that have the highest levels of labour productivity are also the richest economies in terms of income per capita. Figure 12.3 lists the top twenty countries with the highest levels of labour productivity in 2023. Who are the best performers? Eight of the top ten countries are located in Europe, including the Scandinavian countries of Norway, Sweden, Denmark and Finland. Singapore and the United States are the only two economies outside of Europe.

The economies that have the highest levels of labour productivity are also the richest economies.

How does Australia compare? Not so well - it was ranked 16th, although one could argue that to be in the top twenty is arguably a reasonable achievement. Australia's average GDP per hour worked in 2023 was around \$US59, which is much lower than the value for the US economy (\$US70) or Norway (\$US92). The key point is that Australia has room for improvement, so understanding the factors affecting productivity is vital.



The importance of increasing productivity over time cannot be overstated because of its crucial role in raising long term economic growth and living standards. Higher productivity can lead to:

- Lower unit costs: these cost savings might be passed onto consumers in lower prices, encouraging higher demand, more output and an increase in employment.
- Improved international competitiveness and trade performance: productivity growth and lower unit costs are key determinants of the competitiveness of firms in global markets.
- Higher profits: efficiency gains are a source of larger profits for companies which might be re-invested to support the long term growth of the business.
- Higher wages: businesses can afford higher wages when their workers are more efficient.
- Greater tax revenue for the government will result from higher production and consumption allowing for increased government services and public goods.

The table below shows some of the benefits of higher productivity in terms of the amount of working time need to consume different goods and services in 1901, 2000 and 2020. The figures have been calculated by the Productivity Commission. For example, consider the cost of renting a house. While rents have increased in actual dollar terms over time, they have fallen in labour cost terms - the average person needed to work about 22 hours a week to rent a three-bedroom house in 1901, while in 2020 the average person would need only to have worked for about 12 hours. Similarly, to purchase 1 litre of milk in 1901 it would take 31 minutes of work, but in 2020 it would only take two minutes. Of course, what these figures hide is the vastly improved quality of goods, such as bicycles and most household appliances.

Number of hours or work needed to purchase ...			
	1901	2000	2020
Rent 3 bed home	22.1	13.9	12
Bicycle	527.4	17.8	7.5
Number of minutes of work needed to purchase ...			
Rump steak (1kg)	143	42	38
Antibiotics	-	18	9
Bread (loaf)	20	8	5
Milk (1 litre)	31	5	2

Source: Productivity Commission:

The aggregate production function (APF)

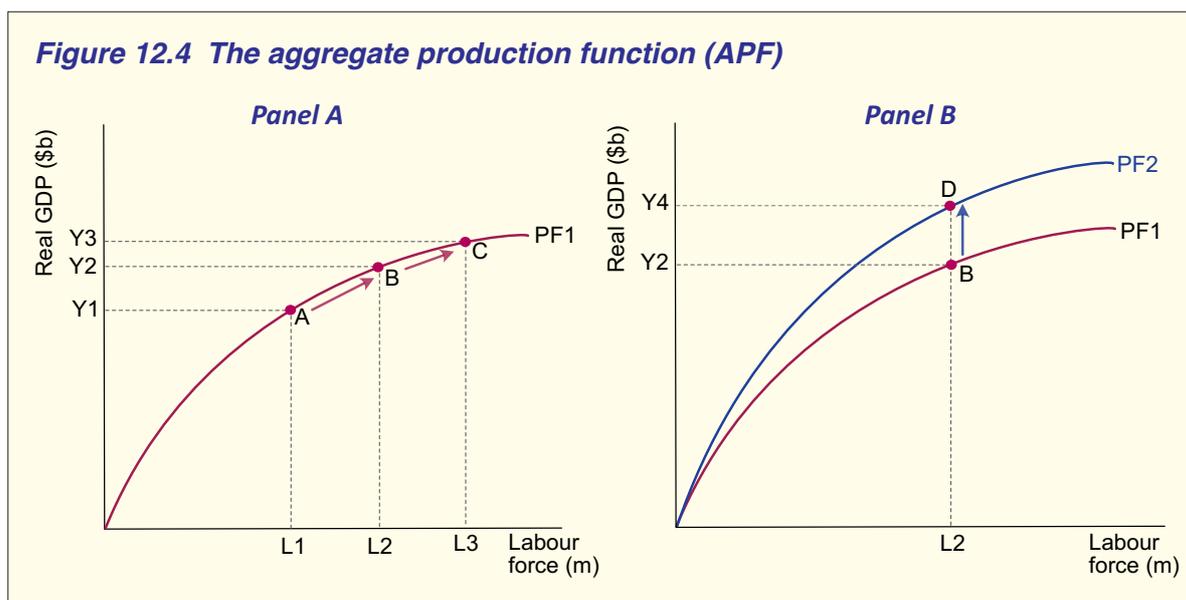
We can use the aggregate production function (APF) to show how increases in the quantity of labour input and labour productivity affect economic growth. In 2024, 14.5 million people were employed in Australia while the level of real GDP produced was \$2,604 billion. This means that on average each worker produced around \$180,000 worth of goods and services. In figure 12.4, the aggregate production function shows the relationship between the quantity of labour and real GDP, holding other factors constant, such as the quantity of capital and the state of technology. The aggregate production function shows a positive relationship between the quantity of labour and total production. This means that if the quantity of labour is increased then real GDP will increase - represented by a movement up along the along the APF.

Note that the APF is not a straight line. As employment rises, the slope decreases - which means it rises at a decreasing rate. Why is this the case? The answer relates to an important economic principle known as the **law of diminishing returns**, which holds that if more units of labour are used with a fixed amount of capital input, then output will rise, but at a decreasing rate.

In panel A, if the labour force increases from L1 to L2, real GDP will rise from Y1 to Y2. When the quantity of labour increases again by the same amount from L2 to L3, real GDP increases from Y2 to Y3. Notice that this is a smaller increase - this is the law of diminishing returns at work.

Panel B in figure 12.4 shows the effect of changing factors other than the quantity of labour on output. For example, we could increase the quantity of capital

The aggregate production function is subject to the law of diminishing returns.



equipment that workers use. This is referred to as increasing the **capital-labour ratio**. Alternatively we could improve the quality of the capital equipment that workers use. This is referred to as an improvement in **technology**. For example, the capacity and speed of computers and electronic devices has increased at a rapid rate due to advances in technology, enabling workers to complete more tasks per unit of time.

So an increase in the capital-labour ratio or an improvement in technology would cause the APF to shift upwards from PF1 to PF2. Now, a given quantity of labour will be able to produce a greater quantity of output, which means that labour productivity has increased. This is shown in panel B of figure 12.4 as a movement from point B to point D. The same quantity of labour (L_2) can now produce a greater quantity of output (Y_4). Another factor that could shift the APF upwards is an improvement in the quality of labour. This is referred to as an increase in **human capital**. Increasing the skill and knowledge base of workers occurs through education and on-the-job training.

Review

Complete the following statements.

1. Long run economic growth is shown by a shift of the LAS curve to the _____
2. The best economic indicator to measure an increase in living standards is _____
3. Since 2000, Australia's real GDP has grown at an average annual rate of _____ %.
4. Since 2000, Australia's real GDP per capita has grown at an average annual rate of _____ %.
5. If Y is total output; K is the capital stock and L is total employment, then labour productivity is measured by _____
6. If Y is total output; K is the capital stock and L is total employment and K/L rises, then Y/L will _____
7. In the APF model, an increase in the quantity of labour will cause output to increase at a _____ rate.
8. In the APF model, an increase in the capital-labour ratio will shift the APF _____

Determine whether the following statements are TRUE or FALSE.

9. The most important factor determining a country's standard of living in the long run is productivity.
10. Labour productivity tends to fall as the capital-labour ratio increases.
11. Human capital includes the machinery and equipment used in the production process.
12. The decreasing slope of the APF reflects the law of diminishing returns.
13. An increase in human capital increases the capital-labour ratio.
14. Improvements in technology will shift the APF downwards.
15. A decrease in the unemployment rate will increase labour productivity.

The factors affecting labour productivity

The aggregate production function highlights the three most important determinants of labour productivity:

- investment in physical capital
- investment in human capital
- technological progress

Physical capital is the machinery and equipment that workers use in the production of goods and services. Equipment can include the ‘tools of trade’, computers, laptops and mobile phones as well as motor vehicles. Physical capital also includes the buildings, factories and office blocks where workers are employed. Physical capital also includes both private and government infrastructure, such as roads and freeways, bridges, railway lines, port facilities, airports and energy grids. Infrastructure industries account for 10 per cent of Australia’s GDP.

While increases in the quantity of physical capital will result in greater production, it doesn’t necessarily follow that labour productivity will increase. What is required for output per worker to grow is that the quantity of capital per worker must also rise - in other words, the capital-labour ratio must increase. If both the quantity of labour and capital increase at the same rate, then this is referred to as **capital widening**. It means that the capital-labour ratio stays constant. If the capital-labour ratio increases, then this is referred to as **capital deepening**. This is essential to increase labour productivity.

Capital deepening occurs when there is an increase in the capital-labour ratio.

Human capital refers to the knowledge, skills and competencies of workers. It is based on the education, training and experience that workers gain over their career. There is a very high correlation between the educational attainment of a country and its standard of living. This would make sense given that an increase in education and training should improve the skills of a worker and improve their productivity. Given that the world is moving to more “knowledge-based” and service economies the importance of human capital becomes even more significant than ever.

Technological progress refers to the improvement in the quality of inputs over time - including capital, labour and natural resources. It involves the discovery of new and improved methods of production. Technological progress occurs through inventions - which is the creation of new technology; and innovations - which refers to discovering new ways in which to use or apply existing technology. Technology is at the very heart of human progress and development. It accounts for much of the economic and social progress of the past few centuries. Economists also believe that it is responsible for much of the world’s growth in productivity. Increases in technology have a similar

effect on the aggregate production function as increases in the capital stock. It will shift the function upwards, since any given quantity of labour will be able to produce more output. But technology has an added bonus because it will be embodied in the new capital equipment. The important point is that the faster the rate of technological change, the greater the growth rate of productivity and the faster the rise in living standards.

There is a strong positive link between investment in **research and development** (R & D) and improvements in technology. By investing in R & D, firms strive to deliver better products to buyers at lower cost. Achieving this delivers the owners of capital (business owners and shareholders) higher profits. Large corporations such as Apple, Microsoft and Tesla have huge research departments to develop new products. Investing in R & D is similar to investing in new capital equipment.

Economists use a special concept to reflect the improvements in the quality of capital, labour and other inputs caused by technological change. They call it '**multi-factor productivity**' (MFP). This measures the change in output that cannot be accounted for by changes in the inputs of labour and capital. MFP reflects the overall efficiency with which labour and capital inputs are used together in the production process.

Multi-factor productivity can be reflected in:

- The value of new management practices that allow capital and labour to be combined more effectively, or
- The value of more advanced technology embedded in new capital, or
- The value of a more skilled and educated workforce or
- Innovation in products or production processes

A convenient way to summarise our discussion is to show that the growth in labour productivity is equal to the sum of two key concepts - capital deepening and multi-factor productivity:

$$\text{Labour productivity growth} = \text{capital deepening} + \text{MFP growth}$$

Internationally, most of the advanced high income economies, including Australia, have experienced a marked slowdown in productivity over recent decades. The cause of this has been attributable to the decline in MFP growth relative to capital deepening. This is not surprising given the slowdown in technological advances. Most of the increases in MFP that were associated with new investments in information and communications technology (ICT) have been exhausted. Perhaps the introduction of artificial intelligence' (AI) will create a new incentive for both investment and innovation to drive a new productivity boom.

Multi-factor productivity reflects an improvement in technology.

Government policies to influence productivity

In developed economies, governments are responsible for about a quarter of all output, providing public services, maintaining public institutions and building associated infrastructure. Government spending on education and health form a considerable part of its annual Budget. Governments also influence productivity growth through policies and regulations that affect private sector investment and the functioning of markets.

In the previous section we noted that key factors that drive labour productivity are investment in both physical and human capital as well as technology. Therefore, any government policy that can affect these factors will go along way to increase labour productivity.

Policies to increase physical capital

The Government is responsible for its own investment in infrastructure which is designed to support private enterprise and the overall smooth functioning of the economy. Especially important is investment in efficient transport networks. Road infrastructure carries the bulk of freight, transporting not only finished goods from businesses to retailers and consumers, but inputs as well in terms of raw materials, equipment and workers. Increasing investment in road and rail networks can help to ease congestion which reduces both travel times and production costs.

The government can also indirectly affect private investment through the company tax which is a flat rate tax based on company profits. Anything which reduces business profits will reduce investment so a cut in the corporate rate will be an incentive for the private sector to increase investment. Alternatively, the government can offer firms incentives to increase their spending on new capital equipment and machinery that provides tax offsets to reduce their taxable income.

Policies to increase human capital

Education and health expenditure together account for over 15 per cent of the Government's Budget. In Australia state governments are responsible for primary and secondary education, while the Commonwealth government funds higher education. A healthy and educated workforce is a productive workforce. An increase in human capital works like an increase in physical capital to increase output. It causes the aggregate production function to shift upward and can raise productivity and living standards. The Commonwealth government subsidises the cost of higher education to encourage individuals to pursue a university degree. The government, can through reductions in marginal income tax rates, encourage household to invest in their own education and training.

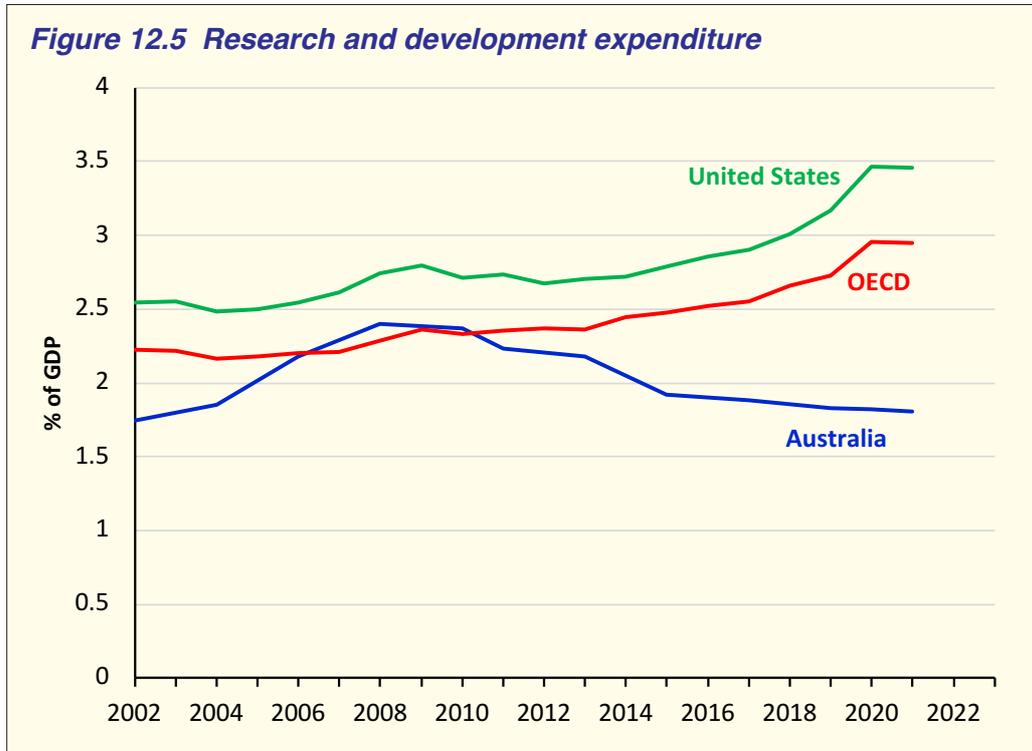
Policies to increase technological change

A glance at figure 12.5 below helps to explain Australia’s relatively low rank in the labour productivity stakes. Australia’s expenditure on research and development has been declining over the past decade and has fallen below 2 per cent of GDP. In comparison spending on R & D in the United States is around 3.5 per cent of GDP and the average across the OECD economies is close to 3 per cent. The significance of this is that research and development is a key factor driving scientific and technical advancements. The government is well placed to offer tax incentives to firms to boost their spending on R & D. Much scientific research in Australia is also conducted at universities which are government funded.

The right Institutions can provide incentives for people to invent new technology.

An additional way that the government can help to promote technological change is by providing an institutional infrastructure that encourages innovation and economic growth. What are these institutions? They include private property rights, political stability and the rule of law, competitive and open markets, a stable and guaranteed financial system and efficient taxes. These institutions provide incentives for the private sector to undertake production and investment and to foster technological innovation. Note that each of these ‘institutions are basically framed by Government policy.

Figure 12.5 Research and development expenditure



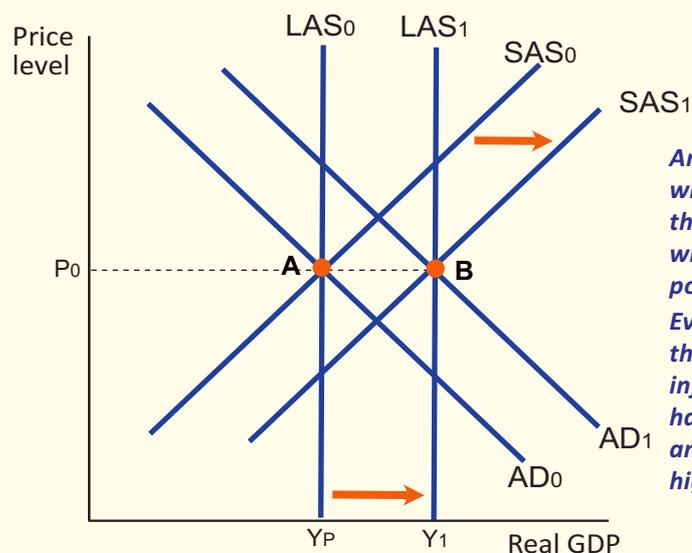
Labour productivity and the AD/AS model

We can use the aggregate demand/aggregate supply (AD/AS) model introduced in chapter 9 to illustrate the effects of an increase in labour productivity on the economy. In figure 12.6 below, the economy is in initial long run equilibrium at point A, with potential GDP equal to Y_p and the price level equal to P_0 . If labour productivity increases due to an increase in the capital labour ratio or an increase in MFP, then both short run aggregate supply (SAS) curve and the long run aggregate supply (LAS) curve will shift to the right. Labour productivity is a supply side factor affecting both output and unit costs of production.

An increase in labour productivity will shift the AS curves to the right.

An increase in labour productivity will cause unit costs to fall and will increase the demand for labour. Firms gain from increased profits, while workers will gain from an increase in real wages. The economy also gains, because real GDP has increased without any impact on supply constraints. This means that there will be no appreciable rise in the rate of inflation, even though the aggregate demand curve will also have shifted to the right due to higher investment spending (either private or public). This is the great benefit of pursuing economic growth by increasing labour productivity. **Potential output can expand without adding to inflationary pressures.**

Figure 12.6 The effect of increased labour productivity



An increase in labour productivity will initially cause an increase in both the SAS and LAS curves - both curves will shift to the right, increasing potential GDP from Y_p to Y_1 . Even if the AD curve increases, there is little impact on the inflation rate. Higher productivity has resulted in lower unit costs and higher profits for firms and higher real wages for workers.

Chapter Review

Multiple choice test

1. Which of the following will increase labour productivity?
 - i. Investment in physical capital
 - ii. Growth in the workforce
 - iii. Expansion of human capital
 - iv. Discovery of new technologies
 - a. i and iii only
 - b. i, ii and iii only
 - c. i, iii and iv only
 - d. i, ii, iii and iv
2. A country has a slow rate of growth of productivity and rising cyclical unemployment. All other things being equal, which measures are most likely to increase the rate of growth of productivity and reduce cyclical unemployment?
 - a. Increased investment and increased saving
 - b. More government spending on training and a higher exchange rate
 - c. Decreased government benefit payments and a lower budget deficit
 - d. Lower taxation on firms and lower interest rates
3. Government policies to raise the rate of productivity growth include all of the following except
 - a. improving infrastructure.
 - b. reducing the government budget surplus.
 - c. encouraging research and development.
 - d. improving human capital development.
4. An economy is operating at full employment. Which policy is most likely to lead to an increase in real GDP without an increase in the rate of inflation?
 - a. Additional spending on subsidies to increase export earnings
 - b. The central bank introduces quantitative easing
 - c. The government reduces income tax rates
 - d. Labour market reforms result in increased output per hour worked
5. Average labour productivity is forecast to rise more quickly than the nominal value of average earnings. What is the most likely consequence?
 - a. Real wages will decrease.
 - b. The profit of firms will fall.
 - c. Unemployment will rise.
 - d. Unit labour costs will fall.
6. A company uses 100 workers and 30 units of capital to produce 500 units of output. If this company increases its capital to 50 units and, as a result, its output increases by 300 units, the productivity of labor _____ to _____ units per worker.
 - a. decreases; 4
 - b. increases; 1
 - c. increases; 3
 - d. increases; 8

7. Which of the following will not increase labour productivity?
 - a. A decrease in unemployment
 - b. Investment in physical capital
 - c. Investment in human capital
 - d. Discovery of new technologies
8. Which one of the following outcomes is not usually associated with productivity growth?
 - a. An increase in material living standards.
 - b. An increase in international competitiveness.
 - c. An increase in the nation's productive capacity.
 - d. An increase in the prices of goods and services.
9. An increase in productivity accompanied by an increase in real wages will
 - a. increase aggregate supply but not aggregate demand.
 - b. increase aggregate demand but not aggregate supply.
 - c. increase aggregate supply and aggregate demand.
 - d. increase aggregate supply but decrease aggregate demand.
10. Assume average wages in the economy have increased by 5% per annum and average labour productivity has increased by 2% per annum. Which one of the following is the most likely outcome of these changes?
 - a. An increase in real wages and a rise in the operating profits of Australian businesses.
 - b. An improvement in equity in income distribution as a result of the likelihood of declining unemployment.
 - c. An increase in inflationary pressures, reducing the price competitiveness of Australian exports and import-competing goods.
 - d. A significant increase in business confidence levels, resulting in much higher levels of investment by business owners.
11. Which factor is most likely to raise the trend rate of economic growth?
 - a. Increased investment in human capital
 - b. Increased levels of consumer debt
 - c. Increased levels of public sector debt
 - d. Increased spending on welfare payments
12. If the capital stock remains fixed while the supply of labor increases, it is likely that
 - a. the productivity of labor will fall.
 - b. the productivity of labor will rise.
 - c. the productivity of labor will not change.
 - d. output per capita will rise.
13. A country's standard of living will decline if
 - a. nominal GDP grows at a faster rate than real GDP.
 - b. nominal GDP grows at a slower rate than real GDP.
 - c. the rate of population growth exceeds the growth rate of real GDP.
 - d. the rate of population growth is less than the growth rate of real GDP.
14. Which of the following contributes to technological progress?
 - a. Government protection of property rights
 - b. Research and development
 - c. Open and competitive markets
 - d. All of the above

In the News

Australia's productivity performance is dismal!

Australians are getting poorer because productivity is declining.

Australia sits at the bottom of the OECD group of countries in terms of productivity growth, registering a negative change in productivity in 2023, compared to a 3 per cent growth rate in the US.

Higher or improving productivity means a worker produces more in less time. It is a key indicator for living standards because greater productivity is often tied to higher wages as employees become more valuable to an enterprise. It also means more goods will be produced, making things cheaper for everyone.

Part of the reason is that a surge in government spending is squeezing out private business investment spending. Furthermore much of the government spending is wasteful and not increasing the capacity of the economy to produce.

Weak productivity growth also makes it harder to get inflation down and will depress long term growth in per capita GDP and hence in living standards.

Government spending has now hit a record 28 per cent of GDP. It has meant that interest rates have had to stay higher for longer to slow demand. Higher interest rates of course are bad news for private investment.

Questions

1. Identify the reason why Australians are getting poorer?
2. Outline three benefits of higher productivity?
3. State the evidence that suggests government spending is high.
4. Explain why higher interest rates bad news for private investment.
5. Explain why growth in productivity can help keep inflation in check.
6. Is there evidence of 'crowding out'?

Data Interpretation

This question refers to the extract from the Productivity Commission's quarterly productivity bulletin (Sept 2024).

Labour productivity growth fell by 0.8% for the whole economy in the June 2024 quarter. Growth in hours worked (1.1%) outpaced growth in real GDP (0.2%) resulting in a decline in labour productivity. Hours worked increased as the number of people employed increased by 0.8%, and hours worked per worker increased by 0.3%. Administrative and support services contributed the largest increase in hours worked, followed by retail trade and education and training.

Output growth did not match pace with the increase in hours worked, with real GDP growing by only 0.2% in the June 2024 quarter. GDP growth was driven by government expenditure, while weak household consumption and private investment detracted from growth. Although output growth increased, Australia experienced its 6th consecutive quarter of negative GDP per capita growth, which has fallen 1.6% since December 2022.

Questions

1. Define labour productivity and describe how it is measured.
2. Why did labour productivity growth fall in the September quarter 2024?
3. Identify the three industries that had the largest increase in hours worked.
4. Draw an aggregate production function and describe the effect of an increase in employment on productivity.
5. Which categories of aggregate demand increased and which categories decreased during the September quarter?
6. Explain why Australia is experiencing a per capita income recession.
7. Use an AD/AS model to show why an increase in labour productivity would increase Australia's living standards.

Extended responses

Each of the following questions should be answered in 1-2 pages of writing. Include models and examples where appropriate.

1. (a) Describe three different government policies that can be used to promote productivity and economic growth. (6 marks)
(b) Use the AD/AS model to illustrate and explain why productivity growth is important in achieving the government's economic objectives. (9 marks)
2. (a) Outline the meaning of productivity and three factors affecting labour productivity. (8 marks)
(b) Describe the concept of capital deepening and use the AD/AS model to explain its macroeconomic impact on the economy. (7 marks)

Selected Answers

Review p. 296

1. right; 2. real GDP per capita; 3. 2.75%; 4. 1.2%; 5. Y/L; 6. increase; 7. decreasing; 8. upwards;
9. True; 10. False; 11. False; 12. true; 13. False; 14. False; 15. False.
11. price stability; 12. increase; 13. decrease; 14. zero lower bound.

Multiple Choice - p.302: 1c; 2d; 3b; 4d; 5d; 6d; 7a; 8d 9c; 10c; 11a; 12a; 13c; 14d.

Notes

Investigating Macroeconomics 8

Steven Kemp

Tactic
Publications

ISBN 978-1-875313-68-6



9 781875 313686 >

Investigating Macroeconomics
8th edition
ISBN 978-1-875313-68-6

