

Investigating Macroeconomics



5th edition



Greg Parry
Steven Kemp

Tactic
Publications

Investigating Macroeconomics

5th edition

Greg Parry Steven Kemp

©

Greg Parry and 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

Photograph credits - the cover images were taken by the authors. Chapter page images were either taken by the authors, or verified as Public Domain images not requiring attribution.

TACTIC PUBLICATIONS PTY LTD
P.O. BOX 870
SOUTH PERTH WA 6151
www.tacticpub.com.au
ABN 12 056 615 153

National Library of Australia
cataloguing in publication data

Parry, Greg
Kemp, Steven

Investigating Macroeconomics 5th ed

for secondary school students
includes index

ISBN 978-1-875313-52-5
Economics 330
Printed in WA by Scott Print

Investigating Macroeconomics

Greg Parry
B.Ec., Dip. Ed.,
M.Ec., M.Ed. Man.

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

Preface

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

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

5th edition

Greg Parry and Steven Kemp
January 2019

Investigating Macroeconomics - 5th edition

Contents

Contents		
Part 1	<i>Australia and the Global Economy</i>	Pages
1	Global interdependence	1
2	Free trade and protection	25
3	Australia's pattern of trade	55
4	The balance of payments	67
5	The terms of trade	91
6	Exchange rates	103
7	Foreign investment	123
Part 2	<i>Macroeconomics and Economic Policy</i>	Pages
8	The business cycle	145
9	The aggregate expenditure model	159
10	Aggregate demand and aggregate supply	189
11	Economic policy objectives	207
12	Fiscal policy	225
13	Monetary policy	247
14	Structural change and productivity	269
Index - 297		

Global Interdependence

1



Chapter concepts and skills

- *the linkages between economies, including trade, investment, tourism and immigration*
- *the patterns and trends in global trade*
- *the concept and determinants of international competitiveness*
- *the concept and extent of globalisation*
- *the factors affecting globalisation*
- *the economic effects of globalisation*
- *apply economic reasoning to analyse issues and events in relation to Australia's international transactions*
- *use evidence found in economic information and data to justify a conclusion.*

Introduction

We live in an increasingly smaller and more integrated 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, music and video files and for purchasing goods and services. Australian firms and households are constantly involved in economic transactions with other economies. Some examples include Australian firms exporting coal, iron ore, and education services. Consumers purchase cars from Japan, computers from China, iPads from the United States and coffee from Brazil. Australia is also a major recipient of foreign investment. The world has effectively become a global market with the spread and growth of multinational corporations (MNCs).

Globalisation, one of the important buzzwords of this decade, has different meanings to different people. Globalisation refers to the freer movement of goods, services, investment, ideas and people around the world. It implies the opening up of international borders to the flow of trade, workers, tourists and investment. As a result of globalisation the world has become more integrated and more interdependent. Some people see globalisation as a kind of ‘McDonaldisation’ - the spread and triumph of American brands such as Coca Cola and Starbucks. For economists, globalisation means the triumph of free trade and competitive markets over protection and restricted markets.

WTO members accounted for 98 per cent of world merchandise trade in 2017 compared with 88 per cent in 1995.

Globalisation is also playing an important role in economic development. The World Trade Organisation (WTO) believes that the recent rise of the developing world is the most significant economic event of our time – eclipsing even the rise of the newly industrialising countries after the Second World War.

Why has the developing world achieved economic lift-off? It is evident that the most important reason is its integration into the world economy. Globalisation has enabled the developing world new access to markets, technology and investment.

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

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

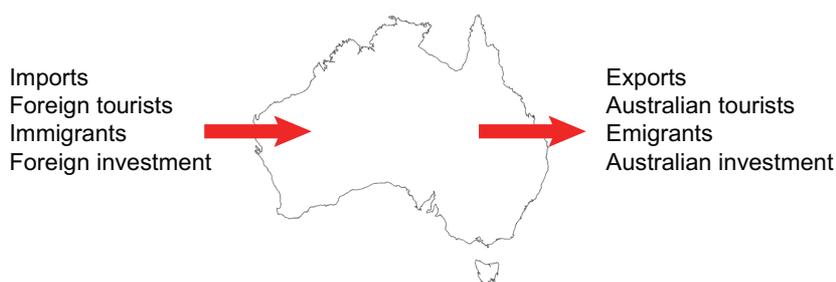
The process of globalisation or ‘internationalisation’ is not a new one - it has been occurring for centuries. What is new however, is the speed at which it is now taking place. Globalisation is not without controversy - it has important economic and social effects which fosters much debate. It has become fashionable to blame globalisation for many of the world’s problems. Critics hold it responsible for everything from poverty and inequality to environmental pollution. In this chapter we examine some of the important economic issues associated with globalisation.

Linkages between economies

When people think of global markets they tend to just think about international trade in goods and services – exports and imports. But economies are linked by more than just trade – there are movements in financial capital (foreign investment) and movements of people such as tourists, workers and immigrants. Figure 1.1 shows some of Australia’s important links with the global economy. Exports contribute around 23 per cent of Australia’s GDP and around 24 per cent of Australian workers are directly involved in trade-related activities. Australia is a major exporter of resources to the world, including iron ore, coal, natural gas, gold and bauxite. At the same time, Australia imports large quantities of capital goods, machinery, motor vehicles and consumer goods.

Just think how dependent you are on other countries for many goods we take for granted - the clothes you wear, your watch, your mobile phone, the coffee

Figure 1.1 Australia’s links with the global economy



2018	Exports/Income/People/ Investment Flowing to Australia	Imports/Income/People/ Investment Flowing from Australia
Total Goods	\$315 billion	\$303 billion
Total Services	\$86 billion	\$92 billion
Income	\$67 billion	\$127 billion
Tourist Travellers	9.0 million	10.7 million
Foreign Investment	\$91 billion	\$47 billion
Overseas arrivals/departures	529,360	288,940

you drink, your TV set, your laptop, your iPad, the bicycle you ride and probably the family car. All of these are imported goods, but many of them will have used Australian resources in their manufacture.

International tourism has grown in importance due to improvements in transport and communications and ranks fourth (after fuels, chemicals and automotive products) in global exports. Tourism now accounts for 30 per cent of the world's exports of commercial services. It is interesting to note that tourism is the main source of foreign exchange for one-third of developing countries and one-half of less developed countries (LDCs). Tourism has also become an important industry in Australia. Personal travel services (overseas tourists coming to Australia) is the 5th ranked export, while Australian tourists traveling to overseas destinations is Australia's highest ranked import.

The Australian economy has throughout its history relied on foreign investment to supplement its domestic savings to help fund its economic development. The recent mining boom would not have been possible without foreign investment. Net inflows of foreign investment in Australia were valued at \$91 billion in 2018, while net outflows of Australian investment abroad were valued at \$47 billion. The importance of foreign investment cannot be underestimated - foreign net flows account for anywhere between 10 and 20 per cent of Australia's total investment requirements. Australia is also a multicultural nation. Immigration has been an important source of skilled labour and has helped to boost Australia's population growth. Twenty-eight per cent of Australia's population were born overseas. The world economy has become more integrated than it ever was through improvements in communications, transport and the application of the Internet.

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

- agricultural products - top 15 exporter in the world;
- international tourism - 11th largest in the world;
- fuels and mining - 4th largest exporter in the world;
- foreign students - 3rd largest exporter in the world; and
- investment fund assets - 3rd largest in the world

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

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

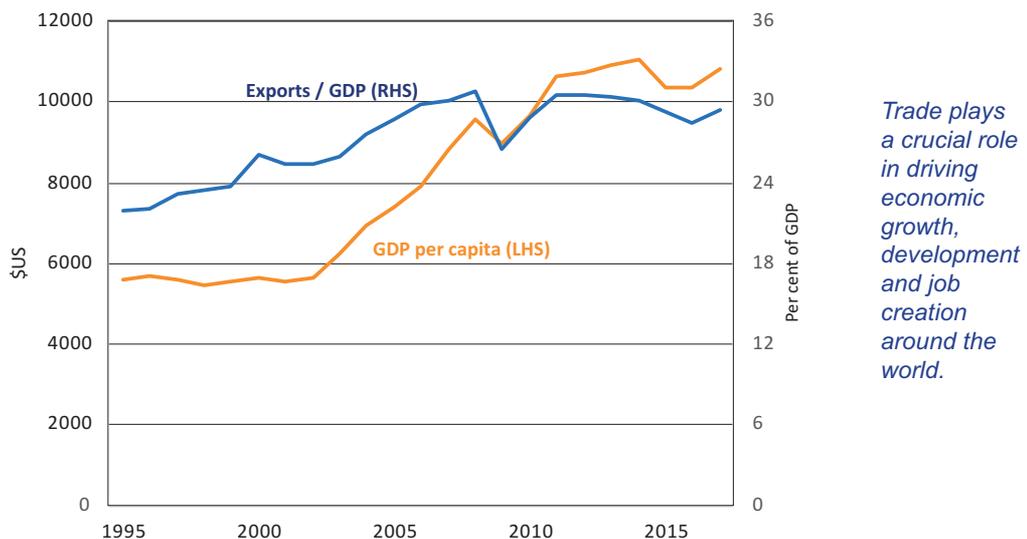
Patterns and trends in global trade

One of the key features of the past 50 years has been the rapid growth of world trade. Since 1995, world exports have increased by over 350 per cent, while world GDP has approximately doubled. This illustrates the spectacular pace of globalisation. Faster growth in trade is synonymous with faster world economic growth. China joined the World Trade Organisation in 2002 and in the space of a decade overtook the United States to become the world's leading exporter. This has had a major effect on many countries, especially Australia. In periods when trade has fallen, world growth has slowed.

The positive relationship between trade and growth is illustrated in figure 1.2. This graph shows that a rising share of world trade in GDP has been accompanied by rising per capita GDP. World exports as a percentage of GDP have increased from around 21 per cent in 1995 to 30 per cent by 2017. GDP per capita has experienced an even faster rate of increase - doubling over this period. Economists believe that increased trade intensity is an important catalyst for higher real incomes and living standards.

Why has world trade grown so fast? It is partly due to the success of world organisations such as the World Trade Organisation (WTO), the International Monetary Fund (IMF) and the World Bank in promoting the liberalisation of world trade. It is also due to improvements in transport and communication which has drastically lowered the costs of international commerce. Trade is seen as an 'engine of growth'. Specialisation and exchange is the cornerstone of all modern

Figure 1.2 World income and trade



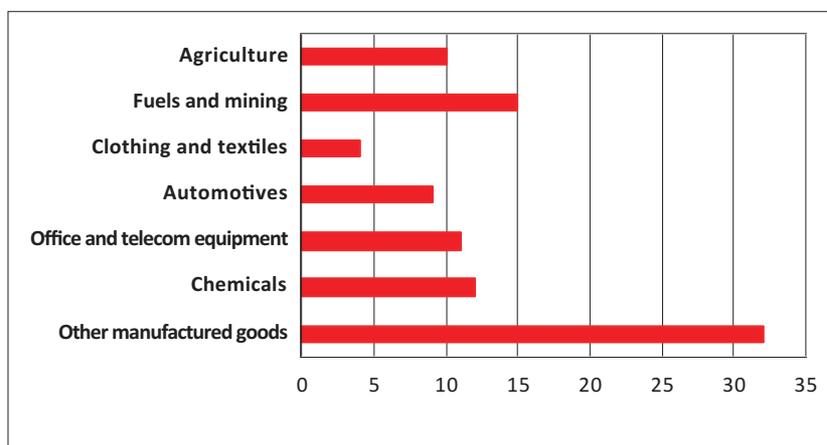
economies and is the catalyst for raising living standards. For most economies, including Australia, trade as a proportion of GDP has been increasing. Economies are becoming more open to trade and investment and as a result, economic growth and living standards have accelerated.

International trade can be broadly distinguished between trade in goods (merchandise) and services. The bulk of international trade concerns physical goods (77 per cent), while services account for a much lower share (23 per cent). This makes sense given that goods are generally easier to trade than services. Many services are in fact non-tradable. For example, it is not possible to export a haircut or a restaurant meal. World trade in goods has increased dramatically over the last decade, rising from less than US\$10 trillion in 2004 to more than US\$17.7 trillion in 2017. Trade in services has more than doubled between 2004 and 2017 - from just above US\$2 trillion to US\$5.3 trillion.

<i>World Merchandise Exports 2017</i>	
<i>Manufacturing</i>	<i>70%</i>
<i>Fuels & Mining</i>	<i>15%</i>
<i>Agriculture</i>	<i>10%</i>
<i>Other</i>	<i>5%</i>

Merchandise is divided into three main categories: agriculture, mining and fuels, and manufactured goods. Trade in manufactured goods dominates merchandise trade accounting for 70 per cent. Figure 1.3 shows some of the major merchandise product groups exported in the world. Important categories in manufactured exports are chemicals (12%), office and telecom equipment (11%) and automotives (9%). Trade in services comprises transport, travel and commercial services. Commercial services includes categories such as insurance, telecommunications, financial services and construction and accounts for half of all services trade. Tourism in fact, ranks third as an export category after fuels and chemicals and ahead of food and automotive products. In many developing countries, tourism ranks as the major export sector.

Figure 1.3 World merchandise exports by major product group



World Exports by Region & Selected Country				
Region/Country	1983	1993	2003	2017
North America	16.8	17.9	15.8	13.8
United States	11.2	12.6	9.8	9.0
Canada	4.2	3.9	3.7	2.4
South & Central America	4.5	3.0	3.0	3.4
Europe	43.5	45.3	45.9	37.8
Germany	9.2	10.3	10.2	8.4
Netherlands	3.5	3.8	4.0	3.8
France	5.2	6.0	5.3	3.1
United Kingdom	5.0	4.9	4.1	2.6
Africa	4.5	2.5	2.4	2.4
Middle East	6.7	3.5	4.1	5.3
Asia	19.1	26.0	26.1	34.0
China	1.2	2.5	5.9	13.2
Japan	8.0	9.8	6.4	4.1
India	0.5	0.6	0.8	1.7
Australia & NZ	1.4	1.4	1.2	1.6

World trade is dominated by the largest economies - China, the United States and Germany. These three countries account for 30% of world exports. China has emerged rapidly to become the world's largest exporter - from 1 per cent of world exports in 1983 to 13 per cent in 2017. Europe is still the dominant region for exports, but will soon be overtaken by Asia.

International Trade Statistics 2017

Figure 1.4 World exports by region and country

Not surprisingly, the countries that dominate world trade are the largest economies - China, the United States, and Germany. These three countries account for 30 per cent of world merchandise exports. China is the world's largest exporter, while the United States is the largest importer. The three largest exporters of commercial services are the United States, United Kingdom and Germany. Figure 1.4 provides a breakdown of world exports by region between 1983 and 2017. The most notable change is the rapid emergence of China - from 1 per cent of world exports in 1983, to 13 per cent in 2017. At the same, Japan's relative importance has slipped, its share of world exports halving over this period. While Europe is still the dominant region for exports, accounting for 38 per cent, Asia's share has increased significantly over the period, from 19 per cent in 1983 to 34 per cent in 2017.

Remember that it is individuals (both firms and households) that engage in trade, not countries. People trade because it is advantageous. Trade enables people to consume a greater quantity and variety of goods and services. Trade results in lower prices for consumers and higher prices for producers. When a country exports its goods and services, domestic producers gain from higher prices and greater production. When a country imports, domestic consumers gain from lower prices and greater consumption. Cross-border trade is no different than trade in a local market, with one exception - most countries have their own currency and so an exchange rate needs to be established before trade can take place.

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

- the exchange rate - movements in the exchange rate affect the price of exports and imports. For example, if the Australian dollar (\$A or AUD) falls in value (a depreciation), Australia's exports become cheaper to overseas buyers, while imports increase in price to Australian buyers;
- world economic growth - Australia's exports are dependent on foreign demand. Increased economic growth in foreign countries will increase the demand for Australia's exports. China and Japan, for example, are our most important customers for our mineral and energy resources. If their economies grow, then the demand for our resources increases;
- domestic economic growth - Australia's imports are determined by domestic economic activity. Higher economic activity in Australia raises domestic income which increases demand for imported consumer goods and services while increased investment will increase capital goods imports;
- relative inflation rates - if Australia's inflation rate is greater than our trading partners it will reduce the competitiveness of domestic goods and increase the competitiveness of foreign goods;
- relative interest rates (the interest rate differential) - if interest rates in Australia are higher than other countries, especially the United States, then financial capital will flow into the Australian economy; and
- productivity & cost efficiency - the efficiency of domestic firms relative to foreign firms will determine their success in the global market. Productivity improves cost efficiency by increasing output per worker.

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

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

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

Source: OECD Interconnected Economies

International competitiveness

International competitiveness has become a popular term with the advent of globalisation. The OECD defines a nation's competitiveness as 'the degree to which a country can produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term'. This definition highlights the importance of being able to compete in international markets.

There are several organisations that produce annual competitiveness reports:

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

For more than three decades, the World Economic Forum's annual Global Competitiveness Reports have studied and benchmarked the many factors underpinning national competitiveness. This organisation defines competitiveness as '*the set of institutions, policies, and factors that determine the level of productivity of a country*'. What are the key determinants that drive productivity and competitiveness? From the early days of economics, Scottish economist Adam Smith emphasised the importance of specialisation and division of labour. Economists believed that investment in physical capital and infrastructure was crucial to the growth process, while new growth theory focuses on the role of education and training and technological progress. The WEF base their competitiveness index on what they call the 'twelve pillars of competitiveness' - a fairly comprehensive list of key factors that promote efficient resource allocation, productivity, innovation and long term growth. A key criticism of the WEF index is that it is compiled from an opinion-based survey rather than on actual 'hard' economic data.

The IMD is a top-ranked global business school based in Switzerland which also publishes an annual world competitiveness ranking. IMD defines competitiveness in terms of the ability of nations to create and maintain an environment which sustains the competitiveness of enterprises. The IMD competitiveness report is arguably a more accurate and reputable measure than the survey based index produced by the WEF. The IMD focuses on four main factors that are seen as the drivers of competitiveness:

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

The 12 Pillars of Competitiveness (World Economic Forum)

1. Institutions: the legal and administrative framework within which individuals, firms, and governments interact.
2. Infrastructure: extensive and efficient infrastructure such as a well-developed transport and communications network and efficient electricity supplies.
3. Macroeconomic stability: low inflation, low unemployment.
4. Health and primary education: primary education is the foundation for all subsequent training; Investment in the provision of health services is critical to maintain an active & fit workforce.
5. Higher education and training: increases the quality of the workforce.
6. Goods market efficiency: competitive markets lower costs and promote improvements in productivity.
7. Labour market efficiency: labour market flexibility enables workers to shift from one economic activity to another rapidly at low cost.
8. Efficient financial markets: economies require sophisticated financial markets that can make capital available for private-sector investment.
9. Technological readiness: Information and communication technology (ICT) access and usage are key factors affecting a countries' overall technological readiness.
10. Market size: large markets allow firms to exploit economies of scale.
11. Business sophistication: the quality of a country's business networks and supporting industries.
12. Technological innovation: requires sufficient investment in research and development (R&D).

Notice that these factors are not dissimilar to the '12 pillars of competitiveness' and are a simpler and better way to think about the determinants of competitiveness. Notice also that both the government and the private sector are important in determining a country's international competitiveness. Figure 1.5 compares the rankings of each organisation's competitiveness report for 2018. It is not surprising that eight of the top twelve ranked countries are common to both lists: United States, Singapore, Hong Kong, Switzerland, the Netherlands, Denmark, Sweden, and Canada. Australia was ranked 14th by IMD and 19th by the WEF. What is also interesting is the close correlation with the GDP per capita ranking.

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

- changes in labour productivity due to factors such as technology, education and training;
- changes in a country's price level relative to its trading partners;

Ranking	WEF Global Competitiveness Index	IMD World Competitiveness Yearbook	GDP per capita (\$US) 2017
1	United States	United States	Luxembourg
2	Singapore	Hong Kong	Norway
3	Germany	Singapore	Switzerland
4	Switzerland	Netherlands	Iceland
5	Japan	Switzerland	Qatar
6	Netherlands	Denmark	Denmark
7	Hong Kong	UAE	Sweden
8	United Kingdom	Norway	Australia
9	Sweden	Sweden	Singapore
10	Denmark	Canada	Netherlands
11	Finland	Luxembourg	United States
12	Canada	Ireland	Canada
...	<i>(Australia 14th)</i>	<i>(Australia 19th)</i>	<i>(Australia 8th)</i>

Figure 1.5 International competitiveness rankings, 2018

- changes in a country's wages relative to its trading partners; and
- changes in the exchange rate.

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

Figure 1.6 shows changes in Australia's real unit labour costs and the real TWI since 2002. Between 2002 and 2009 real unit labour costs (RULC) declined by 6 per cent which had a positive effect on Australia's international competitiveness. Since 2016, real unit labour costs have fallen quite sharply. The real TWI experienced a strong appreciation from 2002 to 2013 - increasing by 65 per cent. This was

Australia's international competitiveness improves if either the real Trade Weighted Index (TWI) falls and/or if real unit labour costs fall.

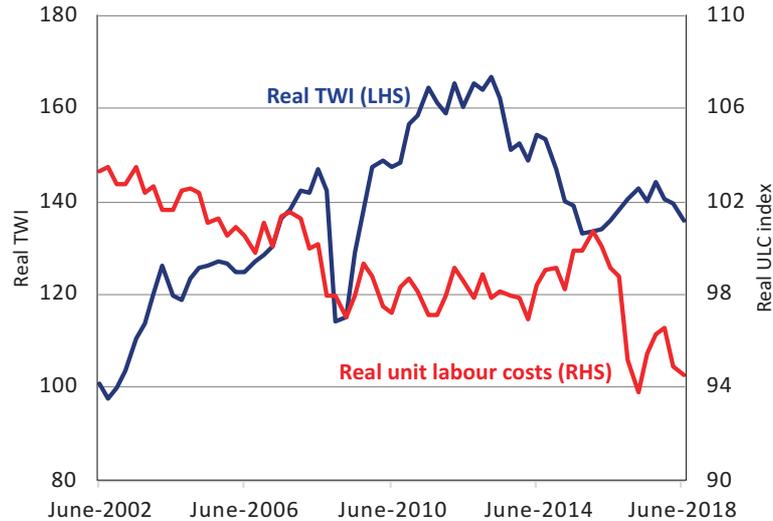


Figure 1.6 Measures of international competitiveness

due to the mining boom and the increased demand for Australian commodities (esp. iron ore and coal) by China. An appreciation reduces the competitiveness of Australia's exports by increasing their price to foreign buyers. In 2009 there was a sharp depreciation in the real TWI due to the global financial crisis. But this was a minor hiccup, with the real TWI increasing again quickly to reach its post float high in 2013. When the mining boom came to a sudden end in 2013, commodity prices fell drastically and the real exchange rate fell from its 'dizzy' heights. Between 2013 and 2018, the real TWI depreciated by around 20 per cent, boosting the competitiveness of the traded goods sector.

A number of novel indexes have been developed to help compare the relative cost of goods in different economies. These indexes select a uniform product that is sold in most countries and converts the local price into a standard currency such as the US dollar. Examples include the 'Big Mac' index (McDonalds hamburger) and the 'iPad' index (Apple). These indexes are useful in determining whether an exchange rate is under or overvalued. The most famous of these is the Economist Magazine's Big Mac index, which is illustrated in figure 1.7 (based on prices in July 2018). According to the Purchasing Power Parity (PPP) theory, the same product should sell for the same price in different countries, if converted to a common exchange rate. The first column of figure 1.7 lists the price of a Big Mac in local currency. Dividing this price by the actual exchange rate in the second column gives the price in US dollars, shown in the third column. For example, in Australia a Big Mac sells for A\$6.05 which equals US\$4.51. In July 2018 the exchange rate was \$1US = A\$1.34 or \$A1 = \$US0.75. The table shows the wide disparity in the price of a Big Mac measured in US dollars - from \$2.10 in Malaysia (less than half the US price) to \$6.54 in Switzerland.

PPP - implies that exchange rates are determined by the value of goods that currencies can buy.

For example, in Australia a Big Mac sells for A\$6.05 which equals US\$4.51. In July 2018 the exchange rate was \$1US = A\$1.34 or \$A1 = \$US0.75. The table shows the wide disparity in the price of a Big Mac measured in US dollars - from \$2.10 in Malaysia (less than half the US price) to \$6.54 in Switzerland.

Country	Big Mac in local currency	Exchange rate (\$1US) July 2018	Big Mac in \$US	Implied PPP of \$US	% Over or Under Valued
Australia	A\$6.05	1.34	4.51	1.10	-18
Britain	£3.19	0.75	4.23	0.58	-23
Canada	C\$6.65	1.31	5.07	1.21	-8
China	Yn20.5	6.62	3.10	3.72	-44
Euro Area	€4.04	0.85	4.74	0.73	-14
Japan	¥ 390	111.25	3.51	70.78	-36
Malaysia	Myr 8.45	4.02	2.10	1.53	-62
New Zealand	NZ\$6.20	1.46	4.23	1.13	-23
Singapore	S\$5.80	1.35	4.28	1.05	-22
Sweden	Kr 51	8.75	5.83	9.25	+6
Switzerland	Fr 6.50	0.99	6.54	1.18	+19
Russia	R 130	62.14	2.09	23.59	-62
United States	\$5.51	1.00	5.04	1.00	0

According to the purchasing power parity (PPP) theory, the same product should sell for the same price in different countries. This table shows a wide disparity in the price of a Big Mac measured in US dollars - from \$2.10 in Malaysia to \$6.54 in Switzerland.

Figure 1.7 The 'Big Mac' index

We can use the data to derive some interesting results. If we divide the actual Australian price of the Big Mac (\$6.05) by the US price (\$5.51) we get the implied PPP exchange rate. This suggests that US\$1 should equal A\$1.10 or equivalently A\$1 should equal US\$0.91. This suggests that Australia's exchange rate in July 2018 was undervalued by 18 per cent. When you compare actual exchange rates in the table with the implied PPP rate, you will see that most currencies are trading well below their implied value, meaning that they are undervalued. For example a 'Big Mac' in Malaysia is 62 per cent cheaper than in the US, only two currencies in the table were overvalued - Switzerland (30 per cent more expensive) and Sweden (+6 per cent). It is important to remember that PPP is meant to be a long term indicator showing where currencies might trend in the future.

Why do the prices in the Big Mac index vary so widely once converted into a common currency? It is basically due to differences in the costs of producing a Big Mac across countries. Prices will reflect the cost of key inputs such as raw materials and wages. Real wages are determined by labour productivity. A country that is relatively more productive at producing tradable goods will have higher wages for workers in that sector. This will drive up prices and wages in the non-tradable sector, including the fast food industry. This is why the price of a Big Mac is higher in countries such as Australia, Canada and Europe and lower in China, Indonesia and South Africa.

A better guide to show purchasing power parity would be to compare the prices of a good which did not reflect differences in input costs, for example a uniform product such as the Apple iPad or Apple iPhone. The official price for an iPad in Australia in November 2018 was A\$469 while in the United States the price was \$329. The implied PPP of the US dollar is 1.425 (469/329) which suggests that the implied exchange rate of the Australian dollar should be US\$0.70. The actual exchange rate was A\$1 = \$US0.72. This suggests that the Australian dollar is very close to its implied PPP value. What if we compare the prices of the iPhone X. In the United States it sells for US\$999, while in Australia it sells for \$1629. This implies that A\$1 should equal US\$0.61! This seems odd given that the iPad price difference is close to the PPP value. Perhaps Apple is taking advantage of the popularity of the iPhone in Australia? There are only three countries where the iPhone has 60 per cent or more of the market - Japan, the United States and Australia. This means that Apple Can sell its iPhone at a premium price in these markets.

Globalisation

Globalisation is one of the defining trends of the 21st century. It is discussed everywhere from political and business circles to the ordinary person in the street. The term globalisation generally refers to the opening of international borders to the flows of trade, investment, immigration, information and technology. The many, substantial benefits of globalisation include higher average incomes, greater innovation, richer cultural exchanges and improved standards of living around the world. Globalisation has also been blamed (incorrectly) for many of the world's problems including climate change, world poverty and environmental degradation.

Globalisation has in fact been responsible for creating unprecedented prosperity. The evidence for globalisation is seen in the ever expanding trade in goods and services, foreign investment and people. It has been propelled by cheaper and faster transportation, more innovative information technology, fewer or lower trade barriers, and better economic management. Joseph Stiglitz, an economist and winner of the Nobel Prize defines globalisation as:

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

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

- the value of exports (goods and services) as a percentage of world GDP increased from 20 percent in 1990 to 29 percent in 2017;
- since 1990, inflows of foreign direct investment (FDI) have increased by a factor of nine - from US\$196bn in 1990 to US\$1957bn in 2017;

- the number of internet subscribers per 100 people has increased from 0.4 in 2000 to 14 in 2017;
- the number of mobile phone subscriptions per 100 people has increased from 12 in 2000 to 104 in 2017 (a factor of 9); and
- the number of international tourist arrivals has doubled between 1990 and 2017.

The key measures of globalisation that most economists focus on are trade in goods and services and financial capital flows. Trade has been the ‘engine of globalisation’. Since 1990, the volume of world trade has grown at twice the rate compared with the growth of world GDP. The most commonly used measure of a country’s trade openness is the ratio of a country’s trade to GDP. This ratio, has on average, increased quite markedly across all groups of economies, including both developed and developing countries. It represents a quick and simple measure of a country’s level of integration with the rest of the world. Research has shown that those economies that increase their trade openness over time experience faster rates of economic growth. Between 1990 and 2017, world exports as a proportion of GDP have increased from 20 per cent to 29 per cent. Notice the dramatic increase in trade intensity for countries such as Thailand, Vietnam and Korea. For many countries

Figure 1.8 Indicators of globalisation

Indicators	1990	2000	2010	2017
Economic:				
Exports of goods and services (% GDP)	19.6	25.7	28.8	29.1
High income countries % GDP	19.8	25.4	29.4	30.5
Low income countries % GDP	12.4	17.8	23.4	20.1
FDI net inflows, \$US billions	196	1319	1863	1957
High income countries, \$US billions	175	1176	1253	1422
Low income countries, \$US billions	0.6	2	15	15
Social				
Fixed Broadband Subscribers, per 100 people	..	0.4	8	14
High income countries, per 100 people	..	1.4	26	32
Low income countries, per 100 people	..	..	0.1	0.8
Mobile Phones, per 100 people	0.1	12	76	104
High income countries, per 100 people	1.0	44	110	125
Low income countries, per 100 people	0.0	0.3	30	62
International Tourist Arrivals, millions	524	677	956	1245
High income countries, millions	377	457	564	749
Low income countries, millions	5	6	12	16

Source: World Bank

Exports as % of GDP		
	1990	2017
World	20	29
Australia	15	21
China	16	20
Thailand	34	68
Vietnam	36	101
Korea	26	43

of East Asia, trade has been the pathway to achieve rapid economic development. Exposure to trade provides the incentive to improve productivity and cost competitiveness.

The second main indicator of globalisation is the growth in foreign direct investment. Trade in financial capital is a more recent phenomenon than trade in goods and services. This is because international financial transactions were relatively regulated in most economies until the 1990s. The opening up of domestic economies to foreign direct investment is an

important part of modern globalisation and has seen the significant growth in the role of the multinational firm. Multinationals are now accounting for an ever larger share of global trade.

Many people think that globalisation is a relatively recent phenomenon. The two modern waves of globalisation occurred over the past 150 years. The earlier wave began around the middle of the nineteenth century and ended with the beginning of World War I (1870 - 1913). This wave of international integration was fueled by colonial expansion and the onset of the industrial revolution. The second wave of globalisation began after the Second World War and extended to the present day (1950 - present). Both episodes were characterised by strong growth in trade and living standards (GDP per capita). The period of history between these waves was a period of economic upheaval with the World Wars and the Great Depression of 1930. This was an era of anti-globalisation, during which countries pursued protectionist policies which slowed world growth and development. Some analysts believe that the period since the 1980s could be interpreted as the start of a new golden age of globalisation, after the setbacks from the OPEC oil shocks and the Vietnam War. This 'third' wave coincides with a number of important global events - the end of the Cold War (the collapse of Communism); the birth of the Internet and the creation of the World Trade Organisation (WTO). The result is that in the past 30 years the pace and scale of globalisation has accelerated.

Causes of globalisation

There have been a number of important drivers or causes of the current era of globalisation. The first has been the liberalisation of markets to the flow of goods, services and investment. This process began after World War II with the establishment of a number of United Nations organisations, including the GATT, the International Monetary Fund (IMF) and the World Bank. Chief of these was the GATT - the General Agreement on Tariffs and Trade. This was set up in 1947 with the aim of reducing barriers to trade to increase general living standards and promote full employment. Originally, the GATT was supposed to become a full international organization like the World Bank, however it remained an agreement until it was superseded by the WTO in 1995. Since 1990 world tariff rates have

International agencies fostering globalisation

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

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

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

fallen from an average of 29 per cent to below 8 per cent. Today average tariff rates are around 5 per cent in high income economies and 10 per cent in developing countries. Regional trading groups (or trading blocs) such as the European Union, NAFTA and ASEAN have also flourished and have encouraged the expansion of free trade by reducing or eliminating trade barriers.

A second key factor driving recent globalisation has been technology. Advances in transport and communication have resulted in 'the death of distance'. Transport costs and travel time have been drastically cut helping to boost the volume of merchandise trade and increase tourist travel to record numbers. Advances in information technology and the internet have enabled the growth of trade in services. Many services that were once thought of as non-tradable are now being outsourced to countries such as India - business services such as accounting, marketing and IT support. India has now become the world's leading exporter of IT services.

Multinational corporations have also played an important role in promoting globalisation. Multinational corporations (MNCs) are very large firms with headquarters in one country and subsidiaries in one or more other countries. These firms establish production and/or retail and distribution facilities in other countries. Think of major global firms such as General Electric, Apple, Nike and Microsoft from the United States, Shell and Vodafone from the United Kingdom, Toyota and Sony from Japan, Samsung from Korea, Nestle from Switzerland and Volkswagen from Germany. Even Australia has several MNCs, including BHP and Rio Tinto. Over the last 40 years, the number and size of multinational corporations has increased dramatically. In 1970, there were just 7,000 MNCs, whilst today there are over 100,000 parent companies operating with around 900,000 subsidiaries or affiliates in almost all industries and countries in the world. These companies play an increasingly major role in the world economy. Multinational corporations account for around a quarter of global GDP.

Why do multinational firms expand into foreign markets? Basically to increase their sales, market share and profits. To increase sales to a foreign market a firm has a choice of either exporting to the foreign location or establishing a subsidiary through foreign direct investment. Foreign direct investment (FDI) occurs when a firm in one economy acquires at least 10 per cent ownership of a foreign firm. Foreign direct investment has become an important link in the process of globalisation. In developed economies, FDI tends to be associated with mergers and acquisitions of foreign companies. In developing economies FDI is more associated with the construction of new facilities and is known as 'greenfield' investment.

The effects of globalisation

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

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

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

There is substantial evidence that as countries 'globalise' their people benefit, in the form of access to a wider variety of goods and services, lower prices, more and better-paying jobs, improved health, and higher overall living standards. The

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

Figure 1.9 Effects of globalisation

evidence shows that over the past 30 years, as the number of countries engaging in globalisation has increased, the percentage of people living in extreme poverty (defined as living on less than \$1 per day) has been cut in half.

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

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

Free trade does create winners and losers. However the winners gain more than the losers, so that it is possible to compensate

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

the losers and result in a net gain for the economy. It is a similar argument to the effects of technological change. Technology imposes costs on some sections of the community but also leads to net gains. Should the world stop the advance in technology? Of course not. Research carried out by the World Bank found that since 1980, globalisation has contributed to a reduction in poverty as well as a reduction in global income inequality. They found that in ‘globalising’ countries in the developing world, income per person grew three-and-a-half times faster than in ‘non-globalising’ countries’ during the 1990s. In general, they concluded that ‘higher growth rates in globalising developing countries have translated into higher incomes for the poor.’

More recently, the election of President Donald Trump in the United States as well as the UK voting to leave the European Union (Brexit) signal that the world maybe moving away from globalisation. A new political climate is developing in which trade liberalization is increasingly unpopular. The IMF believes that the failure to support displaced workers and others affected by globalisation has encouraged protectionist sentiment in many countries. To prevent the world from slipping into a new protectionist era, governments should not only focus on economic growth but also on reducing inequality.

It is prudent to conclude the discussion of the globalisation debate with a quote from one of the world’s leading economists, and Nobel Prize winner, in the field of economic development, Amartya Sen:

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

Worksheet 1

1. What are the key elements in the definition of globalisation?
2. Why do open economies grow faster?
3. Describe the main linkages between economies.
4. Why has world trade grown so fast?
5. Describe some of Australia’s globally significant industries.
6. Why is merchandise trade much larger than trade in services?
7. Explain why there is a positive relationship between trade and economic growth.
8. What were the three largest categories of world exports in 2017?
9. Describe the main types of services that are traded.
10. Manufactured goods account for ____ % and services ____ % of world trade.
11. Which three countries are the world’s leading exporters?
12. Explain why China has become the world’s largest exporter.
13. Explain how a depreciation will affect a country’s trade?
14. How does world economic growth impact on Australia’s trade?
15. How will an increase in productivity affect Australia’s trade?

Multiple Choice

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

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

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

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

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

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

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

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

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

10. Which of the following could decrease Australia's competitiveness?
 - a. an decrease in Australia's inflation rate
 - b. a fall in interest rates in Australia
 - c. an appreciation of the Australian dollar
 - d. a decrease in average weekly earnings in Australia
11. The largest category of global trade is
 - a. agriculture
 - b. manufacturing
 - c. oil
 - d. services
12. If the same basket of goods cost \$400 in Australia and 200 pounds in the UK, then according to the purchasing power parity theory
 - a. goods must cost half as much in the UK as in Australia.
 - b. the exchange rate should approach \$2 per pound.
 - c. the exchange rate should approach \$0.50 per pound.
 - d. goods must cost half as much in Australia as in the UK.
13. If the purchasing power parity theory is true then
 - a. the price of a traded good should be the same everywhere in the world.
 - b. exchange rates should be the same everywhere in the world.
 - c. interest rates should equalise around the world.
 - d. inflation rates should equalise around the world.
14. Research by the World Bank has concluded that globalisation has
 - a. increased world poverty and income inequality.
 - b. decreased world poverty and income inequality.
 - c. decreased world poverty but increased environmental damage.
 - d. increased income inequality but decreased world poverty.
15. One possible argument against globalisation is that it may
 - a. lead to higher rates of domestic inflation.
 - b. create short term structural unemployment in less efficient industries.
 - c. result in increasing deficits in Australia's trade balance.
 - d. lead to lower rates of economic growth.
16. Which of the following is likely to improve Australia's competitiveness in the global economy?
 - a. increased spending on transport infrastructure in Australia
 - b. an appreciation of the Australian dollar
 - c. deflation in the major countries in the European Union
 - d. a change in the industrial relations system in Australia toward more centralised wage determination.
17. Which of the following is not likely to be associated with globalisation?
 - a. higher levels of protection against cheap foreign imports
 - b. an increase in exports as a proportion of nations' Gross Domestic Product
 - c. growth in the influence of multinational corporations
 - d. higher rates of economic growth for countries becoming more open
18. The three nations that are the world's largest exporters are
 - a. China, India and Japan.
 - b. China, Russia and USA.
 - c. China, USA and Germany.
 - d. China, Brazil and South Korea.

19. Governments have facilitated globalisation by
 - a. encouraging democracy.
 - b. reducing restrictions on international businesses.
 - c. encouraging people to buy domestic production only.
 - d. introducing subsidies.
20. A factor not facilitating the process of globalisation would be
 - a. the reduction of tariffs in some manufacturing industries.
 - b. an improvement in telecommunications technology.
 - c. more free trade agreements.
 - d. an increase in income inequality.

Worksheet 2

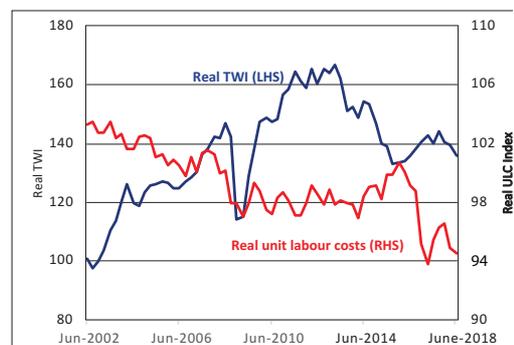
Read the competitiveness and globalisation sections to answer these questions:

1. Why is productivity important for a country's competitiveness?
2. Define international competitiveness.
3. Explain the key factors that affect a country's international competitiveness.
4. What are the important drivers of competitiveness according to the WEF and the IMD?
5. What is the trade weighted index?
6. Describe the trend in Australia's competitiveness since 2013.
7. What impact does an appreciation have on a country's international competitiveness?
8. Describe the purpose of the 'Big Mac' index.
9. What does purchasing power parity mean?
10. Explain why the prices of Big Macs are not the same worldwide.
11. Define globalisation.
12. What is the 'engine of globalisation'?
13. How is trade openness measured?
14. Describe five different indicators of globalisation.
15. Describe three main causes of globalisation?
16. Outline three arguments against globalisation.
17. Outline three arguments for globalisation.
18. Why is there a new 'populist' movement against globalisation?

Data interpretation

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

1. What does the real trade weighted index measure?
2. Provide two reasons to explain why the TWI increased between 2010 and 2013.
3. Explain the change in the real TWI between 2013 and 2018. How would this affect Australia's tourism and education sectors?
4. Explain the effect of the following on real unit labour costs:
 - i. an increase in productivity
 - ii. an increase in inflation
5. Explain why a rise in real unit labour costs decreases competitiveness.



Extended responses

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

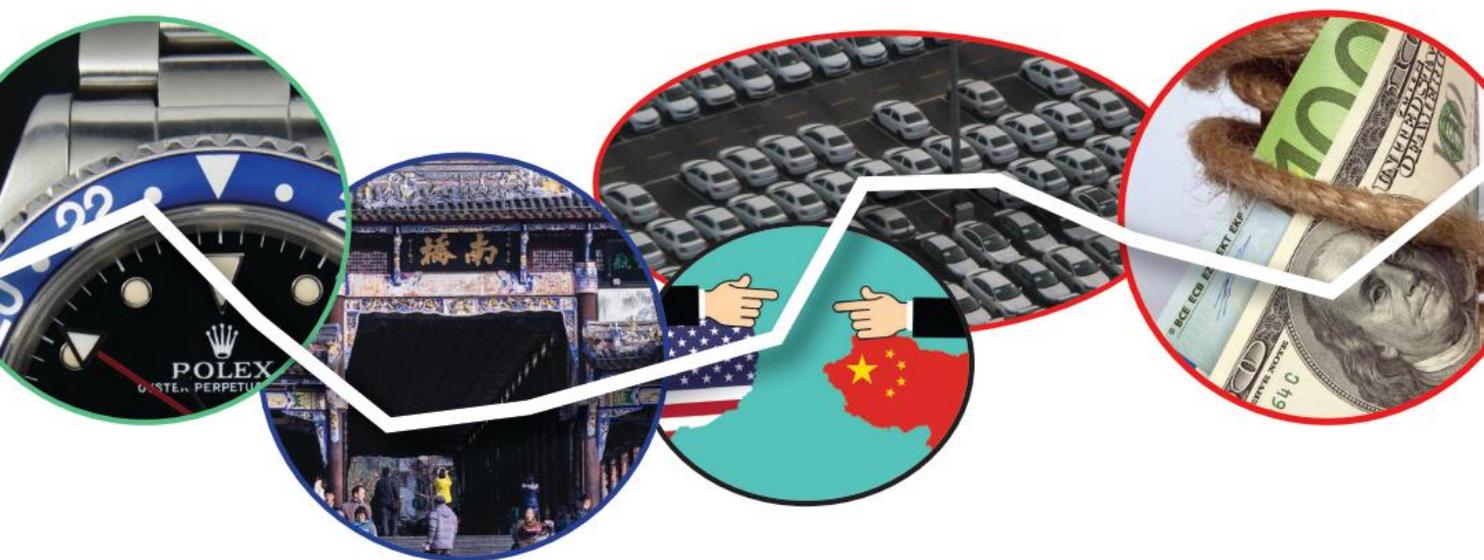
1. Explain the meaning and significance of the concept 'international competitiveness'. What factors are important in determining a country's competitiveness? [20 marks]

2.
 - a. Discuss the nature of globalisation and the factors that have facilitated globalisation. [10 marks]
 - b. Evaluate the arguments for and against globalisation. [10 marks]

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

4.
 - a. Describe the linkages between economies, including trade, investment, tourism and immigration [10 marks]
 - b. Discuss the economic effects of globalisation [10 marks]

Free Trade and Protection 2



Chapter concepts and skills

- *the significance of trade for the Australian economy*
- *the theories of absolute and comparative advantage*
- *demonstrate the gains from specialisation and trade, using the demand and supply model, the production possibility frontier and/or the concept of opportunity cost*
- *identify different forms of protection;*
- *demonstrate the operation of tariffs and subsidies as forms of protection and their effects on trade and market efficiency*
- *arguments for and against trade liberalisation*
- *the influence of trade agreements, organisations and blocs on world trade*
- *apply problem-solving, critical thinking and decision-making strategies to achieve outcomes which may be predictable and contestable by nature*
- *use evidence found in economic information and data to justify a conclusion*

The significance of international trade

The Australian economy has always relied on the international sector - not just for the sale and purchase of goods and services, but also for funds for investment. Historically, Australia has been a great 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 very significant role in the economic development of our economy.

Traditionally, Australia has been described as a small open economy. The 'small' refers to the size of its economy in terms of both population and total production or Gross Domestic Product. But Australia could no longer be described as a small economy. Australia's population has now grown to over 25 million and Australia's annual GDP is now over \$1.8 trillion. Australia has in fact become the world's 13th 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 it can produce at a relatively low cost and import goods it produces at a relatively high cost. Exports pay for the imports a country needs to enjoy high standards of living. Exporting enables Australia firms to reach a potential market of over 7 billion people. Importing allows Australian households to consume goods and services that are either not produced in Australia or are too costly to produce. Engaging in trade permits increased specialisation, economies of scale, increased productivity and higher real incomes. There is a strong link between trade and economic growth. The countries that have experienced the fastest growth rates in trade have also achieved high rates of per capita income growth. Trade has been an important 'engine of growth' for many countries. This has certainly been the case for explaining the rapid growth of the East Asian region - economies such as Japan, Korea, Singapore and China.

International trade has become more important to the Australian economy over time. In 1990, exports accounted for 15 per cent of Australia's GDP. By 2018, exports had increased to 23 per cent of GDP. This means that around one quarter of Australia's income is sourced from exports and that one in five jobs is linked to trade. On the world stage, Australia is a relatively small exporter - Australia accounts for just 1.3 per cent of global exports, compared with around 11 per cent for China, the world's leading exporter. The purpose of economic growth

Trade is vitally important to the Australian economy

- *Trade (exports and imports) is a large part of the Australian economy, equating to around 45 per cent of GDP*
- *Trade has been an important driver of economic growth. Over the past 25 years, Australia's economy has doubled in size; exports have accounted for over a quarter of this growth*
- *Trade liberalisation over the past 20 years has benefited the Australian economy, with real GDP being 5.4 per cent higher in 2016 than it would otherwise have been, and real income for the average Australian family being A\$10,000 higher than otherwise*
- *Many Australian jobs rely on trade. About 1 in 7 workers are involved in the production of exports. Another 1 in 10 are involved in import related activity. All up, around 24 per cent of jobs are connected with trade*
- *Consumers are big beneficiaries of trade. Trade means access to a wider variety of goods and services at more competitive prices, boosting living standards. The price of audio, visual and computing equipment has fallen over 50 per cent in the past five years*
- *Imports reduce Australian production costs and increase employment. Over half of all Australian imports are essential inputs that businesses use to produce goods locally*
- *Exposure to competition from overseas compels Australian firms to innovate and adopt more efficient production methods. More efficient resource use boosts economic growth*

Source: Productivity Commission

Figure 2.1 The significance of trade

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

The gains from specialisation and trade

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

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

International trade involves specialisation and exchange. International specialisation is made possible because of the uneven distribution and quality of resources between countries. Australia for example is well endowed with natural resources such as arable land, forests, minerals and energy supplies. The United States has a large amount of capital and labour at its disposal. The Japanese economy is very rich in terms of capital and labour, but lacks natural resources. 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 and importing those goods and services in which they are least efficient at producing domestically.

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

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

The principle of absolute advantage

A country is said to have an absolute advantage in the production of a good over another country if it can produce that good more efficiently than the other country. 'More efficiently' can be defined as using less resources to produce a given quantity of output; or to producing more output from a given quantity of resources. A simple model demonstrates how countries can gain through specialisation based on absolute advantage. The key 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
- if trade takes place, there are no transport costs.

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

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

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

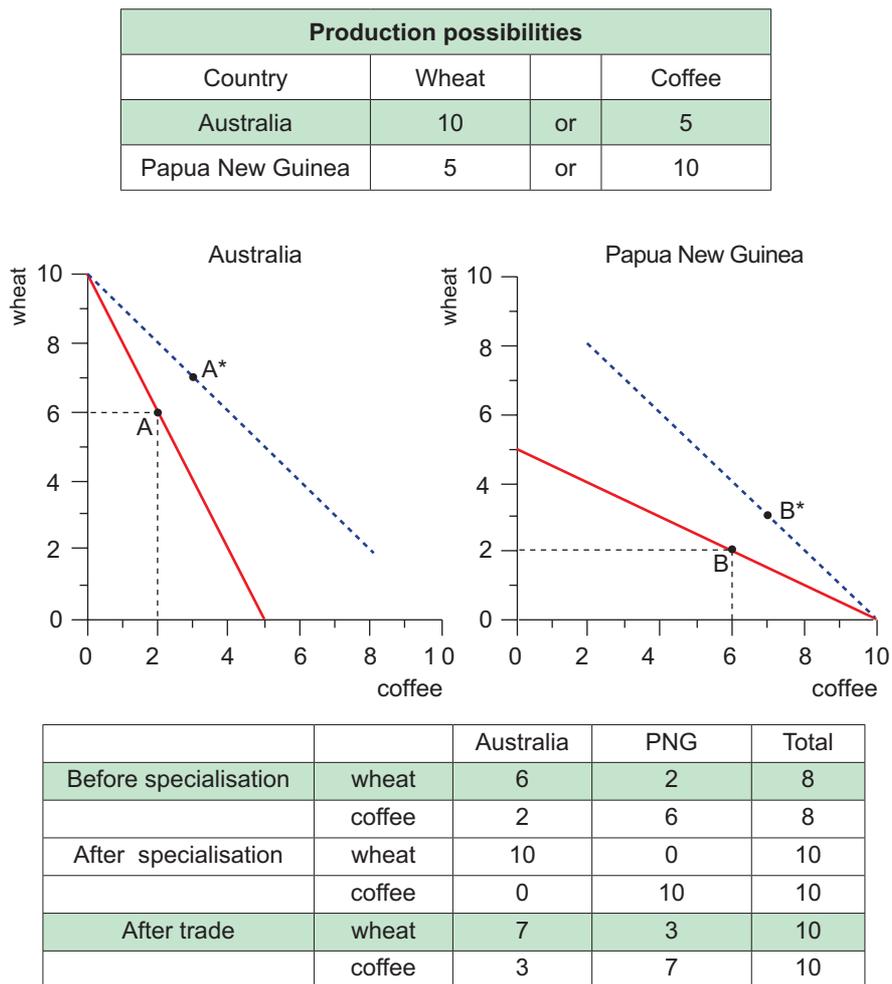


Figure 2.2 Absolute advantage

cost of 1 wheat is 2 coffee. Australia will export wheat as long as it can get more than 0.5 coffee. New Guinea, on the other hand will export coffee as long as it receives more than 0.5 units of wheat. 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 theory of comparative advantage.

The principle of comparative advantage

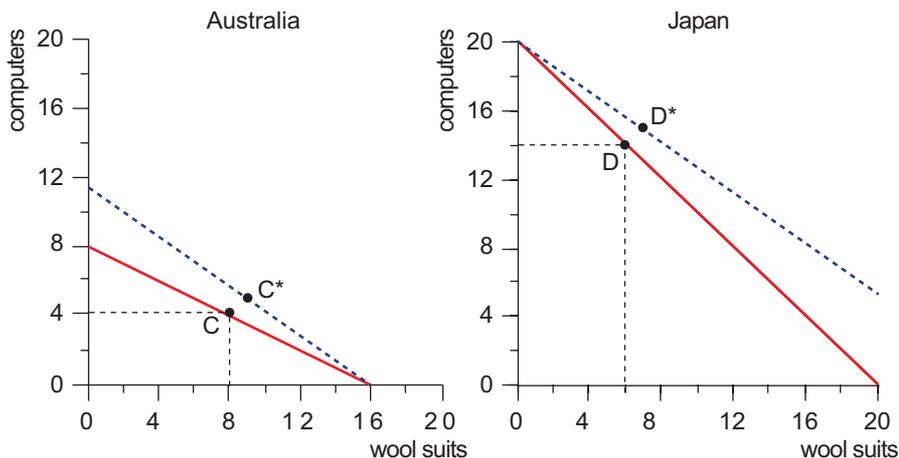
When a country has an absolute advantage in the production of both goods, its comparative advantage lies where its absolute advantage is greatest. The country that has no absolute advantage has a comparative advantage in the good where its absolute disadvantage is smallest. Comparative advantage refers to a country's relative advantage. To illustrate the theory of comparative advantage for a country we will employ the same assumptions we used for the model of absolute advantage, except the two countries will be Australia and Japan, and the two commodities will be computers and wool suits.

Figure 2.3 illustrates the production possibilities frontiers for both Japan and Australia. Japan has an absolute advantage in the production of both computers and wool suits. It can produce a greater output from a given quantity of resources than can Australia. Japan's greatest absolute advantage, however, is in computers, while Australia's least disadvantage is in wool suits. In other words, Japan has a comparative advantage in computers and Australia has a comparative advantage in wool suits. Comparative advantage is measured in terms of opportunity cost. For Australia, the opportunity cost of producing eight computers is the sixteen wool suits that cannot be produced. The opportunity cost of one computer therefore, is two wool suits. In Japan, the opportunity cost of one computer is only one wool suit.

The real or 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 real cost of one wool suit in Australia, therefore is 0.5 of a computer. In Japan, the cost of one wool suit is one computer. Clothing is thus relatively cheaper to produce in Australia than in Japan (see figure 2.4). Comparative advantage can now be defined in terms of opportunity costs. A country is said to have a comparative advantage in the production of a good over another country, if the opportunity cost of producing that good is lower than in the other country. In our example, Australia has a lower opportunity cost in producing wool suits while Japan has a lower opportunity cost in producing computers. Australia should therefore specialise in producing wool suits while Japan should devote its resources to producing computers.

Both countries will gain if they specialise on the basis of comparative advantage and then trade their surplus production. The results are summarised in figure 2.3, given that Australia chooses to produce and consume initially at point C on its production possibility curve, while Japan chooses point D on its production frontier. After specialisation, total production of both computers and wool suits has increased by two units. Australia will export wool suits to Japan and import computers. The rate of exchange between computers and wool suits will again lie between the opportunity cost ratios. Australia will want to receive more than

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



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

Figure 2.3 Comparative advantage

0.5 computer for each wool suit it sells to Japan, while Japan will want to receive more than 1 wool suit for each computer it exports to Australia. In figure 2.4, one possible rate of exchange is shown - 1 computer for 1.4 wool suits or 1 wool suit for 0.71 computer. The blue dotted lines represent the ‘trading’ frontiers for each country based on the rate of exchange: 1 computer for 1.4 wool suits (or 1 wool suit for 0.71 computer). Australia keeps 9 wool suits and exports 7 to Japan. Japan keeps 15 computers and exports 5. After specialising and trading, each country is able to consume one more unit of each good. Australia can now consume at point C*, while Japan can consume at D*. Each country is then able to enjoy a higher standard of living - to consume outside their production possibility frontier!

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

In Case 2, Japan has an absolute advantage in the production of both goods but is relatively more efficient in computers while Australia is relatively more efficient in wool suits. Again there is a difference in opportunity costs, that is, there is a difference in comparative costs. When both countries specialise based on comparative advantage they will increase their consumption. In Case 3, country A has an absolute advantage in the production of both goods but has no comparative advantage since 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.

Figure 2.4 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	Neither country has a comparative advantage, as opportunity cost ratios are the same
Country A	100	or	50	
Country B	60	or	30	

Comparative advantage - the demand/supply model

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

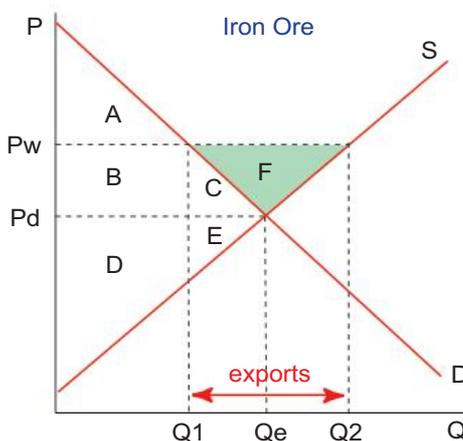
Consider the market for iron ore shown in figure 2.5. Australia is an efficient producer of iron ore – the domestic price of wheat (P_d) is lower than the world price of iron ore (P_w). Australia has a comparative advantage in iron ore production. If Australia enters the international market it can sell its iron ore at the higher world price. Iron ore consumption in Australia will fall to Q_1 but iron ore production will increase to Q_2 . Australia will now export iron ore equal to Q_1Q_2 . 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 2.6. Before trade, consumer surplus equals the area

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 = Q_1Q_2 .

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.

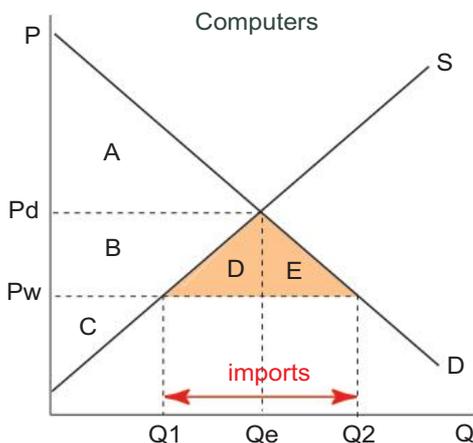


$A + B + C$, while producer surplus equals the area $D + E$. After trade, consumer surplus decreases to area A - consumers lose areas B and C , due to the higher price, which is transferred to domestic producers. But not only do producers gain areas B and C , they also gain area F . Area F represents the net gain from exports. Exports therefore result in a net increase in economic welfare.

Can a country gain from imports? If a country does not have a comparative advantage in producing a good, then the domestic price will exceed the world price. This means that the rest of the world is relatively more cost efficient in producing the good. In this case, it will benefit the country by importing the good. Imports bring benefits in the same way as exports. Consider the market for computers in figure 2.6. The world price of computers (P_w) is lower than the Australian price of computers (P_d). This means that Australia is not as efficient in producing computers compared with the rest of the world. It will pay Australia to import computers at the lower world price. Consumption will increase to Q_2 while domestic computer production will fall to Q_1 . Computer imports will equal Q_1Q_2 . In the case of imports, domestic consumers gain from lower prices and increased consumption. Domestic producers of computers lose - they receive lower prices and sell less. However, consumers gain more than producers lose, so that overall economic welfare is again increased.

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

Figure 2.6 The gains from imports



If the world price for computers is below the domestic price for computers then Australia does not have a comparative advantage in producing computers and will import computers. Computer imports = Q_1Q_2 . 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.

result in a net increase in total surplus. In the case of exports, producers gain more than consumers lose, while in the case of imports, consumers gain more than producers lose.

The sources of comparative advantage

What determines a country's comparative advantage? What are the sources of comparative advantage? Comparative advantage is determined by the quantity and quality of the nation's human, natural and capital resources, and by technological progress. The sidebar shows some well-known areas of specialisation for several countries. Comparative advantage can be based on differences in climate and endowment of natural resources. Australia has traditionally had a comparative

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

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.

Not all countries take advantage of the theory of comparative advantage. Countries may choose to support and protect industries that are not economically efficient for cultural or political reasons - the tradeoff is a lower level of national income. The theory of comparative advantage is the theory of free trade. It is one of the most important principle of economics. Specialisation and trade has enabled the spectacular increase in global living standards witnessed over the past century. Many people attempt to criticise the theory of comparative advantage by arguing that it is based on simple assumptions such as zero transport costs. But transport costs can easily be incorporated in the model without affecting the validity of the theory. The model also assumes that the resources in the trading nations are relatively mobile. This means that resources such as workers and capital equipment

could be transferred from one industry to another at a constant cost (straight line PPFs). Again this is just a convenient simplification and has no relevance to the model's conclusions. Despite the critics of free trade, the theory of comparative advantage does actually help to explain global trade patterns. Countries will in the long run achieve a higher standard of living if they pursue policies that promote free trade and competition.

Protection

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

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

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

Tariffs

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

The world price of computers (OW) is lower than the domestic equilibrium price. This means the economy will import computers because it has a comparative disadvantage in producing computers. At the world price of OW, foreign supply (Sf) is perfectly elastic - any quantity of imports can be supplied at this price. The effect on the domestic industry of an open economy is that local production of computers contracts to Oq_1 , while demand expands to Oq_2 . The shortfall between production and consumption - 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 - Sf moves up by the amount of the tax. This will mean that less imports will be sold on the domestic market, and they will be sold at a higher price.

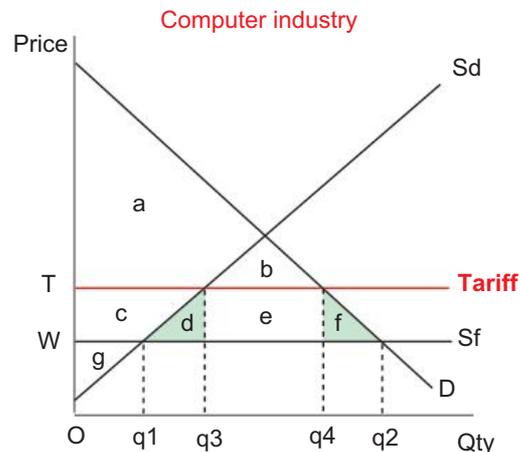
In figure 2.7, the tariff is equal to WT and the new price of the good on the domestic market is OT . The higher price benefits local producers because they can now compete more favourably against the imports. Remember the tariff is only placed on imported goods, but this raises the effective price for both imports and locally produced goods. Domestic production expands from 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

Figure 2.7 The effects of a tariff

Tariffs are a tax on imports. They result in higher prices for consumers and decreased domestic consumption. Tariffs protect the domestic industry by switching consumption away from imports to domestic goods. Domestic producers gain by increasing output. But other domestic producers, including exporters, suffer because tariffs increase their costs.

Economists are opposed to tariffs because they distort resource allocation and result in a net welfare loss for the economy. A tariff creates a deadweight loss equal to areas $d + f$.



of a tariff. In figure 2.7, consumer surplus before the tariff equals areas $a+b+c+d+e+f$. Producer surplus is represented by area (g) . After the tariff, consumer surplus falls to areas $(a+b)$. Consumers lose a significant amount - areas $(c+d+e+f)$ - because they now must pay more and receive less. Some of the consumer surplus lost has been transferred to domestic producers and the government - producer surplus increases by area (c) and area (e) is transferred to the government as tax revenue. But areas (d) and (f) are not accounted for - this is the lost consumer surplus or the deadweight loss of the tariff.

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

Over the past 30 years the average tariff rate applied in Australia has fallen from over 7 per cent to less than 1 per cent. Australia's high tariff industries have been motor vehicles and clothing and footwear.

Subsidies

Subsidies are grants or payments made by the government to domestic producers. They are paid for out of general taxation revenue and directly lower a producer's costs of production. Government subsidies worth billions of dollars were used to support the motor vehicle industry in Australia for many years. A subsidy enables a domestic producer to sell their product at a lower price to compete against imports. Figure 2.8 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 .

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

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 .

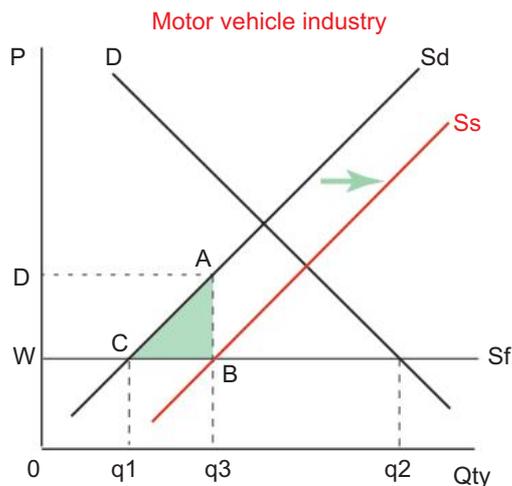


Figure 2.7 The effect of a subsidy

price and purchase the same quantity of the good. Consumers do however bear an indirect burden in that the cost of the subsidy has to be paid for from government taxation revenue. There is an opportunity cost here because this revenue could have been used to spend on other goods and services, such as education or health. Resource allocation in the economy is also affected. Inefficient producers are being rewarded at the expense of efficient producers. Subsidies represent a type of hidden or 'invisible' tax on consumers. It might appear that no-one loses with a subsidy because producer surplus increases and there is no decrease in consumer surplus, but this is wrong. In figure 2.8, the cost of the subsidy is equal to area $DABW$ but the increase in producer surplus is equal to area $DACW$. Notice that the cost is greater than the benefit by area ABC - this 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.

Arguments for protection

It is very rare to find an economist who agrees with protectionist trade policies. The case for free trade based on comparative advantage is very strong. The case for

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

In the United States, industries such as sugar, beef, wheat and steel are heavily protected. Japan imposes high barriers on imported rice and other food products. France 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. The economist would argue that no protection is good protection, but there may be circumstances when a case can be made for temporary protection.

The infant industry argument

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

The diversification argument

If a country completely applied the principle of comparative advantage, then it may specialise in a narrow range of products. In Australia’s case, we would specialise in rural and mineral products. If all resources were employed in just these industries, then changes in world demand and prices could have significant effects on the economy. The crux of this argument is that rather than ‘place all of one’s eggs in the same basket’, a country may benefit by diversifying its industrial base. Protection may then be justified to establish a range of diversified industries. Over time, the industry may increase its efficiency and become competitive so that in the long run, the level of protection could be reduced. This argument is weakened by the fact

that no countries just have a comparative advantage in only one or two industries. Economies are also dynamic and change over time as world demand and technology change. Should the government be trying to predict which industries will expand or contract into the future? The simple answer is no.

The anti-dumping argument

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

The 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 or may be prevented from falling, yet 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 is 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 we are relatively more efficient.

The favourable balance of trade argument

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

Trade liberalisation and the WTO

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

Did you know?

What is a trade war?

In 2018 President Trump started a trade war with China and several other countries that he believed were trading unfairly with the United States.

A trade war begins when a country places tariffs on another nation's imports in order to protect its domestic industries, and the other nation retaliates with its own tariffs.

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

Most economists believe that this 'tit-for-tat' process of protectionism hurts economies: ultimately everyone loses from a trade war. Consumers end up paying more, while higher costs are imposed on other domestic industries.

Ultimately a trade war will reduce production and employment and could even push the global economy into a recession.

practices such as export subsidies. The WTO was established in 1995 as the successor to the General Agreement on Tariffs and Trade. Since 1948, the GATT had provided the rules for the international trading system. Whereas the GATT had mainly dealt with trade in goods, the WTO added trade in services and in intellectual property.

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

The WTO's main activities are negotiating the reduction or elimination of obstacles to trade (e.g. import tariffs) and agreeing on rules governing the conduct of international trade (e.g. antidumping and subsidies).

Trade is vital to the world economy and the WTO tries to ensure that it flows smoothly and freely. The WTO has 164 members (2018), accounting for over 98% of world trade. The WTO promotes multilateralism - trying to persuade all countries to lower or remove their trade barriers together. Since 1945 there have been a number of rounds of multilateral trade negotiations which have been successful in cutting tariffs from an average of around 40 per cent to around 4 per cent on industrial goods in developed economies. By opening world markets, the WTO has enabled world trade to increase by a factor of 22 since 1950.

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

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

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

Arguments for trade liberalisation

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

higher incomes and more job opportunities. It delivers more appropriate use of resources, lower prices for consumers and lower input costs for producers.

The arguments for free trade are based on the theory of comparative advantage and the theory of competitive markets. Countries gain when they specialise in producing those goods and services that they can produce at a lower opportunity cost than other nations. By exporting goods and services that can be produced more efficiently and importing goods and services that other nations produce at a lower opportunity cost, a country can increase both its production and consumption. Specialisation and trade results in a higher level of real income, greater consumption and higher living standards. It is important to realise that countries gain through both exports and imports. Exports add to production while imports add to consumption. Free trade helps to increase both exports and imports. Industries benefit from exporting in terms of greater output and employment. Consumers benefit from imports in terms of a greater variety of goods at lower prices.

The level of protection on Australian industry has been reduced significantly over time as Governments have realised the high costs that protective measures impose on both consumers and producers. The average level of tariff protection across all manufacturing industries is now below 5 per cent. In Australia consumers have benefitted 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

Effect of trade liberalisation on the Australian economy	
Indicator	Impact
<i>Real GDP</i>	+5.4%
<i>Consumption</i>	+2.1%
<i>Exports</i>	+28.5%
<i>Imports</i>	+28.6%
<i>Investment</i>	+11.7%
<i>Real wages</i>	+7.4%
<i>Prices</i>	-3.4%
<i>Household income</i>	+\$8500

Source: Productivity Commission

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

can have short term costs in terms of creating unemployment in the affected industries, but over time these resources are absorbed by the more efficient sectors. What is forgotten is that by reducing trade barriers employment in export and the non-protected industries actually increases. Reducing trade barriers will lead to a net increase in employment. By lowering protection, consumers benefit, input costs are lowered and efficient industries are able to grow and prosper. The net result is a more productive and competitive economy.

Regional trade agreements and trade blocs

Regional trade agreements (RTAs) cover more than half of international trade and operate alongside global multilateral agreements under the World Trade Organisation. Regional trade agreements have become more popular as multilateral trade negotiations often break down since trying to reach agreement between all member countries of the WTO is sometimes difficult. For this reason many countries have opted to participate in bilateral agreements. Regional trade agreements imply both trade liberalisation and trade discrimination. They are certainly favourable to increasing trade between the specific member countries by removing or lowering trade barriers. In this way, RTAs are meant to complement the multilateral trading system. But at the same time, regional trade agreements are discriminatory and go against the 'most favoured nation' (MFN) principle.

Regional 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 regional agreements also risk making it harder for countries outside the region to trade with those inside and may discourage further opening up of markets, ultimately limiting growth prospects for all. In this way a regional trade agreement acts as a 'trade bloc'. Multilateral negotiations, on the other hand, deal with more players and more sectors, and so offer greater potential for mutual gain than limited bilateral or regional deals.

A trade bloc is a group of countries that agree to reduce trade barriers between themselves but impose barriers on countries outside the 'bloc'. The most important trade blocs include the European Union (EU), the North American Free Trade Agreement (NAFTA) and the Association of South East Asian Nations (ASEAN). These three groups account for nearly 60 per cent of world trade. The European Union EU has become the most powerful trading bloc in the world with a GDP as large as that of the United States. The EU consists of 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 trade blocs are 'trade creating' or 'trade diverting'.

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

Australia's free trade agreements

Australia has currently ten free trade agreements (FTAs) in force with New Zealand (1983), Singapore (2003), Thailand (2005), US (2005), Chile (2009), ASEAN (2010), Malaysia (2013), Korea (2014), Japan (2015) and China (2015). The countries covered by these FTAs account for around 80 per cent of Australia's total trade. China and Japan are Australia's two largest trading partners, while Korea is ranked fourth. The recent agreements with China, Japan and Korea are expected to reap significant benefits for Australian exporters and Australian consumers.

The agreement with Japan for example, will deliver significant benefits for Australian farmers, manufacturers, exporters, service providers and consumers. More than 97 per cent of Australia's exports to Japan will receive preferential access or enter duty-free. At the same time, the agreement will benefit Australian consumers. Australian tariffs on Japanese imports will be eliminated. This includes removing the five per cent tariff on Japanese motor vehicles, electronics and white goods. Australian manufacturers can also gain because access to cheaper inputs reduces production costs. The China-Australia FTA is particularly significant given that China is Australia's largest export market for both goods and services. Some of the key outcomes include the removal of Chinese tariffs on Australian dairy, beef, seafood and wine

exports; the removal of tariffs on all Australian resource and energy exports; new or significantly improved market access into China for Australian banks, insurers, law firms and professional services suppliers, education services exporters, as well as health, aged care and construction companies. The Australian government believes that securing free trade agreements with the large Asian economies of China, Japan and Korea is crucial for Australia's future economic growth and prosperity.

Worksheet - free trade

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

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

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

Multiple choice - free trade

Choose the best alternative in the following questions.

1. For Australia, exports represent approximately
 - a. 40-45 percent of GDP.
 - b. 25-30 percent of GDP.
 - c. 15-20 percent of GDP.
 - d. 10-15 percent of GDP.
2. Demand for Australia's exports depends mainly on
 - a. the level of domestic spending in Australia.
 - b. the level of government assistance to Australian industries.
 - c. economic growth in Australia's trading partners.
 - d. the demand for overseas imports.

3. Which of the following is a correct statement?
- 'Exports are more important than imports because they increase income'.
 - 'Imports are more important than exports since they increase consumption'.
 - 'A country should aim to increase its trade surplus'.
 - 'Exports and imports are equivalent in terms of economic welfare'.
4. If the opportunity cost of producing goods differs between two countries
- neither country has a comparative advantage.
 - there cannot be any gains from trade.
 - the countries will engage in exporting but not importing.
 - trade can lead to increases in the consumption of all goods.

Questions 5-9 refer to the following information:

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

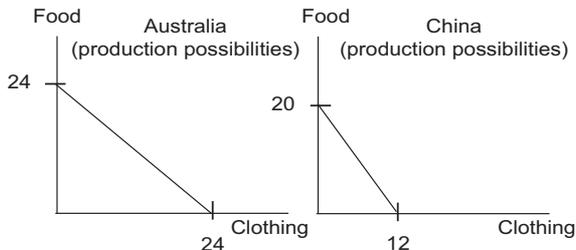
5. Country A has the absolute advantage over country B in the production of
- good X only.
 - good Y only.
 - both goods X and Y.
 - neither good X nor good Y.
6. Country A has a comparative advantage over country B in the production of
- good X.
 - good Y.
 - both goods X and Y.
 - neither good X nor good Y.
7. To gain from trade, country B should specialise in the production of
- good X only.
 - good Y only.
 - both goods X and Y.
 - neither good X nor good Y.
8. The opportunity cost of producing each unit of good Y in country A is
- 0.5 units of good X
 - 2 units of good X
 - 4 units of good X
 - 40 units of good X.
9. For both countries to gain from trading, the terms of trade must lie between
- one unit of good X would sell between 1 and 2 units of good Y.
 - one unit of good X would sell between 0.5 and 1 unit of good Y.
 - one unit of good X would sell between 1.5 and 2 units of good Y.
 - one unit of good X would sell between 8 and 9 units of good Y.
10. If a country specialises in producing goods it has a comparative advantage in and then undertakes trade, then this country is likely to be
- producing inside its production possibility frontier.
 - consuming inside its production possibility frontier.
 - consuming outside its production possibility frontier.
 - producing outside its production possibility frontier.

11. Which of the following statements about the data at right is correct?

- a. Australia has an absolute advantage in producing beef.
- b. Japan has a comparative advantage in producing beef.
- c. Specialisation is not beneficial in this case and Japan should produce both products.
- d. Australia has a comparative advantage in producing beef.

	Cars	Beef
Australia	40	50
Japan	60	60

12. Which of the statement about the figure below is correct?



- a. Australia has a comparative advantage in clothing.
- b. China has an absolute advantage in food.
- c. China has a comparative advantage in clothing.
- d. China has no comparative advantage.

Working with models

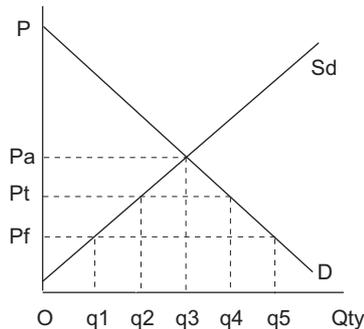
a. The production possibilities for two countries A land and B land are shown below.

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

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

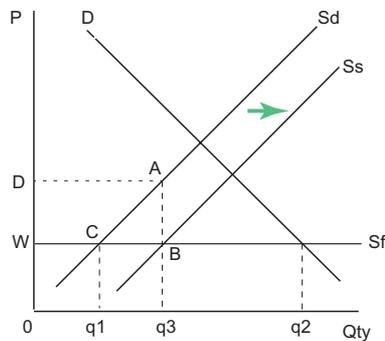
Before specialisation	Apples	Oranges
Country A	4500	....
Country B	....	2000
Total	5500	3500
After specialisation		
Country A	.....	....
Country B	.....	....
Total	.....	....
After trade (assume terms of trade: 1 apple = 1.5 oranges)		
Country A	4800	....
Country B	1200	....
Total	6000	4000

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



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

c. Refer to the subsidy diagram below to complete the missing values:



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

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

Multiple choice - protection & trade liberalisation

- The purpose of protection is to
 - increase income for the whole economy.
 - increase income for the protected industry.
 - increase efficiency in the protected industry.
 - increase the volume of trade.
- A tariff protects domestic industry by
 - raising the price of imported goods.
 - lowering the cost of domestically produced goods.
 - raising government revenue which is then returned to the protected industry.
 - increasing productivity in the protected industry.
- Protection results in a
 - more efficient allocation of resources and a lower level of national income.
 - less efficient allocation of resources and a higher level of national income.
 - less efficient allocation of resources and a lower level of national income.
 - more efficient allocation of resources and a higher level of national income.

Questions 4-5 are based on the diagram at right. A tariff of $P_f P_t$ 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. $q_3 q_4$.

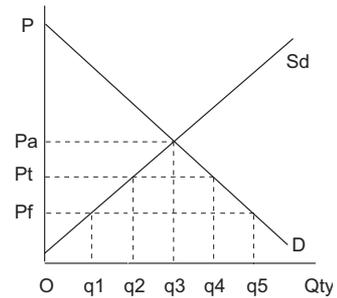
5. If the tariff was removed then consumers would pay _____ and imports would equal _____.
 - a. P_a ; $q_2 q_4$.
 - b. P_f ; $q_1 q_5$.
 - c. P_f ; $q_2 q_4$.
 - d. P_f ; $q_1 q_5$.

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.



Worksheet - protection & trade liberalisation

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

Articles to review**Article 1 The benefits of reducing trade barriers**

Reducing government-imposed restrictions on trade at home has the beneficial effect of exposing local businesses to international competition, compelling them to innovate, to be efficient and to restrain the prices they charge local consumers. And reducing trade barriers at home can enable consumers to buy imported items at lower prices than the cost of producing them at home. For example, clothing and footwear is much less expensive now in real terms than it was 30 years ago when high tariffs and severe quotas were applied to imports.

By reducing barriers to trade at home, a government can enable productive inputs such as capital, labour and entrepreneurship to move into those industries in which the country is strong compared with other industries and other countries. Sometimes it is suggested that with little or no industry protection a country might not be good at producing anything compared with other countries. But a country does not need an absolute advantage over another to gain from trade between the two of them; mutual gains from trade result from comparative advantage, not absolute advantage.

Here in Australia lowering trade barriers and opening up the Australian economy have been well worthwhile in their own right and the benefits from doing so have not depended on other countries lowering their trade barriers. Nevertheless, other countries have been lowering their trade barriers at the same time as Australia, increasing the overall gains from trade liberalisation by improving market access for Australian exporters. Among Australia's major trading partners in the Asia-Pacific region, which buy 80 per cent of Australia's exports, average tariffs have been cut over the last quarter century from more than 25 per cent to around 5 per cent.

Trade liberalisation at home has the important, added advantage of making reform of the entire domestic economy an imperative. Local businesses that themselves are doing everything in their power to be efficient and internationally competitive will nevertheless be hampered if other parts of the economy, especially producers of non-traded inputs, are inefficient and if government regulations, taxes, fees and charges are unjustifiably onerous. Trade liberalisation therefore can drive wider economic reform, lowering prices not only to export industries but to the nation's consumers as well.

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.
5. What are the potential disadvantages of FTAs?
6. What has happened to trade barriers in Australia's main trading partners?

Questions for second article (overleaf)

1. Explain why reducing protection is beneficial to local businesses.
2. How does reducing protection benefit domestic consumers?
3. What is the difference between absolute and comparative advantage?
4. Explain why a country does not need to have an absolute advantage to gain from trade.
5. Explain how trade liberalisation can drive wider economic reform?

Article 2. Free Trade Agreements

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

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

(Source: DFAT)

Extended responses

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

1. Using a model, demonstrate and explain the gains from specialisation and trade. Include an explanation of the principle of comparative advantage.
2. a. Using a model, demonstrate and explain how either a tariff or a subsidy affects trade and market efficiency. [12 marks]
b. Outline four arguments for protection. [8 marks]
3. Evaluate the arguments for and against trade liberalisation.

Australia's Pattern of Trade

3



Chapter concepts and skills

- *Australia's trade intensity*
- *Patterns and trends in the composition of Australian trade*
- *Patterns and trends in the direction of Australian trade*
- *Identify trends and relationships in economic information and data on Australia's international trading relationships*
- *Use economic information and data to make predictions on Australia's international trading relationships*

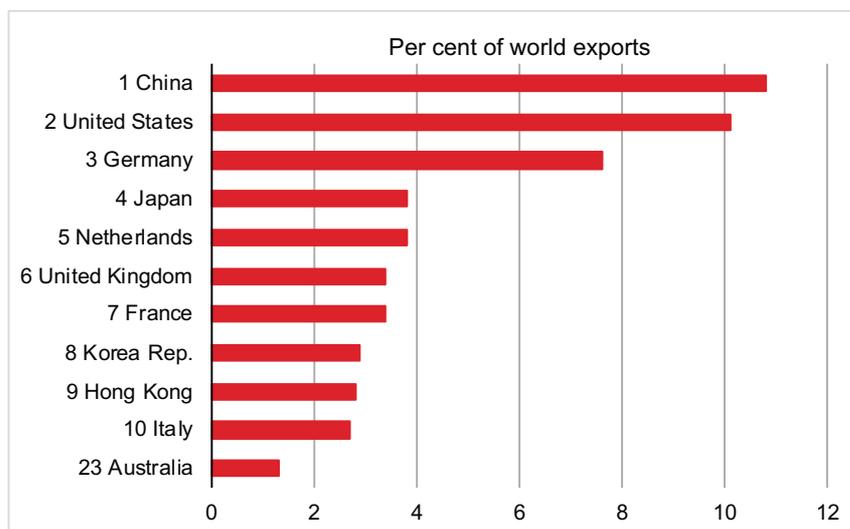
International trade has become more important to the Australian economy over time. In 1990, total trade (exports plus imports) accounted for 31 per cent of Australia's GDP. By 2018, total trade had increased to 45 per cent of GDP. On the world stage, Australia is a relatively small exporter - just 1.3 per cent of global exports, compared with around 11 per cent for China, the world's leading exporter (refer to figure 3.1). Australia is ranked 23rd as a world exporter of goods and services and yet is the 13th 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 (similar to 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

Figure 3.1 Australia's rank in global exports

Australia's 'tyranny of distance' explains why it has a relatively low rank (23rd) as a world exporter of goods and services.



of the sum of exports and imports (of both goods and services) as a percentage of GDP. The ratio can be expressed as:

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

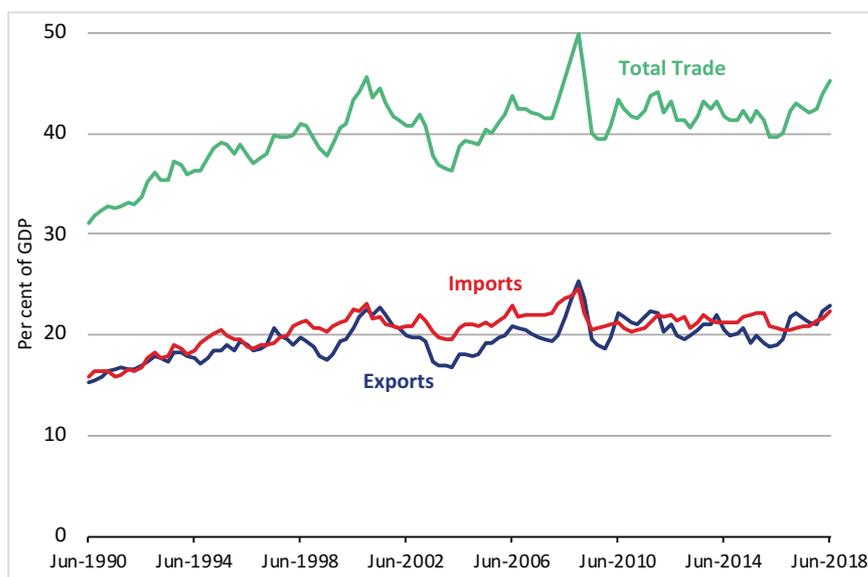
Figure 3.2 shows Australia's trade intensity increasing significantly over the past few decades, rising from 31 per cent in 1990 to 45 per cent in 2018. Notice how both exports and imports as a ratio of GDP have increased - from around 15 per cent in 1990 to over 22 per cent in 2018. However, when compared with other developed economies, Australia's trade intensity is relatively low. European economies tend to have a relatively high trade intensity because of the ease of trading within the Euro zone. For the countries shown in the table, only the USA, China and Japan have lower trade to GDP ratios than Australia. This is explained by the size of their domestic economies, which enables them to reap the advantages of economies of scale. Large economies such as the United States, China and Japan do not need to rely on trade as much as a smaller economy such as Australia because domestic competition is so strong. Australia needs to produce for the world market in order to gain the same benefits of competition.

Trade to GDP ratio	2018
Australia	45
Canada	64
China	38
Germany	86
Italy	60
Japan	32
Netherlands	160
Sweden	86
United Kingdom	62
United States	26
OECD members	54

Source: World Bank

What factors determine a country's trade intensity? Factors such as the relative size of the economy, its location relative to foreign markets and the extent of barriers to trade – both natural and artificial. While Australia has been lowering its

Figure 3.2 Australia's trade intensity



Australia's trade intensity has increased over time - from 30 per cent of GDP in 1990 to 45 per cent in 2018. This reflects Australia's push for increased free trade.

artificial barriers such as tariffs, it is hindered by more natural barriers such as high transport costs as a result of its geographic isolation. A famous Australian 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) or ASEAN.

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

The composition of trade

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

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

Over the past few decades there has been a significant increase in the relative importance of mineral and energy exports and a decline in the importance of rural exports. However, agricultural exports still comprise a relatively large proportion of Australia's exports compared to other industrial economies. Primary goods (commodities) have always dominated Australia's exports. Figure 3.3 reveals that over time commodities have increased to account for 65 per cent of Australia's total goods and services exports. For the first half of the 20th century, the rural sector dominated, making up for more than half of all exports. However, since the 1970s, rural exports have declined quite dramatically falling from 40 per cent to just 13 per cent by 2018. Australia no longer 'rides on the sheep's back!' Instead, Australia now rides in the back of an iron ore truck! Today, resources, such as minerals (iron ore, gold) and energy exports (coal, natural gas) have become the dominant category - rising from around 30 per cent of total exports in the 1990s to over half of all exports in 2018.

	1970s	1980s	1990s	2000s	2018
Commodities	%	%	%	%	%
Rural	40	31	22	16	13
Resources (incl gold)	26	31	31	41	52
Total	66	62	53	57	65
Non-commodities					
Manufactures	19	19	24	21	12
Services	15	18	23	22	23
Total	34	37	47	43	35

Figure 3.3 Australia's changing exports

What has driven this change? The answer is the rapid growth of China and other Asian economies that resulted in a major resources boom in Australia from 2001-2012, boosting the demand for resources such as iron ore, coal, and natural gas. Even with the end of the mining boom, resources are likely to remain the dominant category, although services exports are likely to increase in importance as the economy rebalances away from the resources sector. So, the major changes in the composition of Australia's exports have been

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

The broad composition of Australia's trade (by category) is illustrated in figure 3.4. The dominance of the primary sector in exports is evident (65 per cent), comprising mainly minerals and fuels. For imports the largest category is intermediate goods, consisting of mainly fuels and processed industrial goods. Notice that most imported goods are manufactured goods - either in the form of consumer goods or as inputs for Australian industry.

Figure 3.4 Australia's composition of trade

EXPORTS - % share	2018	IMPORTS - % share	2018
Total Primary	65	Consumption Goods	26
Rural	13	Food	4
Minerals/metal ores (incl. gold)	27	Motor vehicles	6
Fuels	25	Clothing & footwear	5
Total Manufactures	12	Capital Goods	19
STMs	4	Machinery	6
ETMs	8	Telecom equipment	3
Services	23	Intermediate goods	31
		Services	23

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

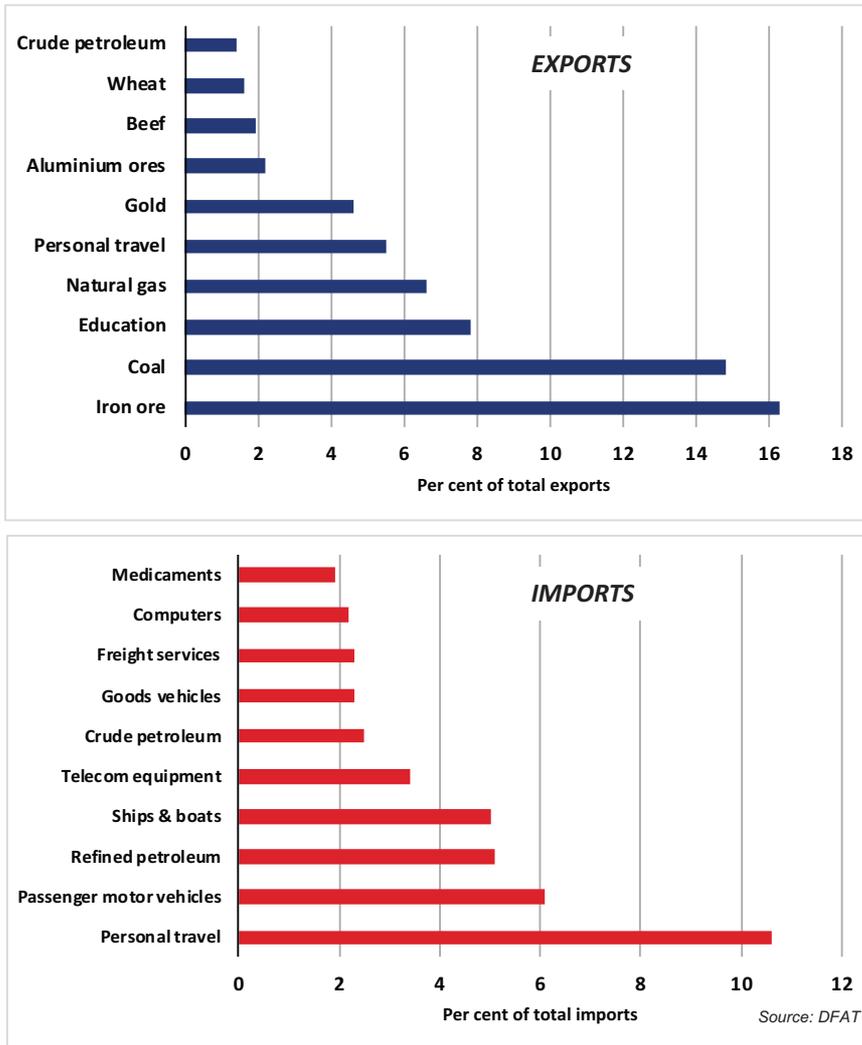
In contrast to exports, there are very few imported primary goods, other than fuels. The composition of our trade is a reflection of the structure of the economy. Australia has a very efficient and internationally competitive primary sector while our manufacturing sector is smaller and relatively less efficient. Some change is evident, however – the elaborately transformed manufactured exports (ETMs) share of total merchandise exports has increased since the 1980s. ETMs consist of more highly processed manufactures such as machinery and transport equipment. Simply transformed manufactured exports (STMs) consist of relatively unprocessed goods such as steel, aluminium and other metals. About two thirds of Australia's manufactured exports are now 'elaborately transformed'. Over time we would expect to see trade in services increase as incomes in East Asia rise.

Figure 3.5 provides a ranking of Australia's top ten exports and imports. It is not surprising to see that iron ore and coal have become Australia's largest exports. But many people would be surprised to see education services and personal travel (tourism) at positions three and five in the top ten list, higher than other more traditional exports such as beef, wheat and gold. The top five exports in this list account for around 50 per cent of Australia's goods and services exports. Australia's largest imports are personal travel (tourism) expenditure, passenger motor vehicles, refined petroleum, ships and boats and telecommunications equipment. These five imports account for 30 per cent of all imported goods and services.

Australia is fortunate to be located on the doorstep of the fastest developing region of the world with a massive appetite for our natural resource wealth. The bulk of Australia's exports will continue to be in the primary sector given the strong demand for our resources from the fast growing economies of China and India. Australia's imports, unlike its exports, are mainly manufactured goods with most of these being industrial goods - machinery, transport, computer and electronic equipment. Australian industry is heavily dependent on the overseas sector for capital equipment and intermediate goods.

The direction of trade

There has been a significant shift in the direction of Australia's trade over the past few decades. The shift in direction has been primarily from Europe to the Pacific-Asian region, comprising North East and South East Asia, North America and Oceania (the Asia-Pacific rim). This region has become the dominant trading group for Australia, accounting for over 80 per cent of Australia's exports and 70 per cent of imports. Figure 3.6 shows Australia's ten leading trading partners. China has become Australia's most important trading partner - for both exports (30% share) and imports (18% share). It is important not to underestimate the significance of China to Australia's economy - an apt saying sums up the relationship: "If China sneezes, Australia will catch pneumonia!" The top four countries - China, Japan, United States and Korea account for 50 per cent of Australia's total trade.



Resources dominate Australia's exports - iron ore and coal account for over 30% of total exports

Personal travel (Australian tourists travelling overseas) is Australia's largest import

Figure 3.5 Australia's main exports and imports

Notice that eight of the ten countries shown in the graph are in the Asia Pacific region. Japan is Australia's second most important export destination (12% share) while the United States is Australia's second most important import source (13% share). Over the past 30 years, the share of trade to Europe has fallen dramatically, from 40 per cent of the total to less than 10 per cent today. While the pattern for imports has followed a similar trend, a key difference has been the replacement of Europe by China and the United States as Australia's most important source for imports. If we count both the value of exports and imports, then Australia's most important trading partners are China, Japan and the United States. Just these three countries are responsible for 42 per cent of Australia's total two-way trade. East Asia has become the dominant region for both exports and imports. There are a number of reasons for the change in direction of Australia's trade. Geographically,

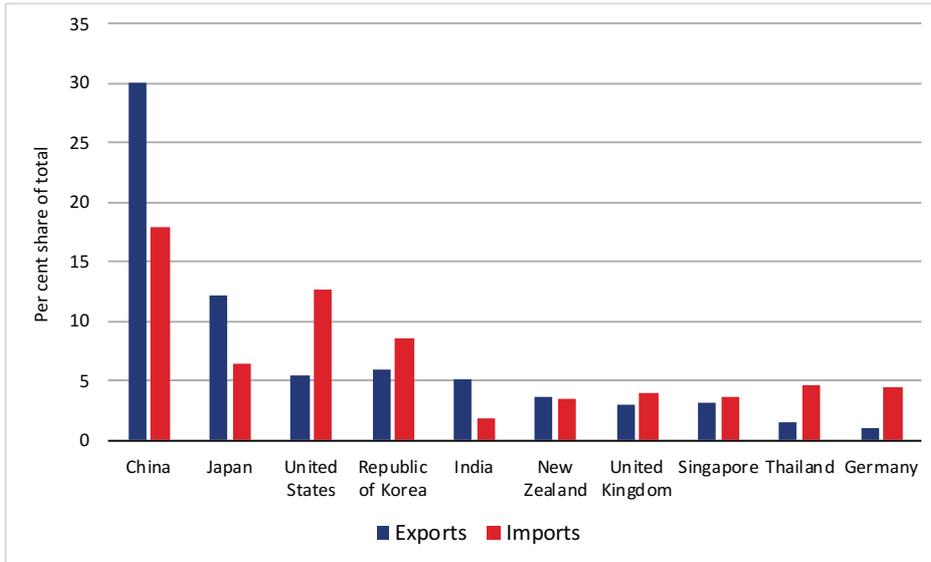


Figure 3.6 The direction of Australia's trade

Australia is part of the Asia-Pacific region but historically Australia has had strong ties with the United Kingdom and Europe. When the United Kingdom joined the European Union Australia was forced to establish new markets. The Asia-Pacific region had the advantage of much lower transport costs for Australia compared to Europe and the region has the advantage of a large and growing population that is very near to Australia's shores. Since East Asia has a limited supply of raw materials relative to its population, Australia provides an obvious complement in terms of its very small population and its rich endowment of natural resources.

Australia's trade by region 2017 (per cent share)		
	Exports	Imports
Africa	1	1
Asia	76	56
Americas	8	16
Europe	9	21
Oceania	5	5

Australia is indeed a lucky country in terms of its vast wealth of mineral and energy resources. The fast growing economies of East Asia require long term supplies of cheap energy such as coal and natural gas as well as minerals including iron ore, aluminium and copper. The Asia region is also home to two thirds of the global population and Australia has a comparative advantage in the supply of food crops and livestock.

Learning activity

Apply economic reasoning - Brexit

In 2016, the United Kingdom chose to leave the European Union. How important is trade to Britain, and how important is Britain in world trade?

Type the word 'Brexit' into the search bar of the DFAT web site, on into a browser. What do commentators think about the implications of Brexit for the Australian economy and trade with Britain and Europe. Synthesise one of the commentator's views.

Worksheet

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

Multiple choice

1. The most important market in terms of value for Australian exports is
 - a. China.
 - b. Korea.
 - c. Japan.
 - d. the United States of America.
2. The most important market in terms of value for Australian imports is
 - a. the United Kingdom.
 - b. the United States of America.
 - c. Japan.
 - d. China.
3. Which export category has increased most rapidly since 2000?
 - a. rural commodities.
 - b. resources.
 - c. manufactures.
 - d. services.
4. When the Australian economy grows at a fast rate it tends to
 - a. increase its spending on imports, especially capital equipment.
 - b. increase its exports of rural products.
 - c. export more manufactured goods and less primary goods.
 - d. all the above.
5. Which one of the following describes the long term trend in the composition of Australia's exports?
 - a. services exports have become relatively less significant while manufactured exports have increased in importance.
 - b. exports of resources have become more significant while rural exports have declined in importance.
 - c. commodity exports have become relatively less significant while services and manufactured exports have increased in importance.
 - d. the relative shares of all export groups have been increasing over time.

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

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

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

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

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

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

12. In 2018 Australia's largest import by value was _____ and largest export was _____ .
 - a. personal travel; iron ore.
 - b. crude petroleum; coal.
 - c. oil; gold.
 - d. motor vehicles; education.

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

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

Data analysis

Refer to the table showing Australia's export markets.

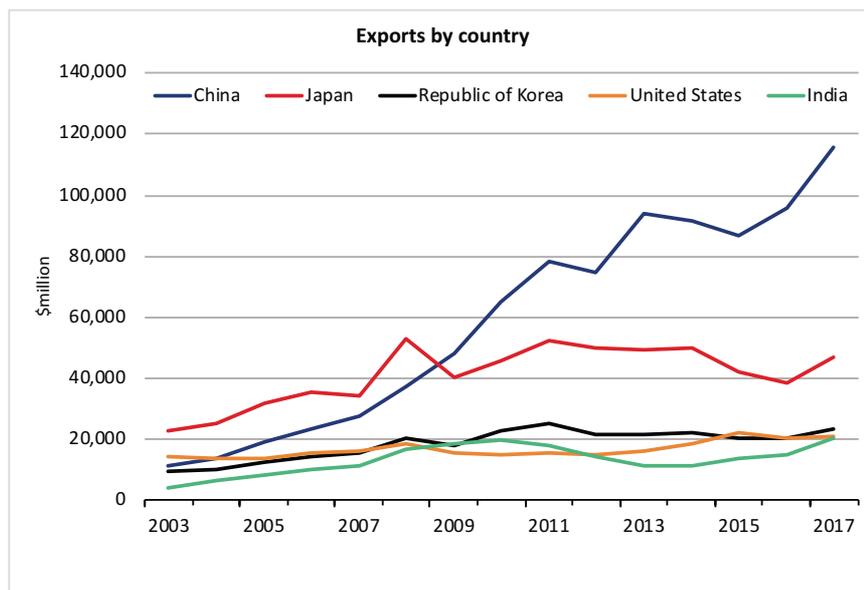
- Which countries are from north Asia?
Which countries are from south Asia?
- Which two countries recorded the highest 5 year growth in exports?
Provide a reason for this change.
- What factors might have caused the fall in the growth of exports to Japan?
- Provide four reasons to explain why China has become Australia's main export destination.

Rank	Country	Per cent share of total	5 year trend % growth
1	China	30.0	6.4
2	Japan	12.2	-3.4
3	Republic of Korea	6.0	0.3
4	United States	5.4	7.6
5	India	5.2	7.9
6	Hong Kong	3.9	6.8
7	New Zealand	3.6	4.8
8	Singapore	3.1	2.6
9	United Kingdom	3.0	5.8
10	Taiwan	2.7	3.1

Data interpretation

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

- Who were Australia's main two export partners in 2003?
- Who were Australia's main two export partners in 2017?
- Calculate the factor of change for exports to both China and Japan over the period shown in the graph.
- In what year did China overtake Japan to become Australia's largest export market?
- Explain why exports to Japan fell in 2009?
- Explain why China's share of Australia's exports has increased so rapidly?
- Explain the impact on the Australian economy of a slowdown in China's economic growth.
- Explain why there are no European economies represented in the graph.



Article analysis

The questions below refer to the article below.

Trade with China

China is Australia's largest trading partner in goods and services (valued at around \$183 billion in 2017), our largest export destination (\$116 billion in 2017), and our largest source of imports (\$67 billion in 2017). China buys 30 per cent of all Australian exports, and is the top overseas market for many Australian goods and services. The Australia-China economic relationship is extensive and growing strongly. 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, coal and gold leading the way. China is Australia's largest services export market and is the largest market for agriculture. China provided the largest source of tourism income in 2017 and the largest source of overseas student enrolments.

As China's economy develops and the consumption habits of its rising middle class begins to change, opportunities are opening up for a more diversified relationship with a growing focus on premium agricultural exports and services such as finance, health and aged care, as well as professional services. For example, over the last five years Australia has seen significant growth in the export of wine, cheese and milk and insurance and pension services.

The landmark China-Australia Free Trade Agreement (ChAFTA) will unlock substantial new benefits for Australians for years to come. ChAFTA will add billions to the economy, create jobs and drive higher living standards for Australians. Australian businesses will have unprecedented access to the world's second largest economy. It greatly enhances our competitive position in key areas such as agriculture, resources and energy, manufacturing exports, services and investment. On full implementation of ChAFTA, 95 per cent of Australian goods exports to China will be tariff free. Australian households and businesses will also reap the benefits of cheaper goods and components from China such as motor vehicles, household goods, electronics and clothing, placing downward pressure on the cost of living and the cost of doing business.

1. Use information from the extract to highlight the importance of China to Australia's economy.
2. In which categories of goods does Australia have a comparative advantage with China?
3. In which categories of goods does Australia have a comparative disadvantage with China?
4. Why has China become Australia's most important trading partner?
5. Explain the effect of China's rising middle class on Australia's exports.
6. What are Australia's most important service exports to China?
7. What is ChAFTA? Explain how it will impact on the Australian economy, employment and living standards.

Extended response

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

1. a. Account for the factors that affect Australia's trade intensity. [10 marks]
- b. Explain the recent changes to Australia's direction and composition of trade. [10 marks]

The Balance of Payments

4



Chapter concepts and skills

- *the structure of Australia's balance of payments*
- *the concept of the current account balance*
- *recent trends in Australia's current account*
- *structural and cyclical reasons for Australia's current account deficit*
- *the significance of Australia's current account deficit*
- *apply mathematical techniques relevant to balance of payments calculations, such as the balance on goods and services, balance on current account, balance on capital and financial account*
- *identify trends and relationships in the balance of payments*
- *apply economic reasoning to analyse issues and events in relation to Australia's international transactions*

Introduction

The balance of payments is a systematic record of all economic transactions between the residents of Australia and the residents of the rest of the world. The residents of a country include individuals, firms and the government. The balance of payments is in fact not concerned with just international payments but with all international transactions.

An economic transaction occurs when something of value is provided by one party to another. Most transactions involve an exchange, for example, a good or service is traded for foreign exchange (money). Some transactions are one-sided, such as a gift or foreign aid, which require an offsetting entry in the balance of payments. Economic transactions include:

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

Whenever a transaction occurs involving any one of these categories between a resident of Australia and a non-resident, then it will be recorded in the balance of payments. Australia's balance of payments is divided into two broad accounts - the current account and the capital and financial account. Figure 4.1 shows the structure of the two accounts. The current account is concerned with transactions involving goods, services and income. The capital account records capital transfers and the acquisition/disposal of non-produced, non-financial assets, for example, copyrights. The financial account includes transactions in financial assets and liabilities.

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

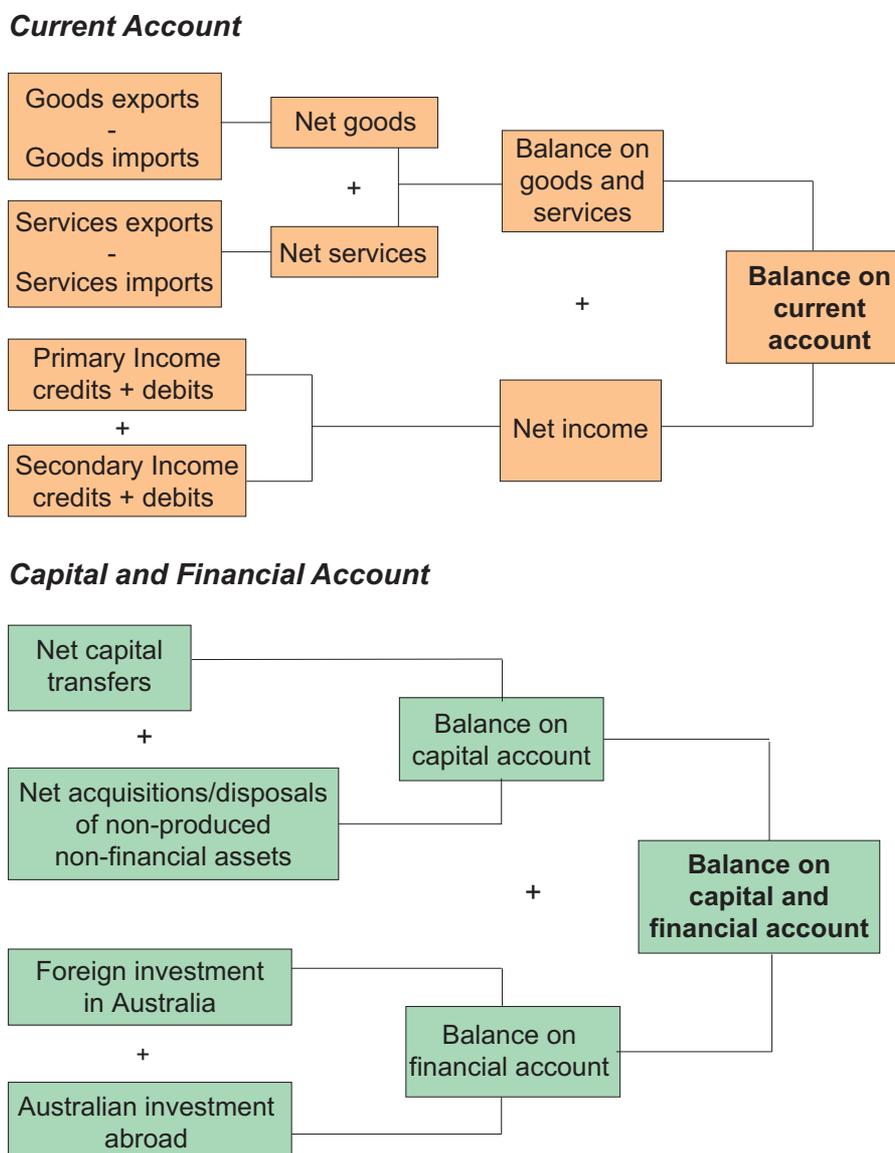
- credit — exports of goods and services, income receivable, increase in foreign liabilities, export of currency
- debit — imports of goods and services, income payable, increase in foreign assets, import of currency

Since for each transaction there is a matching credit and debit entry, the overall record of payments must always balance. This means that the sum of all credit

entries will be exactly offset by the sum of all debit entries. But each of the two accounts can record either a deficit or a surplus. For example, if the current account recorded a deficit of \$10 billion, then the capital & financial account would record a surplus of \$10 billion. To illustrate, imagine an Australian resident purchasing a TV set from Japan for AUD1,000 and a Japanese resident buying an Australian government bond for AUD5,000.

How will these transactions be recorded in Australia’s balance of payments? Remember for each transaction there are two offsetting entries. The value of the imported TV will be recorded in the current account as a debit of \$1,000, while

Figure 4.1 The structure of the balance of payments accounts



in the financial account it will be recorded as a \$1,000 credit, because \$1,000 of Australian currency is exported to Japan. When the Japanese resident purchases the Australian government bond, it will be recorded on the financial account as a credit entry of \$5,000 representing the bond which is exported and a debit entry of \$5,000 of Australian currency which is imported. The following table shows the entries for each transaction in Australia's balance of payments. Notice that the sum of debit entries (\$6,000) is offset by the sum of the credit entries (\$6,000). The current account shows a deficit of \$1,000, while the financial account shows a surplus of \$1,000.

	Credit	Debit
Current Account		-\$1,000 (TV)
Capital/Financial Account	+\$1,000 (currency) +\$5,000 (bond)	-\$5,000 (currency)

Now suppose an Australian firm sells \$1 million of iron ore to China and a US firm purchases \$2 million of Australian shares. How would these transactions be recorded? The table below shows how each transaction will appear in the balance of payments.

	Credit	Debit
Current Account	+\$1 million (iron ore)	
Capital/Financial Account	+\$2 million (shares)	-\$1 million (currency) -\$2 million (currency)

The value of the exported iron ore will be recorded in the current account as a credit of \$1 million, while in the financial account it will be recorded as a \$1 million debit, because \$1 million of currency is imported. The sale of \$2 million of shares to a US firm will be recorded as a credit in the financial account because the shares are exported while there will be a matching debit entry of \$2 million representing the import of currency.

Notice that total credits (\$3 million) are offset by total debits (\$3 million) so that the balance of payments balances. But in this example, the current account records a surplus of \$1 million, while the capital/financial account records a deficit of \$1 million.

The structure of the balance of payments

Figure 4.2 provides a breakdown of the components in the balance of payments for Australia from 2016 to 2018. Note that for each year, the balance on current account is equal and opposite in value to the balance on the capital and financial account plus the net errors and omissions item. Australia traditionally records a deficit (debits > credits) in the current account matched by a surplus in the capital and financial account (credits > debits).

		\$ million (original)			
CURRENT ACCOUNT		2016	2017	2018	
	Goods	-27329	13491	12130	
		Credits	244147	291408	315031
		Debits	-271476	-277917	-302901
	Services	-10268	-2568	-5911	
		Credits	75377	81951	85635
		Debits	-85645	-84519	-91546
Balance on goods and services		-37597	10923	6219	
	Primary Income	-39955	-47990	-59064	
		Credits	51842	54711	57543
		Debits	-91796	-102701	-116607
	Secondary Income	-874	-1767	-1278	
		Credits	8883	8897	9151
		Debits	-9757	-10664	-10429
Net Income		-40829	-49757	-60342	
BALANCE ON CURRENT ACCOUNT		-78426	-38834	-54123	
CAPITAL AND FINANCIAL ACCOUNT					
		2016	2017	2018	
Capital Account	Net Capital transfers	-695	-580	-849	
	Net acquisition/disposal of non-produced, non-financial assets	27	141	160	
Balance on capital account		-668	-439	-689	
Financial Account	Direct investment	61332	63403	59555	
	Portfolio investment	-34618	4081	9308	
	Financial derivatives	-3392	3362	-8446	
	Other investment	55031	-17949	-16544	
	Reserve assets	2394	-19630	8929	
Balance on financial account		80747	33267	52802	
BALANCE ON CAPITAL & FINANCIAL ACCOUNT		80079	32828	52113	
<i>Net errors and admissions</i>		-1654	6006	2010	

Figure 4.2 Australia's balance of payments

The current account

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

- goods
- services
- income (primary & secondary)

Goods 2018		\$ million
Credits (Exports)		
Rural		47075
Resources		189217
Manufacturing		46131
Other		32608
Total		315031
Debits (Imports)		
Consumer goods		-102435
Capital goods		-73823
Intermediate		-120544
Other		-6099
Total		-302901

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 2018 amounted to \$315 billion, of which \$189 billion (60%) were resources, including iron ore, coal, natural gas and petroleum. Goods imports totalled \$303 billion of which 64 per cent comprised capital & intermediate goods. The merchandise trade account recorded a surplus for 2018 equal to \$12 billion.

Services 2018			\$ million
	Credits	Debits	
Transport	7405	-17284	
Travel	54934	-46028	
Business	21045	-23912	
Other	2251	-4322	
Total	85635	-91546	

Trade in services consist of transactions in the transport of goods (freight/shipping), transactions involving travel by tourists and students, and other business services including financial, construction and ICT (information, computer and telecommunications) services. Trade in services is about a quarter of the size of trade in goods but has been increasing over time. Notice the large deficit in transport (around \$10bn) and the large surplus in travel (\$9bn). The export of

education services totalled \$32 billion in 2018 and has become Australia's third largest export, exceeding other exports such as natural gas and gold. Australia recorded a net services deficit of \$6 billion in 2018.

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 refers to income earned by Australian residents from non-residents (credits) and income paid to overseas residents (debits). Primary income consists of two categories: compensation of employees (for the use of labour) and investment income (for the

Primary Income 2018			\$ million
	Credits	Debits	
Compensation of employees	2391	-7952	
Investment income	55151	-108656	
- Dividends	31961	-36679	
- Reinvested	8203	-32734	
- Interest	9749	-31031	
Total	57543	-116606	

use of capital). Compensation of employees is simply the payment of wages and salaries to workers and is relatively small compared with the flow of investment income. In 2018, compensation of employees recorded a deficit of \$5.5 billion.

Investment income comprises income earned from the provision of financial capital or foreign investment and consists of three main categories: dividends, reinvested earnings and interest. Around 95 per cent of primary income transactions are associated with

investment income. 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 resident. In 2018, Australia received \$55 billion of investment income from overseas countries, but paid out \$109 billion to overseas residents. This means that foreign investment into Australia far exceeds Australian investment offshore resulting in a net outflow of investment income in the current account.

The overall balance in primary income was a deficit of \$59 billion - which is normally the largest component of the current account deficit and in some years can exceed the current account deficit. Many people become alarmed at the size of this deficit but it is important to remember that it is the result of the large amount of foreign investment that flows into the Australian economy each year. A large part of this foreign investment is in the form of borrowing which requires the repayment of interest. Equity investment on the other hand results in dividend payments being paid to foreign shareholders. Note that nearly a third of income debits are reinvested earnings which means that this money actually stays in the country.

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. These type of transactions could be labeled as 'one sided'. 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 2018 was a deficit of just over \$1 billion and is dwarfed by the primary income deficit (\$59 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 2018, the goods and services balance was a surplus of \$6 billion while the income balance was a deficit of \$60 billion. This meant that the balance on current account was equal to a deficit of \$54 billion.

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

The capital and financial account

Capital Account 2018	\$ mill.
Net Capital transfers	-849
Net acquisition/ disposal of non-produced, non-financial assets	160
Total	-689

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, trademarks and franchises. The size of transactions in the capital account are small and insignificant and the balance is usually less than \$1 billion.

Financial Account 2018	\$ mill
Direct investment	59555
Portfolio investment	9308
Financial derivatives	-8446
Reserve assets	2394
Other investment	-16544
Total	52802

The financial account comprises transactions associated with changes of ownership of Australia's foreign financial assets and liabilities. Australia normally records a large financial account surplus because it relies on foreign investment flowing into the economy. Credit entries are net inflows resulting from foreign investment into Australia. Debit entries are net outflows and reflect Australian investment in overseas assets. The financial

account will record a surplus when the increase in foreign investment into Australia (capital inflow) exceeds the increase in Australia's investment abroad (capital outflow). A financial account surplus means that a country draws on the savings (foreign investment) from the rest of the world. In 2018, Australia recorded a financial account surplus of \$53 billion.

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

- direct investment
- portfolio investment
- other investment
- reserve assets

The main forms of foreign investment are direct and portfolio investment. Direct investment is undertaken with the objective of obtaining a lasting interest in a foreign enterprise and exercising a significant degree of influence in its management. If a resident investor obtains 10 per cent or more of the ordinary shares or voting stock of a foreign enterprise, then this is deemed to be direct investment. Direct investment enterprises include branches, subsidiaries and other businesses where the foreign resident has significant shareholding. In 2018, there was a net inflow of direct investment of \$60 billion.

Portfolio investment consists of international equity and debt securities (mainly bonds and notes) not classified as either direct investment or reserve assets. 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. In 2018, there was a net inflow of portfolio investment of \$9 billion. Other types of foreign investment include financial derivatives and reserve assets which are financial assets controlled by the Reserve Bank of Australia. Reserve assets include monetary gold, Special Drawing Rights (SDRs) and foreign exchange.

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 2018, Australia’s current account deficit was \$54 billion, the capital and financial account surplus was \$52 billion, which meant that net errors and missions was \$2 billion.

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

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

But equally changes in consumption, investment and government spending will also have an impact on the current account. For example, an increase in consumption and/or investment will increase imports. The current account not only summarises the net movement of goods and services but also reflects changes in the financial account through the net income category. It is important to remember that the capital and financial account offsets changes in the current account and vice versa. For example, an increase in foreign investment into Australia will increase the financial account surplus which will cause an increase in the income deficit in the current account in terms of greater servicing costs, thereby increasing the current account deficit. Many people make the mistake in thinking that the balance of payments solely revolves around changes in the current account - but this is not the case. The financial account is just as important. Changes in the financial account affect the current account and changes in the current account impact on the financial account.

Year	Goods	Services	Balance on goods & services	Primary income	Secondary income	Net Income	Balance on current account
2009	6767	-4099	2668	-44196	-865	-45061	-42393
2010	-8946	-4452	-13398	-50549	-1300	-51849	-65247
2011	21993	-8307	13686	-56867	-2117	-58984	-45298
2012	9077	-12806	-3729	-45604	-2063	-47667	-51396
2013	-2447	-17465	-19912	-38213	-2278	-40491	-60403
2014	10035	-16870	-6835	-41828	-2134	-43962	-50797
2015	-13195	-11474	-24669	-33210	-1781	-34991	-59660
2016	-27329	-10268	-37597	-39955	-874	-40829	-78426
2017	13491	-2568	10923	-47990	-1767	-49757	-38834
2018	12130	-5911	6219	-59064	-1278	-60342	-54123

All figures in \$million (original)

Figure 4.3 The current account

Trends in the current account

Figure 4.3 shows the trends in the various categories of the current account since 2009. Notice that the current account deficit has fluctuated from a low of \$42 billion (in 2009) to a high of \$78 billion (in 2016). The net goods balance in the current account fluctuates considerably from year to year. For example in 2016 it recorded a large deficit of \$27 billion, but in the following year, the goods balance recorded a

The mining boom increased Australia's resource exports but also increased imports of capital equipment.

significant surplus of over \$13 billion. This was due to the increase in commodity prices for coal and iron ore which resulted in high export values. The composition of Australia's exports and imports help explain the variable nature in the merchandise balance. The value of traded goods is very much influenced by their prices.

Australia exports mainly primary products - agricultural and mineral products - which are called commodities. Both the demand for and the supply of these commodities are very price inelastic and are subject to large price fluctuations. Wool and wheat prices, for example, can fluctuate from year to year based on world climatic conditions. A bumper world harvest could mean a depressed world wheat price. If Australia experiences a drought, rural exports will plummet.

An increase in world economic growth would increase the demand for Australia's minerals and fuel exports, while an increase in Australia's economic growth would boost the demand for both consumer and capital goods imports. Events in the world economy can have a major impact on Australia's balance of trade. External shocks such as a rise in the price of oil, a recession in one or more of our leading trading partners, such as Japan or a serious drought would all result in Australia's trade balance decreasing. Conversely, a surge in economic growth in China will result in a boost to Australia's resources sector.

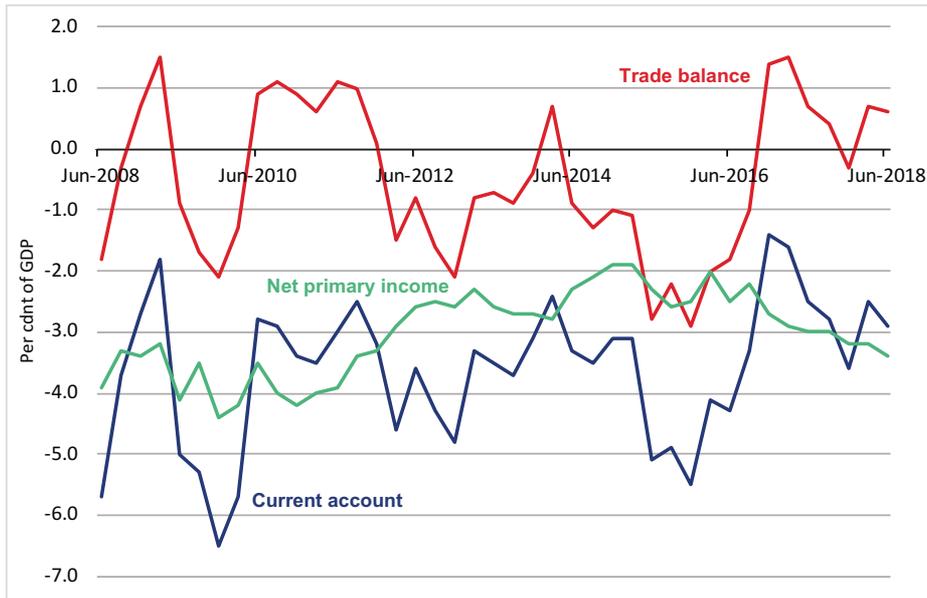
The rate of economic growth in Australia also has a significant impact on the trade account. Whenever the Australian economy experiences a high rate of economic growth, the demand for imports increases, especially capital and intermediate goods imports. An increase in investment requires capital goods such as machinery, transport equipment and computers. Australia imports much of its capital goods requirements. High levels of national income will also increase the demand for imported consumer goods.

The services balance has been in deficit for all of the years shown in the table. This is due to Australia's large imports of travel and transport services. Australia is relatively isolated from the rest of the world which results in transport services, such as freight, being a significant debit item. Outbound tourism has become Australia's largest import, amounting to \$42 billion in 2018. Travel services are also becoming an important export earner for Australia. Education is now Australia's third most important export (behind iron ore and coal), earning \$32 billion in 2018, while inbound tourism added \$20 billion. Both of these exports have overtaken more traditional exports such as aluminium, beef and wheat. Tourism and education exports have become important because Australia is a close neighbour to the world's most populous region - East Asia.

The last important item in the current account is income. Income is divided into two categories - primary income and secondary income. It is primary income which is most important. The main components of the primary income deficit have been interest payments on past borrowing, and the payments of profits and dividends to overseas investors. The primary income deficit always accounts for most of Australia's current account deficit. In fact, in some years such as 2017 and 2018, the primary income deficit actually exceeded the overall current account deficit. The growth in the primary income deficit over time has paralleled the build-up in Australia's foreign liabilities - foreign debt and foreign equity. Many people don't realise that whenever the Australian economy is growing strongly, company profits and dividends will automatically increase which contributes to the increase in the primary income deficit. A large proportion of these profits are also reinvested in the companies within Australia. The primary income deficit can be viewed as the servicing costs of foreign investment.

The income deficit makes up most of the current account deficit and results from Australia's reliance on foreign investment.

The balance on current account is derived by summing the balance on goods and services with net income. Given the large deficit in net income and the fact that the balance of trade often swings from deficit to surplus, then it is not surprising that the balance on current account always records a deficit. In fact Australia only recorded a current account surplus once in the past 50 years! Changes in the current account balance will reflect both changes in the trade balance and the



The trade balance fluctuates from surplus to deficit but the income balance is always in deficit. The current account sums the two balances, and is normally in deficit.

Figure 4.4 Trends in the current account

income balance. For example, in 2016, the current account deficit increased to \$78 billion. This was because the trade balance decreased by \$13 billion. The demand for Australia's mineral and energy exports fell which, combined with lower commodity prices, meant that the value of exports nose-dived. In 2017 and 2018, commodity prices improved which shifted the trade balance back into surplus. During these years, mining investment decreased which reduced the demand for capital goods imports. At the same time, slower economic growth reduced the demand for consumption good imports. This is an example of how a change in the world economy can have a significant impact on Australia's trade balance and current account.

When comparing the size of the current account balance over time, it is more meaningful to measure the balance as a proportion of GDP, rather than in billions of dollars. Figure 4.4 shows Australia's current account balance and the trade and income balances measured as a proportion of GDP. Measuring the balance as a proportion of GDP takes into account the size of the economy and more accurately reflects its relative size. Figure 4.4 reveals a number of important characteristics. First, that the trade balance fluctuates much more than the income balance. Second, that the trade balance moves from periods of deficit to periods of surplus. Third, that the income balance is always in deficit and fourth, that the overall current account balance is closely correlated to the trade balance - the two graphs look very similar.

Causes of the current account deficit

What causes the current account balance to change over time? There are both cyclical and structural reasons for Australia’s current account deficit. A cyclical factor is something that is affected by changes in the business cycle. Cyclical factors are more temporary and subject to frequent change. A structural factor on the other hand is more permanent and only changes gradually. Cyclical factors help explain the fluctuations in the goods and services balance while structural factors are associated with the primary income balance.

Causes of the current account deficit
Cyclical Factors - temporary factors that mainly affect the trade balance: <ul style="list-style-type: none"> • domestic business cycle • world business cycle • exchange rate • commodity prices • terms of trade
Structural Factors - fundamental factors that mainly affect the income balance: <ul style="list-style-type: none"> • investment-savings gap • foreign investment • foreign liabilities

By examining figure 4.4 it is evident that the goods and services balance and the current account balance exhibit a direct or positive relationship. Whenever there has been a decrease in the goods and services balance (e.g. between 2014 and 2016) the current account balance has also decreased. Likewise, whenever there has been an increase in the goods and services balance (e.g. between 2016 and 2017) the current account balance has also increased.

The trade balance is relatively volatile and is very much influenced by both Australia’s business cycle and the world business cycle. Notice how the trade balance has fluctuated between -3 per cent and +1.5 per cent of GDP during the period shown in the graph. Whenever the economy expands at a rapid rate, the current account deficit will increase due to increased spending on imports - both consumption and investment goods. When the economy slows or contracts, the relative size of the CAD declines because investment falls and spending on imports falls.

Changes in the business cycles of Australia’s main trading partners will also have a major impact on Australia’s trade and current account balance. If the Chinese economy expands, world commodity prices (iron ore & coal) rise which will boost Australia’s export income and increase the trade and current account balance. Changes in Australia’s export and import prices are measured by the terms of trade (see chapter 5) which has a direct influence on the trade balance. Factors that affect Australia’s level of international competitiveness such as relative wage levels and inflation rates are also important in causing cyclical changes in the current account balance. Movements in the exchange rate (see chapter 6) can also affect the demand for exports and imports. A fall in the value of the Australian dollar (depreciation), for example, will decrease the price of Australia’s exports and increase the price of imports. This will lead to an increase in exports and a decrease in imports, increasing the trade balance.

The income balance in the current account has been far more stable, compared to the trade balance, fluctuating between -4 per cent and -2 per cent of GDP. While the trade balance can change from surplus to deficit, the income balance is always in deficit. This is because Australia relies on foreign investment (net capital inflow) to fund Australia's investment-savings gap (refer to chapter 7). Australia has throughout its history been an importer of financial capital to develop its economy. Without foreign investment, Australia would not have a mining sector. Foreign investment (capital inflow) is recorded in the financial account. The tradeoff for this use of other countries savings is the payments of interest and dividends to foreign investors which is recorded in the primary income account. The result is that the income balance is always in deficit and is the structural cause of the current account deficit.

Interpreting the current account balance

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

But analysing the current account balance from just a trade perspective only provides a micro viewpoint. To get a fuller, more complete understanding of what the current account balance means, we have to explore the link between the balance of payments and the national accounts. This is set out in figure 4.5. Remember the current account balance is equal to the difference between exports and imports plus net income flows. Gross Domestic Product (GDP) is the total value of a country's production or the total amount of spending on domestic 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 means that a country's savings is equal to its investment plus the current account balance (equation 6). This is very important, because we can now show that the current account balance is equal to the difference between a country's total savings and its total investment: $CAB = S - I$ (equation 7).

(1)	$CAB = X - M + NI$
	The current account balance equals exports of goods and services (X) minus imports of goods and services (M) plus net income from foreign residents (NI) .
(2)	$GDP = C + I + G + X - M$
	Gross domestic product (Y) equals the sum of consumption expenditure, investment, government spending and net exports.
(3)	$GNI = C + I + G + X - M + NI$
	Gross national income equals GDP plus net income from foreign residents
(4)	$GNI = C + I + G + CAB$
	Gross national income equals the sum of consumption, investment, government spending plus the current account balance
(5)	$S = GNI - C - G$
	Gross savings (S) equals gross national income minus consumption plus 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 deficit (or financial account surplus) means that Total Investment (I) > Total Savings (S)

Figure 4.5 The current account and the national accounts

What this means is that if a country's saving exceeds its investment, then it will have a current account surplus. If a country's investment is greater than its savings, then it will have a current account deficit. This is the fundamental reason why Australia records a current account deficit. It is referred to as the investment - savings gap (I - S gap). A rise in investment, *ceteris paribus*, will increase the CAD, while a rise in savings will reduce it. We now have a very useful framework to understand what factors cause the current account balance to change over time. All we need to do is to analyse what is happening to a country's saving and investment. This view also makes the current account deficit appear much less threatening. Is an increase in investment bad for the economy? Of course not, because it will promote economic growth and a higher national income. So when Australia's investment exceeds its savings, then the current account will be in deficit. The greater the excess of investment over savings, the greater the CAD.

What this means is that by running a current account deficit, a country can fund a higher rate of investment than if it had to rely on its domestic savings alone. Australia, being a small country in terms of population, is not able to generate enough savings to finance the investment needed to develop the economy. Drawing on foreign savings enables a country like Australia to achieve a higher rate of investment

Australia has a current account deficit because its investment is greater than its savings.

Is Australia a low saving nation? Absolutely not - Australia's saving rate has been above the average of the OECD economies over the past decade.

Is Australia a high investing nation? Yes - Australia's investment rate is well above the average. Australia records a current account deficit because its investment exceeds its savings.

Country	National Savings	National Investment	Current Account Balance
Australia	22.3	26.8	-4.5
Canada	21.7	23.5	-1.8
Germany	25.7	19.6	6.1
Japan	26.3	23.5	2.8
United Kingdom	13.2	16.7	-3.5
United States	17.5	20.5	-3.0
average OECD	21.4	21.8	-0.4

% of GDP Source: World Bank

Figure 4.6 National savings and investment

and economic growth, and to finance the development of the mining and energy sector. A current account deficit is not necessarily a 'bad thing' - it may simply mean that other countries wish to invest in our economy. Running a current account deficit means that Australia can import foreign savings to enable a higher rate of investment boosting our rate of economic development.

The current account deficit will also increase if a country's savings fall. One often hears the statement that Australia is a low savings nation and that this is the main cause of the current account deficit. But this is actually a myth! Figure 4.6 compares Australia's saving and investment against other economies (measured as a per cent of GDP) over the past 15 years. Australia's gross national saving has averaged around 22 per cent of GDP. Notice that Australia's savings rate is actually higher than the average of the OECD economies (21% of GDP) and is considerably higher compared to the United States and the United Kingdom. What makes Australia different to other economies is its very high investment rate - averaging 27 per cent of GDP. This is much higher than the average across all OECD economies (22%). When a country has a higher rate of investment relative to saving, then it will record a current account deficit. Notice that the current account balance equals the difference between each countries savings and investment.

The significance of the current account deficit

There is no optimal or correct size for a current account balance. Over the past 30 years, Australia's CAD has averaged around 4.3 per cent of GDP. This means that the capital and financial account surplus has also averaged 4.3 per cent of GDP. Some countries such as Japan have a current account surplus matched by a capital and financial account deficit. It is not possible for all countries to have current account surpluses at the same time. 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 deficit or surplus depends on a number of factors, including the growth rate of the economy, the relationship between a country's saving and investment and the level of economic development. Countries that rely more on foreign investment will have a current account deficit. Countries that have excess savings to lend to other countries will have a current account surplus.

If a country's current account balance increases, 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, a current account deficit (or financial account surplus) could increase if one or more of the following factors occurred:

- a fall in the terms of trade - if export prices relative to import prices declined then *ceteris paribus*, export receipts will fall, while import payments will increase. Normally, whenever the terms of trade fall, the balance on goods and services will also fall.
- a decline in international competitiveness - if productivity levels decline or if real wages rise more than productivity then a country's exports will be less competitive in overseas markets. A rise in inflation will also reduce a nation's competitiveness by increasing the prices of domestic goods relative to foreign goods.
- a higher rate of economic growth - this will lead to an increase in national income and an increase in both consumption and investment spending boosting the demand for imports.
- an increase in foreign investment will increase the financial account surplus (and the CAD). Australia is a country rich in natural resources which attracts a substantial flow of foreign investment from countries such as the United States, Japan, and Europe. 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 automatically increase the current account deficit via the servicing costs associated with foreign investment. The repatriation of investment income such as dividends and the interest payments on borrowing will increase the primary income deficit in the current account.
- a decline in national savings - if savings by households, firms and the government fall, then, *ceteris paribus*, the current account deficit will increase. Savings may fall when an economy experiences a recession. Households will draw on savings to maintain consumption, firms' profits will fall and the government's budget balance will decrease.
- an increase in national investment - if investment increases by either the private or public sector, the current account deficit will also increase. An economy undergoing structural change may require a significant increase in physical and social overhead capital. A mining boom that requires significant investment will initially increase the CAD.

The above factors illustrate the many different ways a current account deficit can increase. It is important to understand that an increase in the CAD 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 higher CAD, then this is a positive change. If a CAD increases because of a decline in competitiveness, then this may be a cause of concern. The CAD is really an indicator of changes in the economy - it reflects changes in spending, savings, investment, productivity and external shocks.

Worksheet 1

1. What is recorded in a nation’s balance of payments.
2. List the different types of economic transactions.
3. Distinguish between credit and debit entries in the balance of payments.
4. Explain why the balance of payments balances.
5. What are the different categories that comprise the current account?
6. Provide examples of transactions in each of the categories in the current account.

7. The table records transactions between the country of Ecoland and the rest of the world. Record each transaction using the double entry recording system. Note for each transaction there will be a credit and a debit entry.

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

8. Calculate the following balances for the economy of Ecoland:
 - merchandise trade
 - goods and services
 - current account
 - financial account
9. Refer to figure 4.2. Describe the change in the balance on goods and services between 2016-2018.
10. Which category usually contributes most to Australia’s current account deficit?
11. Explain why Australia normally records a current account deficit.
12. Fill in the missing values for the table opposite showing hypothetical balance of payments data (assuming balancing item is zero).
13. What types of transactions are recorded in the financial account?
14. Why does Australia normally record a capital and financial account surplus?

Multiple choice 1

Choose the best alternative in the following questions.

1. Which of the following would be an initial 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. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

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

9. When the level of economic activity _____ there will be a tendency for the trade balance to increase as imports _____
- increases, increase
 - falls, increase
 - increases, fall
 - falls, fall
10. Which of the following is recorded as a credit item in the financial account?
- Australian financial aid to Papua New Guinea.
 - payment by an Australian company for freight.
 - dividend payments by an overseas company to Australian shareholders.
 - the purchase of equities in an Australian company by an overseas company.

11. Refer to the following data:

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

Which of the following statements is correct?

- the capital and financial account has a deficit of \$70 billion.
 - the current account has a surplus of \$70 billion.
 - the trade balance is a deficit of \$30 billion.
 - the capital and financial account has a surplus of \$70 billion.
12. 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.
13. The main source of fluctuations in the current account balance is
- net income.
 - foreign debt.
 - foreign investment.
 - net exports.

Data Interpretation

Refer to the data below showing Australia's current account.

	Goods	Services	Trade Balance	Net Income	Current Account
2016	-27329	-10268	-37597	-40829	-78426
2017	13491	-2568	10923	-49757	-38834
2018	12130	-5911		-60342	

- Calculate the trade balance and the current account balance for 2018.
- Describe the changes in the trade balance between 2016-18.
- Explain why the CAD increased in 2018. Refer to the data in the table.
- In which years did the income deficit exceed the current account deficit?
- Discuss three factors that could increase Australia's trade balance.
- Explain why Australia always records an income deficit in the current account.
- Explain why an increase in the income deficit might be a positive indicator for the economy.

Worksheet 2

Refer to figure 4.3:

1.
 - a. List the years in which Australia recorded a trade surplus.
 - b. In which year(s) did Australia record its largest / smallest CAD? Explain why.
2. Why does Australia's trade balance fluctuate from surplus to deficit?
3. What is the main component of the primary income deficit?
4. Why is Australia's primary income balance always negative?
5. Explain how events in the world economy can affect Australia's current account balance.
6. How is the current account balance affected by Australia's rate of economic growth?
7. Is there an optimal size for Australia's current account deficit?
8. Explain why the current account balance follows a cyclical pattern.
9. Explain which category in the current account is more volatile - the trade balance or the primary income balance.
10. What factors can lead to a rise in the current account deficit?
11. What are the structural reasons for Australia's CAD?
12. Explain how the financial account is linked to the current account.
13. Show that the current account balance is equal to the difference between a country's saving and its investment.
14. Explain what would happen to Australia's current account deficit for each of the following:
 - a. a mining boom
 - b. an increase in savings
 - c. a decrease in investment
 - d. a global recession.

Research Articles

Read the excerpts below and answer the questions that follow.

1. What was Australia's average current account balance prior to, and during, the mining boom?

Australia's current account deficit and the mining boom

Australia has persistently run a current account deficit (CAD). This reflects high levels of investment that have consistently exceeded national saving, 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 CAD is the difference between a country's gross investment and gross saving, this large increase in investment would have resulted in an increase in the CAD in the absence of a matching increase in saving. Indeed, this is what happened in the initial phase of the mining boom.

Period	CAD (% of GDP)
Pre mining boom (1991-2002)	3.7
Mining boom (2002-2008)	5.9
Global financial crisis (2008-2010)	2.4
End mining boom (2013-2018)	3.3

Why did the CAD suddenly fall during the global financial crisis? What would you predict would happen to investment? It collapsed which closed the investment-savings gap and therefore the CAD decreased quite significantly to just 2.4 per cent - less than the pre-mining boom average.

The mining boom in Australia ended in 2012. Since then, Australia's CAD has averaged 3.3 per cent of GDP. What has caused this narrowing of the CAD? Investment, especially in the mining sector, has fallen but savings have also fallen because of the decline in national income. Since the CAD equals the I - S gap, then investment must have decreased by more than savings.

2. What impact did the GFC have on Australia's current account balance?
3. Why did the mining boom increase national investment?
4. If a mining boom increases exports, why did Australia's current account deficit increase?
5. What effect did the end of the mining boom have on Australia's CAD?

The current account

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 two 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 deficit (CAD) has fluctuated between 2 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 deficit becomes larger. During the contraction in 2008-09, import volumes were more subdued and the trade deficit was correspondingly smaller (a trade surplus in 2009). Fluctuations in the CAD are not a bad thing. They are a means by which Australia smoothes consumption in the face of income shocks, such as the global financial crisis. That is, the CAD, like the exchange rate, acts as a buffer or shock absorber between domestic demand and global developments. Imports consist of consumption goods for households; intermediate and capital goods that Australian firms use to produce goods for domestic sale and export; and services (a large component of which is spending by Australian tourists abroad).

The other major influence on the trade deficit is the 'terms of trade', that is the ratio of export prices to import prices. As Australia is a net exporter of commodities and a net importer of manufactures, the terms of trade tend to rise when commodity prices rise, which is generally when the world economy is buoyant. The floating exchange rate buffers the effects of swings in the terms of trade on the economy to some extent, as it tends to appreciate when commodity prices are rising and depreciate when commodity prices fall.

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, or by selling assets. As a result, the rest of the world's holdings of Australian assets exceed foreign assets held by Australians. The interest and dividend flows on these net foreign liabilities generally lead to an income deficit.

Questions

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

Multiple choice 2

Choose the best alternative in the following questions.

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

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

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

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

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

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

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

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

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

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

11. All other things being equal, which of the following is most likely to cause an increase in Australia's current account deficit?
- a 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
12. 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.
13. Refer to the data table.
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	5800
Goods Imports	5500
Net Services	-200
Net Income	-500

Extended responses

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

- Describe the structure of Australia's balance of payments accounts. Distinguish between transactions in goods, services, income and financial assets. [10 marks]
 - Explain the importance of the investment - savings gap for the current account and the financial account. [10 marks]
- Distinguish between the two accounts in the balance of payments and explain how the two accounts are linked. [10 marks]
 - For most of its history, Australia has had a current account deficit. Explain both the structural and cyclical reasons for Australia's current account deficit. [10 marks]
- Distinguish between the trade balance and the income balance. [8 marks]
 - Explain how each of the following events would impact on Australia's current account balance:
 - a decline in foreign investment
 - Australia's rate of economic growth increases
 - a rise in the terms of trade. [12 marks]

The Terms of Trade

5



Chapter concepts and skills

- *the concept of the terms of trade*
- *the terms of trade index*
- *the factors that affect the terms of trade*
- *recent trends in Australia's terms of trade*
- *the significance of changes in Australia's terms of trade*
- *apply mathematical techniques relevant to calculating the terms of trade index*
- *identify trends and relationships in the terms of trade*

Introduction

The terms of trade has always played an important role in Australia's economic history and are an important determinant of the nation's economic prosperity. Changes in the terms of trade have a significant effect on Australia's business cycle affecting key economic indicators such as GDP, national income and the exchange rate. Between 2001 and 2011, Australia experienced its largest sustained boost to the terms of trade in its history - reflected in Australia's mining boom. During this period the Australian dollar increased to its highest level since it was floated. Since 2011, the terms of trade have fallen, bringing to an end the decade long mining boom.

The terms of trade is an index which measures the relative movements in the prices of exports and imports. The prices Australia receives for its exports and pays for its imports have an important bearing on the value of exports and imports. Movements in the terms of trade can have a significant influence on the trade and current account balance, the exchange rate and national income. For example, an increase in the general level of export prices will be beneficial because export income will increase adding to a country's national income. If export prices fall, on the other hand, then exporters will find their income falling. This could result in the level of national income decreasing and the trade balance decreasing. An increase in the general level of import prices will mean that consumers and producers will generally be worse off - in order to consume the same quantity of imports, they will have to increase their spending.

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

The terms of trade index

The terms of trade index is 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)

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

The export price index (XPI) for year 2 is

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

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

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

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

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

The ToT calculation for year 2 is:

$$ToT (Yr2): \frac{105}{110} \times \frac{100}{1} = 95.5$$

Figure 5.1 Constructing a terms of trade index

An index number is a statistical device used to express price changes as a percentage of prices in a base year. The method for calculating the terms of trade from a sample of export and import prices is shown in figure 5.1. A base year is selected and assigned an index value of 100. This is to simplify the task of comparison. Year 1 is chosen as the base year. The index for each year is calculated by dividing the total price for each year by the total price of the base year and then multiplying by 100. In year 2, the export price index equals 105 (420/400). The import price index for year 2 is 110 (550/500). This means that export prices increased by 5 per cent in year 2 and imports increased by 10 per cent. To calculate the terms of trade for year 2 we divide the export price index (105) by the import price index (110) and multiply by 100. The terms of trade index for year 2 is 95.5. This means that between year 1 and year 2 the terms of trade declined by 4.5 per cent. In year 3 and 4, the terms of trade increased because export prices increased by more than import prices.

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

This resulted in a further rise in the terms of trade. The following table shows the movement in the terms of trade for the four years.

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

Australia's terms of trade

A knowledge of the composition and direction of Australia's trade is useful in understanding the trends in the terms of trade. Australia's exports consist mainly of primary commodities (especially resources), while imports are dominated by manufactured goods. Resource exports account for over 50 per cent of Australia's exports. Australia is the largest supplier of iron ore and coking coal to the world, the two key inputs for the production of steel. Australia's dominant trading partner is China, which is the world's second largest economy. The prices of commodities can be subject to wide fluctuations due to inelastic demand and supply. Small shifts in demand or supply can cause large price swings. This means that when the Chinese economy expands, the demand for resources, such as iron ore and coal, will increase which will boost world commodity prices and increase Australia's export price index. This would be an advantage to Australia's exporters such as BHP and Rio Tinto - they would sell their output for higher prices increasing their export revenue. An increase in Australia's export price index (*ceteris paribus*) will increase Australia's terms of trade.

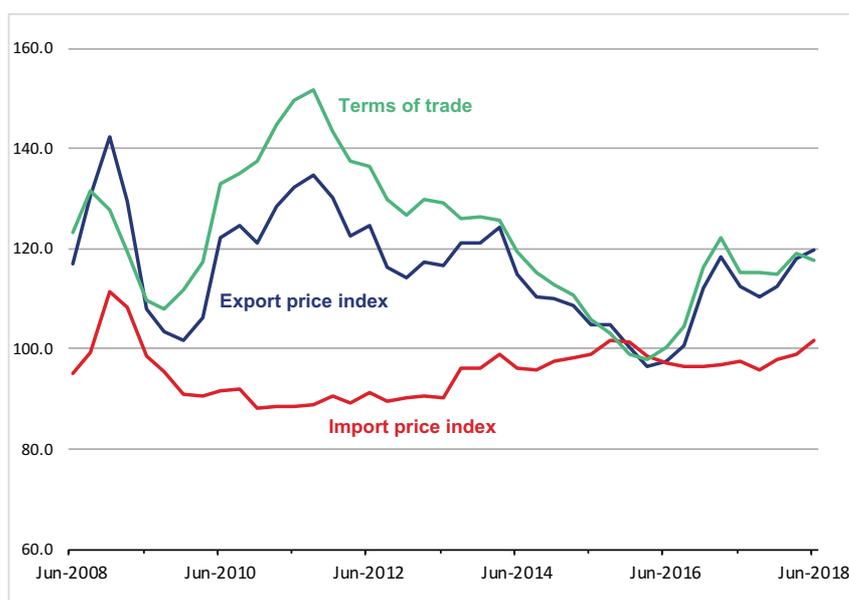
Conversely, if world economic growth contracts then the demand for resource commodities will fall, reducing commodity prices and Australia's export price index. The import price index is the other part of the terms of trade. The bulk of Australia's imports are manufactured goods and intermediate goods. The prices for these goods do not change as much as the prices of resources or commodities. The following table shows the movements in Australia's export and import price indices and the terms of trade between 2009 and 2018. It is evident that the export price index is more volatile than the import price index. This means that the key driver of Australia's terms of trade is normally the export price index.

Australia's terms of trade had been rising since 2001 due to the surge in world commodity prices, reaching a peak in 2011. After 2011, the terms of trade fell from around 150 in 2011 to 118 in 2018. Over this period, the export price index fell by 26 per cent due to the large falls in commodity prices and reflected the end of Australia's mining boom. The import price index actually increased by 15 per cent over the same seven year period. So the terms of trade fell due to a combination of a fall in the export price index and a rise in the import price index.

Year (as at June)	Export Price Index	Import Price Index	Terms of Trade
2009	108.0	98.4	109.8
2010	122.0	91.7	133.0
2011	132.4	88.4	149.8
2012	124.5	91.3	136.4
2013	116.7	90.3	129.2
2014	114.9	96.1	119.6
2015	104.9	99.0	106.0
2016	97.6	97.2	100.4
2017	112.5	97.6	115.3
2018	119.7	101.8	117.6

Figure 5.2 shows the terms of trade for Australia since 2008. Australia has very little direct influence on its export and import price indices. Australia's export and import prices are largely set in the world market. Australia is said to be a price taker with respect to the prices of traded goods. Notice how the terms of trade and the export price index are highly correlated - confirming the importance of the export price index. The graph shows the dramatic decline in the terms of trade during 2009 due to the global financial crisis. The index then quickly recovered and surged again to 2011 - the second stage of the mining boom. Since 2011, the terms of trade plummeted from around 150 to 100 in 2016. Australia's mining boom was now well and truly over as world commodity prices collapsed. After 2016, export prices improved again boosting the terms of trade.

Figure 5.2 Australia's terms of trade



In 2011, Australia's terms of trade rose to their highest level in over 140 years. After 2011, Australia's terms of trade fell as commodity prices declined. Notice how the terms of trade tracks the export price index.

Effects of changes in the terms of trade

Changes in the terms of trade have important effects on

- the business cycle;
- output and employment;
- the trade and current account balance in the balance of payments;
- the exchange rate;
- national income; and
- investment.

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

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

The Australian Bureau of Statistics recognises the importance of the terms of trade on the level of economic prosperity by calculating Gross Domestic Product adjusted for the terms of trade. GDP usually provides an accurate measure of the volume of the goods and services produced in the economy. But if the terms of trade change over the same period, then GDP will not provide an accurate measure of the real purchasing power of the income generated by domestic production. In other words, GDP adjusted for the terms of trade - called real gross domestic income (real GDI) - is a better measure of a country's real purchasing power than simply using the normal GDP figure. The substantial rise in Australia's terms of trade during the mining boom 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 throughout the economy. In this way a rise in the terms of trade is seen as providing a positive boost to economic growth and living standards. In other words, it has a favourable impact on the economy.

Theoretically there should be a close link between the terms of trade and the trade balance in the balance of payments. The terms of trade measures changes in the prices of exports and imports while the trade balance measures changes in the value of exports and imports. In other words, the trade balance takes into account not only the prices of traded goods but their quantities as well. This is an important distinction which many people fail to appreciate.

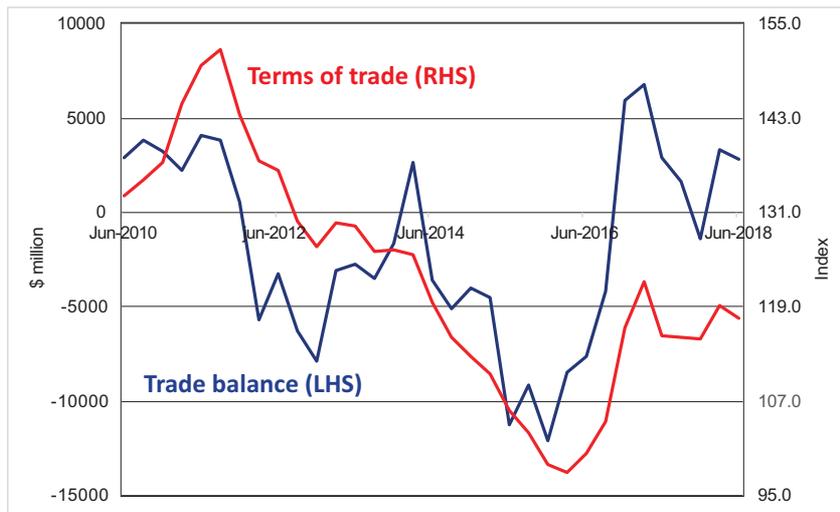


Figure 5.3 The terms of trade and the trade balance

Generally the terms of trade and the balance of goods and services will show a direct relationship. For example, a rise in the terms of trade would normally cause an increase in the trade balance (a smaller deficit or larger surplus) and therefore an increase in the current account balance. During the mining boom, Australia’s export price index increased because world demand for commodities increased which resulted in both higher prices and higher sales for Australia’s resource exports. Figure 5.3 shows both Australia’s trade balance and the terms of trade. It does generally show a relatively positive relationship. Falls in the terms of trade do coincide with a fall in the trade balance and vice versa. But it is important to remember that the terms of trade is one of many factors that will affect the trade balance.

A rise in the terms of trade will normally increase the trade balance by increasing the value of exports.

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

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' which is discussed in more detail in the box below. The mining boom caused by the rise in commodity prices resulted in a 'two speed' economy. The mining sector boomed and grew at a fast pace, but other domestic industries were adversely affected by the high exchange rate and grew at a much slower speed.

As long as Australia's exports are dominated by resources, then the terms of trade will continue to play an important role in affecting Australia's business cycle and living standards.

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

During the mining boom, there was a fear that the Australian economy would 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 a commodity boom. (It is named after the negative impact of an oil & gas boom on Dutch manufacturing industry in the 1970s).

In Australia's case it is seen in the terms of trade boom sucking investment and resources into the mining sector and away from manufacturing and other sectors of the economy. The commodity boom put the Australian dollar on steroids which had a negative impact on non-mining exporters as well as the tourism and retail industries in Australia. A high Australian dollar makes it difficult for Australian 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 was attracted into the mining sector because of the lure of higher wages which imposes cost pressures on other sectors of the economy.

So was the resources boom a welcome gift or a curse? While a high exchange rate imposes costs on some groups it does bring benefits to others - namely consumers. The resources boom also boosted export and national income which meant increased spending to all sectors of the economy. The services sector received an extra boost from a stronger economy. The government also gained because taxation revenue increases with more employment, increased mining royalties and higher company profits. So while the resources boom did result in a large appreciation in the exchange rate, it also provided a significant boost to the nation's purchasing power and had a positive effect on economic growth and employment.

Worksheet

1. Define the terms of trade.
2. How is the terms of trade measured?
3. Explain how the terms of trade could fall even if the export price index increases.
4. If the terms of trade decline, how does this affect a nation's standard of living?
5. Calculate the terms of trade given the following information: export price index = 115; import price index = 110. If the terms of trade for the previous year was 95, has the terms of trade improved or deteriorated?
6. Explain the link between Australia's commodity price index and the export price index.
7. Explain why Australia's terms of trade fell after 2012.
8. Explain how changes in the terms of trade affect the trade balance.
9. A rise in the terms of trade is considered 'good' under what assumption?
10. How does a rise in the terms of trade affect the exchange rate?
11. What is real gross domestic income (real GDI)?
12. What effect has China had on Australia's export price index and import price index?
13. Explain the problem of 'Dutch disease'.
14. Which sectors of the economy benefitted from the resources boom and which sectors were disadvantaged?
15. Construct an export price index and an import price index for the data in the table opposite. Use Year 1 as the base year.
16. Calculate the terms of trade for each year.
17. Which export increased most in price over the three years?
18. Which import showed the greatest increase in price over the three years?
19. Describe the movement in the terms of trade for years 2 and 3.

Multiple choice

1. A terms of trade index can be calculated as
 - a. $\text{exports} - \text{imports} \times 100$
 - b. $\text{import price index}/\text{export price index} \times 100$
 - c. $\text{value of exports}/\text{value of imports} \times 100$
 - d. $\text{export price index}/\text{import price index} \times 100$
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. If import prices rise relative to export prices, then the terms of trade will
 - a. improve.
 - b. decrease.
 - c. remain unchanged.
 - d. fall but only if the exchange rate falls as well.
4. An unfavourable movement in the terms of trade can occur if
 - a. import prices rise less rapidly than export prices.
 - b. import prices rise more than export prices.
 - c. import prices fall while export prices rise.
 - d. import prices fall while export prices remain constant.

5. A favourable movement in the terms of trade tends to raise the country's standard of living by
- creating a balance of trade surplus and stimulating export industries.
 - increasing the value of the currency and thereby stimulating exports.
 - increasing real GDP through an improved export performance.
 - increasing the volume of imports obtained from the sale of a given volume of exports.
6. An important distinction between the terms of trade and the trade account is
- the terms of trade measure volumes whereas the trade account measures values.
 - the terms of trade measure prices whereas the trade account measures volumes.
 - the terms of trade measure prices whereas the trade account measures values.
 - the terms of trade measure values whereas the trade account measures prices.

7. From the table it can be concluded that over the period shown:

Year	Export price index	Import price index
1	100	100
2	110	105
3	120	110

- export prices were rising but by less than import prices.
 - less imports could be purchased with the same quantity of exports.
 - import prices were rising but by less than export prices.
 - there was a deterioration in the terms of trade.
8. If the export price index rises faster than the import price index this means
- the country is less competitive on world markets.
 - the country is more competitive on world markets.
 - the country must use a greater quantity of exports to obtain a given quantity of imports.
 - the country is able to obtain a greater quantity of imports with a given quantity of exports.
9. An unfavourable movement in the terms of trade will be the result of
- export prices remaining stable and import prices falling.
 - import prices rising faster than export prices.
 - import prices remaining stable and export prices rising.
 - export prices and import prices rising by the same proportion.
10. If China's demand for minerals and energy increases, what impact is this likely to have on Australia's terms of trade and trade balance?
- terms of trade will deteriorate, but the balance of trade will improve.
 - terms of trade and the balance of trade will both increase.
 - terms of trade will improve, but the balance of trade will fall.
 - terms of trade and the balance of trade will both decrease.
11. If import prices rise while export prices either stay the same, fall or rise by less than import prices, what will have happened to the terms of trade?
- they improve.
 - they deteriorate.
 - they remain unchanged.
 - it is impossible to say.
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 fall in the financial account surplus.
 - a rise in the goods and services balance.
 - an appreciation of the Australian dollar.
 - a decline in Australian living standards.

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

14. 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.

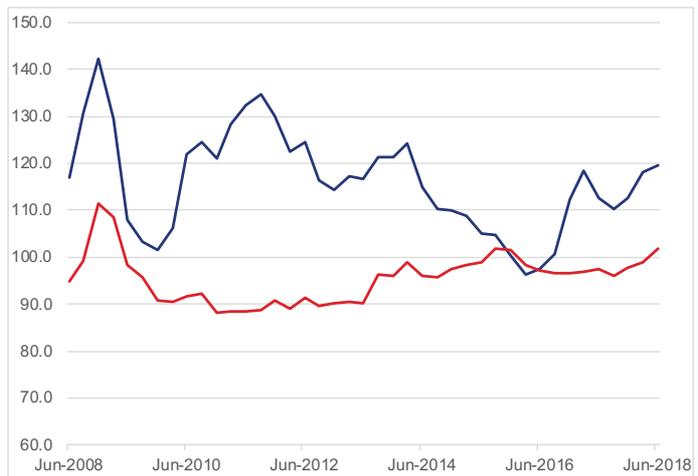
15. What is the main implication of a fall in the terms of trade?
 - a. an appreciation of the Australian dollar
 - b. a rise in the current account balance
 - c. stronger economic growth in Australia
 - d. a fall in living standards

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

Data Interpretation

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

1. On the graph, label the 'export price index' and the 'import price index'.
2. In which period was Australia's terms of trade equal to 100?
3. Explain why Australia's export price index fluctuates more than its import price index.
4. Describe the changes to the export price index between 2014 and 2018. Provide two reasons for this change.
5. Identify a period when the terms of trade would have decreased and when it would have increased.
6. Explain why a rise in the terms of trade is 'favourable' for the economy.



Article**The terms of trade 'drives' the Australian economy**

The terms of trade - the ratio of export prices to import prices - is an important economic measure for the Australian economy. It 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. 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 2001 and 2011. In 2011, they reached their highest sustained levels in 140 years on the back of substantial price rises for coal, iron ore and natural gas. It was the biggest export price bonanza and the nation's biggest overall resources boom ever.

But the boom years were followed by the bust! The terms of trade fell by over 30 per cent between 2011 and 2016, taking billions of dollars out of the economy. The mining sector contracted with a consequent collapse in mining investment and employment. Government budgets suffered from the loss of tax and royalty revenue. The terms of trade recovered again after 2016, increasing the trade balance and boosting economic growth.

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 collapse after 2012?
5. Explain the effects of a decline in the terms on investment, jobs and government revenue?

Extended response

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

1. a. Explain what the terms of trade index measures and distinguish between a favourable and an unfavourable movement in the terms of trade. [8 marks]
- b. Explain the effect of each of the following on the terms of trade:
 - i. an increase in iron ore and coal prices
 - ii. an increase in oil prices
 - iii. a fall in ICT prices [12 marks]
2. The terms of trade index in Australia increased from 100 in June 2016 to 118 in June 2018.
 - a. Explain what the terms of trade measures, and suggest why it may have risen over this two-year period. [10 marks]
 - b. Explain the likely economic effects of this movement in the terms of trade on consumers, businesses and the traded goods sector. [10 marks]
3. Describe the recent trend in Australia's terms of trade and discuss the likely causes and implications of this trend. [20 marks]

Exchange Rates

6



Chapter concepts and skills

- *the concept of an exchange rate*
- *the determination of, and movements in, the exchange rate*
- *demonstrate an appreciation and a depreciation of the exchange rate under a freely floating system*
- *the factors influencing exchange rates in a freely floating system*
- *the concept of a 'trade weighted index'*
- *the relationship between exchange rates and the balance of payments*
- *the effects of exchange rate movements on economic activity*
- *recent trends in Australia's exchange rate movements*
- *apply mathematical techniques relevant to exchange rate calculations*
- *use the demand and supply model to analyse changes in the Australian dollar.*

Introduction

If all countries of the world used the same currency, international transactions would be very simple. As we know, every country has their own currency, meaning that a rate of exchange has to be established in order for trade to take place. The sidebar shows the rates of exchange between the Australian dollar and some of

Value of AUD1			
Currency name and code		12 Oct 2017	12 Oct 2018
US dollar	USD	0.78	0.71
Japanese yen	JPY	87.8	80.2
UK pound	GBP	0.59	0.54
Euro	EUR	0.66	0.61
Korean won	KRW	886	805
Singapore dollar	SGD	1.06	0.98
Indian rupee	INR	50.9	52.4
New Zealand dollar	NZD	1.10	1.09
Chinese Yuan	CNY	5.15	4.91
Trade Weighted Index (TWI)		65.7	61.6

Australia's main trading partners, and the movement in those rates between October, 2017 and October, 2018. The last item, the trade-weighted index, is a 'basket' of currencies weighted according to their importance in trade flows with Australia. While the US dollar is the most frequently cited exchange rate for the Australian dollar, it is the trade-weighted index which more accurately reflects changes in the value of the currency. In the table, the Australian dollar depreciated against all the currencies listed except for the Indian rupee.

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 USD0.71 on October 12, 2018. This means that if a good in Australia costs AUD100, then an American buyer would need to pay USD71 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 AUD141.

$$\begin{array}{l} \text{That is, if} \quad \text{AUD1} = \text{USD0.71} \\ \text{then} \quad \text{USD1} = \text{AUD1.41} \end{array}$$

Notice that the Australian dollar decreased in value against the US dollar by nine per cent over the year, which can make a significant difference in terms of international purchases. For example an iPad Pro in the US costs \$US649. At the current exchange rate (1AUD = US0.71) it would cost \$A914. But if the exchange rate was 1AUD = US0.80, then the iPad would be over a hundred dollars cheaper.

The foreign exchange market is the market in which the currencies of different countries are bought and sold. Foreign exchange is the currency of another country that is needed to carry out international transactions. The foreign exchange market between Australian dollars and United States dollars consists of two groups of people: those demanding US dollars - an Australian importer of US goods; and those demanding Australian dollars - an American buyer of Australian goods.

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

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

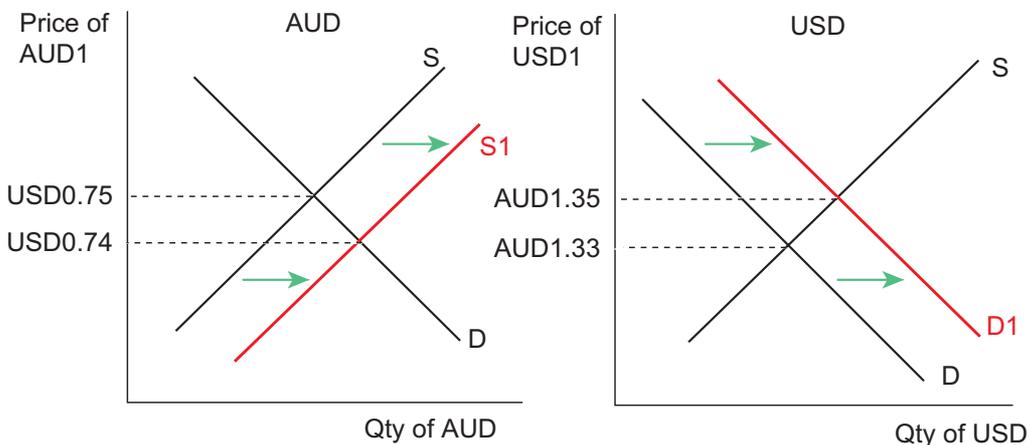
Assume that initially the rate of exchange between the two currencies is:

$$\begin{aligned} \text{AUD1} &= \text{USD0.75} \\ \text{or} \quad \text{USD1} &= \text{AUD1.33} \end{aligned}$$

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

Figure 6.1 Changes in the exchange rate

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



Economic research - exchange rates

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

Note there is usually a difference between the bid and the ask price quoted by foreign exchange dealers acting as intermediaries.

A new exchange rate will be determined by the market:

$$\begin{array}{l} \text{AUD1} = \text{USD0.74} \\ \text{or} \quad \text{USD1} = \text{AUD1.35} \end{array}$$

The Australian dollar is said to have depreciated - it is worth less in terms of American currency, while the American dollar has appreciated.

It is important to realise that a country's exchange rate is closely related to its balance of payments. The balance of payments records all international transactions in goods, services, income and financial assets and liabilities. The exchange rate is the means by which these transactions are facilitated. In other words, the fundamental factors underlying the value of a country's exchange rate are determined by the transactions in the balance of payments.

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

International transactions

The demand for, and the supply of, a currency are determined by the international transactions that are recorded in the balance of payments. All transactions that

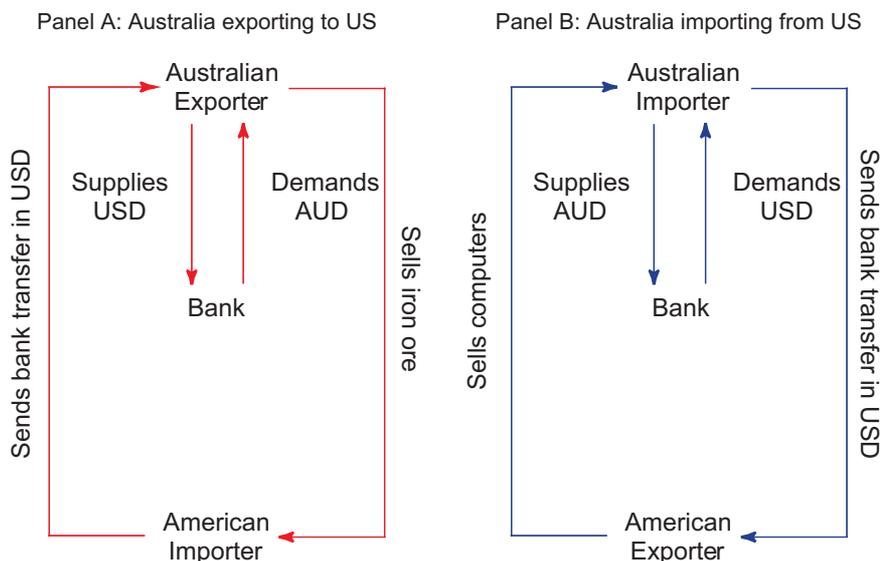
result in an inflow of money into the Australian economy, in both the current account and the capital and financial account, represent a demand for a country's currency. Transactions that result in an outflow of money, on the other hand, represent the supply of a country's currency. We will use the Australian dollar as an example. Assume an Australian mining company is exporting iron ore to the United States. The contract is likely to be priced in US dollars (USD). Most international transactions are contracted in one of the key world currencies, for example, USD, Japanese Yen (JPY), Pounds Sterling (GBP) or the Euro (EUR). In terms of Australia's trade, around two thirds of exports and one half of imports are contracted in USD. The remainder of Australia's trade is contracted in AUD.

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

Essentially, the demand for a currency will be determined by:

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

Figure 6.2 The foreign exchange market



The supply of a currency will be determined by:

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

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

A freely floating exchange rate

A floating or free exchange rate is one whose value is determined by the market forces of supply and demand. Its value can change daily and even by the minute as it reflects changes in the demand and the supply of its currency. The demand and supply of Australian dollars is shown in Figure 6.3. The price axis measures the value of one Australian dollar in US currency while the quantity axis measures the volume of Australian currency. The equilibrium value in terms of US dollars in this example is $\text{AUD}1 = \text{USD } 0.75$. A floating exchange rate simply means that the equilibrium price will change whenever the demand or the supply curves shift. If the demand for Australian dollars increases because there is an increase in the demand for Australian exports or there was an increase of foreign investment into Australia, then the value of the Australian dollar will rise. This means that the Australian dollar will appreciate against the US dollar. Panel A in Figure 6.3 shows the effect of the increase in demand for \$A with the exchange rate appreciating to USD0.76.

If there was an increase in the supply of Australian dollars, due to an increase in imports or increased income payments to overseas investors, then the value of the Australian dollar would decrease - it would depreciate against the US dollar. Panel B in figure 6.3 shows the value of the Australian dollar has decreased to USD0.74. As long as the value of the Australian dollar is allowed to move in accordance with shifts in demand and supply, then it is a free or floating exchange rate.

When the currency is allowed to float free from the interference of the central bank (in Australia, the Reserve Bank) then it is referred to as a 'clean float'. A managed exchange rate 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 through the market system. If, for example, the Reserve Bank wanted to prevent the exchange rate from falling to too low a level, it would enter the market as a buyer of Australian dollars and use its reserves of foreign exchange to bid up the price. Conversely if the Bank wished to stop the currency from appreciating, it would sell Australian dollars, increasing the supply and hence reducing any upward pressure on the exchange rate.

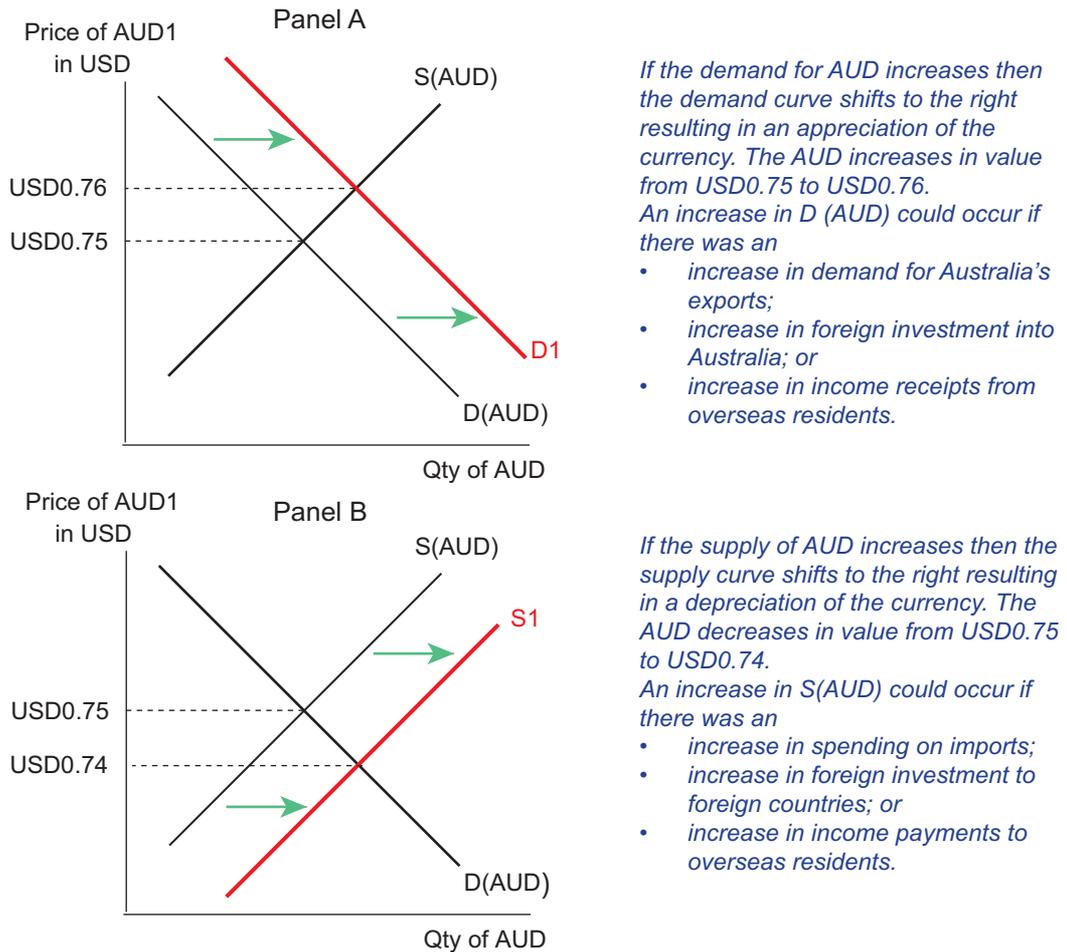


Figure 6.3 A floating exchange rate

A second method the Reserve Bank could use to affect the value of the exchange rate is through monetary policy. Monetary policy is used to set short term interest rates. If interest rates are increased, then foreign investment will be attracted to the Australian economy increasing the demand for Australian dollars and appreciating the currency. Whenever the central bank intervenes in the foreign exchange market to influence the movement of the currency, or to set its value in a particular 'range' then this is referred to as a 'dirty float'. The Reserve Bank of Australia claims that it only enters the foreign exchange market occasionally with a view to 'testing and smoothing' the underlying trend in the exchange rate. This is sometimes referred to as a 'lightly managed float'.

The free exchange rate and the balance of payments

Economists favour free markets so that changes in demand and supply will be reflected by changes in prices. For this reason, economists also favour free exchange

rates rather than attempting to fix or peg their values to another currency. It would be similar to trying to fix the price of bread or petrol. By leaving markets to adjust to changes in market conditions, shortages and/or surpluses are avoided. A freely floating exchange rate is a perfect example of a competitive market where the price fluctuates in response to changes in the demand and supply of the currency.

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

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

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

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

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

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

The AUD is the fifth most traded currency in the world and the AUD/USD is the fourth most traded currency pair in the world.

Recent trends in the exchange rate

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

The trade weighted index (TWI)

The TWI is a weighted average of a basket of currencies that reflects the importance of the sum of Australia's exports and imports of goods by country. 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 the US dollar.

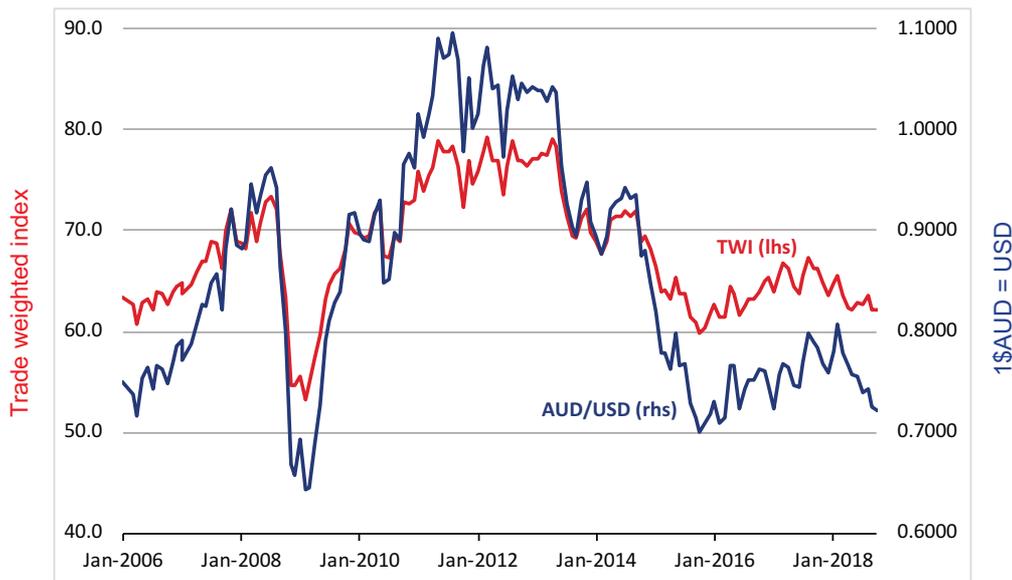
The weights for the TWI are changed every 12 months based on changes in the direction of Australia's trade. The weights for the top 10 currencies are shown below. Note that the top 3 currencies comprise around 50 per cent of the TWI.

Chinese renminbi	27%	United Kingdom pound	4%
Japanese yen	11%	New Zealand dollar	4%
United States dollar	10%	Indian rupee	4%
European euro	10%	Singapore dollar	3%
South Korean won	5%	Thai baht	3%

Source: RBA

Figure 6.4 illustrates the volatility of the AUD exchange rate since 2006. The graph records movements in the Australian dollar against the US dollar and the TWI (the trade-weighted index). The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country. Between 2006 and 2018, the Australian dollar fluctuated between USD0.64 and USD1.10 and between 53 and 79 on the trade weighted index. During the period shown in the graph, the average value for the Australian dollar was USD0.86 – well above its long term average of USD0.76. Notice how closely the two exchange rates track one another. However it is important to note that the TWI does not fluctuate as much since it is an average of Australia's major trading currencies.

Between 2006 and June 2008 there was a strong appreciation of the Australian dollar both against the USD and the TWI. The dollar increased from USD0.75 to USD0.96 while the TWI increased from 63 to 73. This was due to the first stage of the mining boom in Australia fuelled by the strong demand from China. During 2008-09 there was a dramatic fall in the Australian dollar due to the global financial crisis and the ensuing world recession. The currency declined by 33% - from USD0.96 in June 2008 to a low of USD0.64 in January 2009. During 2009, the Australian dollar recovered as the mining boom entered phase two and by July 2011 had hit AUD1.10 - its highest value since the dollar was floated way back in December 1983. It is no coincidence that Australia's terms of trade also reached its highest level during 2011. The mining construction boom ended in 2012 with the decline in commodity prices (especially iron ore and coal). The



Source: RBA

Figure 6.4 The AUD exchange rate 2006-2018

Australian dollar depreciated relatively quickly, hitting USD0.70 by September 2015. Between 2016 and 2018 the Australian dollar fluctuated between USD0.70 and USD0.80.

Factors affecting the exchange rate

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

- relative inflation rates - inflation reduces the competitiveness of industries in the traded goods sector. A high inflation rate relative to other countries is likely to decrease the exchange rate - the $D(\text{AUD})$ will decrease while the $S(\text{AUD})$ will increase;
- movements in the terms of trade - this has a major influence on Australia's exchange rate. When the terms of trade increase, the $D(\text{AUD})$ increases and the currency appreciates.
- international capital flows - if investors believe Australia to be a relatively more attractive destination for their funds compared to other economies then $D(\text{AUD})$ will increase and the Australian dollar would appreciate.

- domestic economic growth - strong economic growth in Australia will lead to an increase in demand for imports, which will increase the $S(\text{AUD})$ causing a currency depreciation; but at the same time, a stronger economy will attract foreign investment which will increase the $D(\text{AUD})$ increasing the exchange rate.
- world economic growth - an increase in global GDP (esp. China), increases world commodity prices which increases the $D(\text{AUD})$ and appreciates the currency;
- relative interest rates (the interest rate differential) - if interest rates in the United States rise relative to Australia, then there will be a decrease in capital inflow to Australia and an increase in capital outflow. This means that the $D(\text{AUD})$ will decrease and at the same time the $S(\text{AUD})$ will increase causing a strong currency depreciation.

There have been many studies examining the key factors affecting the Australian dollar. This research has highlighted two significant factors which appear to drive Australia's exchange rate. The first factor is commodity prices. The Australian dollar is often referred to as a 'commodity currency'. Around 65 per cent of Australia's exports are made up of primary commodities - rural goods and resources. These commodities include iron ore, coal, gold, wheat, beef, wool, bauxite and natural gas. 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 over 20 per cent of Australia's GDP. There is a very strong positive correlation between movements in commodity prices and the Australian dollar. The Reserve Bank of Australia compiles an index of commodity

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

prices weighted according to the importance of the commodity in Australia's trade. A general increase in commodity prices, ceteris paribus, will result in an appreciation of the Australian dollar.

The second key factor affecting the Australian dollar is Australia's interest rate differential with the United States. This can be measured by the difference in official cash rates between the two countries. For example in October 2018, the cash rate in Australia was 1.5 per cent while in the United States, the Federal funds rate was 2.25 per cent - a difference of 75 basis points! The interest rate differential affects foreign investors and the flow of financial capital. 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 the US rise relative to Australia, then the AUD will depreciate. Less foreign investment will flow into the Australian economy, decreasing demand for AUD and at the same time increasing the supply of AUD as Australian investors shift funds out of the Australian economy. Notice how a change in relative interest rates causes both the demand and supply curves of the AUD to shift.

Effects of exchange rate movements

Changes in the exchange rate can have important implications for the domestic economy. Is it better for an economy to have a low or a high exchange rate? 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. A high exchange rate is good for some groups in the economy, but bad for others. Likewise, a low exchange rate can be good news for some but impose costs on others. We will examine the costs and benefits of both a currency depreciation and an appreciation.

First consider a currency depreciation. One advantage to an economy is that a depreciation bestows a competitive advantage through the relative price effects on exports and imports. The prices of Australian goods and services in foreign currency (Australia's exports) fall while the prices of overseas goods and services (Australian imports) in Australian currency rise. The depreciation will encourage resources to flow into the traded goods industries - both export and import competing industries. A depreciation should increase exports and decrease imports, increasing aggregate demand in the economy. In this way, a depreciation can work to reduce a trade deficit or increase a trade surplus. So a depreciation is good news for Australian exporters and domestic producers who compete against imports. But at the same time, a depreciation hurts consumers since they must pay higher prices for imported goods such as cars, petrol, household appliances and overseas travel. A depreciating currency is also potentially inflationary because the higher priced imports feed into the consumer price index and the increase in net exports will boost national income thereby increasing spending in the economy.

A depreciation will benefit exporters but hurt importers. A depreciation will have an expansionary effect on the economy.

Now consider an exchange rate appreciation. An appreciation harms Australian exporters because it results in Australian exports becoming more expensive to overseas buyers. At the same time, an appreciation reduces the prices of overseas goods to Australian producers and consumers. Domestic manufacturers are disadvantaged because consumers are attracted to lower priced imports. But many Australian businesses that sell imports will benefit, such as department stores (Myer, David Jones) white-goods retailers (Harvey Norman, the Good Guys), and electronic stores (JB Hifi, Officeworks). Australians wishing to travel overseas are always pleased when they see the Australian dollar appreciating helping to reduce their travel costs. An appreciation is therefore likely to decrease the trade balance. An appreciation will have a contractionary effect on the economy because it will reduce net exports and decrease aggregate demand. An appreciation also helps to reduce Australia's inflation rate by reducing the prices of imports.

Causes

A decrease in demand for AUD

- decrease in exports
- decrease in income credits
- decreased capital inflow
- fall in terms of trade
- fall in interest rate differential
- higher relative inflation

An increase in supply of AUD

- increase in imports
- increase in income debits
- increased capital outflow
- fall in interest rate differential

Effects

- prices of Australian exports decrease
- prices of imports rise
- improvement in international competitiveness
- net exports will increase increasing trade balance
- boost to economic activity

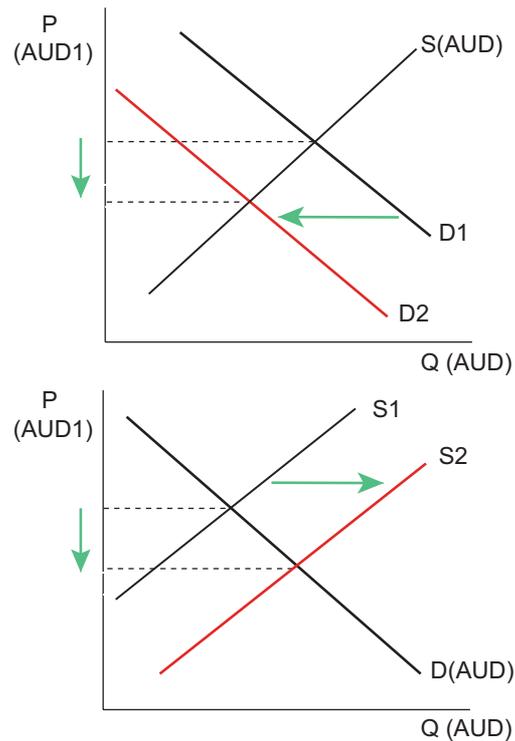


Figure 6.5 Depreciation - causes and effects

Worksheet

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

Application

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

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

Exchange Rates

Read the data and answer the questions that follow.

	AUD1 = USD	TWI	AUD1 = CNY	AUD1 = JPY	AUD1 - GBP
Jun-2014	0.9420	72.0	5.8466	95.43	0.5531
Jun-2015	0.7680	63.8	4.7661	93.92	0.4885
Jun-2016	0.7426	62.5	4.9344	76.23	0.5549
Jun-2017	0.7692	65.5	5.2067	86.16	0.5913
Jun-2018	0.7391	62.6	4.8888	81.82	0.5634

1. Name the 5 exchange rates in the table.
2. Over the period shown, against which currencies did the Australian dollar appreciate and against which currencies did it depreciate?
3. Calculate the percentage change for each currency over the period. Against which currency did the AUD depreciate the most?
4. What factors might have been responsible for the fall in the AUD/USD over this period?
5. Andrea Fitzpatrick, an international currency speculator, decided to exchange AUD 1 million dollars for JPY in June 2016. If she exchanged her quantity of JPY back into Australian dollars in June 2018, did she make a profit or loss and how much? If Andrea had purchased the JPY in June 2015 instead would she have made a profit or loss and how much?
6. What is the TWI? Explain why it is the best indicator for changes in Australia's exchange rate.
7. Explain who benefits and who loses from an exchange rate depreciation.
8. Describe the change in the AUD during 2019.

Multiple choice

1. Which of the following would lead to an increase in the value of the AUD?
 - a. rising interest rates in the United States.
 - b. an increase in imports into Australia.
 - c. a rise in commodity prices, such as iron ore and coal.
 - d. restrictions on the inflow of capital into Australia.
2. 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.
3. If there is an increase in the Australian demand for Korean motor vehicles then
 - a. the supply of AUD in the foreign exchange market will increase and the AUD will appreciate.
 - b. the demand for AUD in the foreign exchange market will increase and the AUD will appreciate.
 - c. the supply of AUD in the foreign exchange market will increase and the AUD will depreciate.
 - d. the demand for AUD in the foreign exchange market will decrease and the AUD will depreciate.
4. If an Australian can buy EUR66,666 for AUD100,000, then one Euro will equal
 - a. AUD0.67
 - b. AUD1.50
 - c. AUD15.00
 - d. AUD6.66
5. With a free exchange rate, the price of the AUD will tend to rise when
 - a. more Australian tourists go abroad.
 - b. Germans switch from French wine to Australian wine.
 - c. Australians switch from Holden Commodores to BMWs.
 - d. Australian aid spending abroad is increased.
6. If there is an increase in the Australian demand for US computers then
 - a. the demand for \$US shifts to the right and the \$US depreciates.
 - b. the supply of \$US shifts to the right and the \$US depreciates.
 - c. the demand for \$US shifts to the left and the \$US depreciates.
 - d. the demand for \$US shifts to the right and the \$US appreciates.
7. A depreciation of the Australian dollar in the foreign exchange market means that
 - a. imported goods become cheaper for Australian residents.
 - b. Australian exports become less expensive for foreign buyers.
 - c. Australian exports become more expensive for foreign buyers.
 - d. the Australian dollar can purchase more foreign goods and services.
8. Assume the following exchange rate: AUD1 = USD0.92. What will be the cost in AUD of an imported American car valued at USD20 000?
 - a. AUD18 400
 - b. AUD21 739
 - c. AUD21 600
 - d. AUD20 000
9. If the Australian dollar depreciates it means that
 - a. the value of the Australian dollar has increased.
 - b. the value of foreign exchange has decreased.
 - c. fewer Australian dollars are required to purchase foreign exchange.
 - d. more Australian dollars are required to purchase foreign exchange.

10. Which of the following will result in an increase in the supply of Australian dollars in foreign exchange markets?
 - a. a reduction in the number of Australians travelling overseas
 - b. an increase in interest rates in the United States
 - c. a reduction in imports into Australia
 - d. a reduction in income payments to foreigners
11. Which of the following factors will lead to a reduction in the demand for Australian dollars?
 - a. an increase in Australia's rural exports.
 - b. more Asian tourists coming to Australia.
 - c. an increase in overseas firms investing in Australia.
 - d. fewer Americans buying Australian government bonds
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 Australia's inflation rate rises relative to the inflation rates in its major trading partners then the demand for the Australian dollar will
 - a. rise and the Australian dollar will depreciate.
 - b. fall and the Australian dollar will appreciate.
 - c. fall and the Australian dollar will depreciate.
 - d. rise and the Australian dollar will appreciate.
15. 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.
16. 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.
17. Which of the following may result from a depreciation of the \$A?
 - a. An increase in interest rates in Australia.
 - b. A decrease in the volume of money in Australia.
 - c. A decrease in the competitiveness of Australia's exports.
 - d. An increase in the price of imported capital equipment.

Article 1

Refer to the article below and answer the following questions.

When is a low Aussie dollar – a good thing?

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

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

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

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

Questions

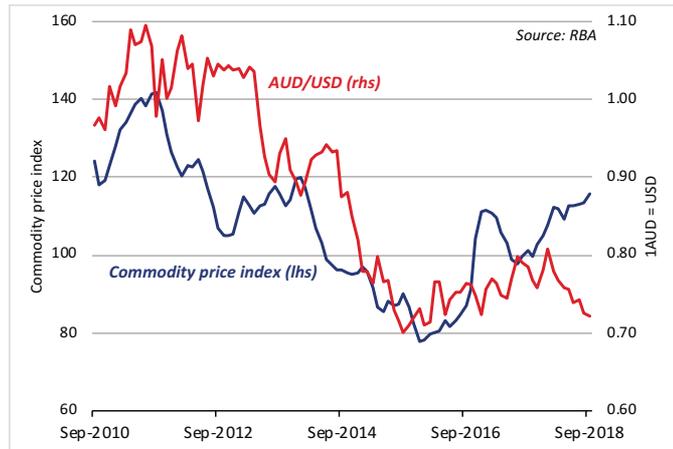
1. Explain the benefits of a low dollar and the costs of a low dollar.
2. What is the non-mining tradeable sector of the economy? Provide examples of industries in this sector.
3. Why does a low dollar bring gains to the non-mining tradeables sector?
4. Explain how a low exchange rate is expansionary.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

Data interpretation

Refer to the graph showing the exchange rate and commodity price movements.

1. What are commodity prices? What proportion of Australia's exports are commodities?
2. Describe the relationship between the commodity price index and the value of the AUD against USD.

3. Explain how world economic growth affects commodity prices.
4. What factors other than commodity prices have a significant effect on the AUD?
5. Provide a reason why the AUD fell during 2018 despite rising commodity prices.



Article 2

Refer to the article below answer the following questions.

1. What is considered the biggest factor affecting the AUD?
2. Explain why the exchange rate and interest rates are 'best friends'.
3. Explain the statement: ".that's why we all go bananas over an RBA interest rate decision. . "

Why are we preoccupied with movements in the Australian dollar?

Because it can make travelling more or less expensive, it can turn a business profit into a loss and a weak currency can cushion the blow of a collapsing economy. By far and away the biggest factor affecting the Australian dollar, against the US dollar, is the interest rate differential between the two countries. It's for obvious reasons too. Traders and investors chase "yield" or a "return" on investment. An interest rate is a return on money held in deposit. So if you're able to borrow money in a low interest rate environment, and invest it in a higher interest rate environment, of course you would.

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

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

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

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

Source: www.abc.net/news

4. Why would a 'weak jobs report' result in a fall in the AUD?
5. Explain why increased monetary stimulus in the United States would result in a higher AUD.
6. Which groups in the Australian economy benefit from a fall in the AUD?

Extended responses

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

1. a. Distinguish between factors affecting the demand for a currency and the supply of the currency. [10 marks]
b. Explain the link between the balance of payments and the exchange rate. [10 marks]
2. The two key determinants of the Australian dollar are commodity prices and relative interest rates. Using appropriate models, explain how these factors influence the value of the AUD. [20 marks]
3. Describe the trend in the Australian dollar over the past year. Identify factors that have affected this trend, and outline the effects of the change in the AUD on the economy. [20 marks]

Foreign Investment

7



Chapter concepts and skills

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

Introduction

In this chapter we investigate the importance of foreign investment to the Australian economy. Australia has always relied on a net inflow of foreign investment to develop its economy and to supplement its domestic savings. In chapter 4 we noted that Australia records a current account deficit and a financial account surplus. This occurs because Australia's total investment exceeds its savings (the I - S gap) and we import foreign savings from the rest of the world. This foreign savings is capital inflow, or foreign investment into the Australian economy.

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

In June 2018, the stock of foreign investment in Australia (foreign liabilities) equalled \$3,555 billion. Australia's stock of foreign investment abroad (foreign assets) amounted to \$2,601 billion resulting in a net international investment position of \$954 billion.

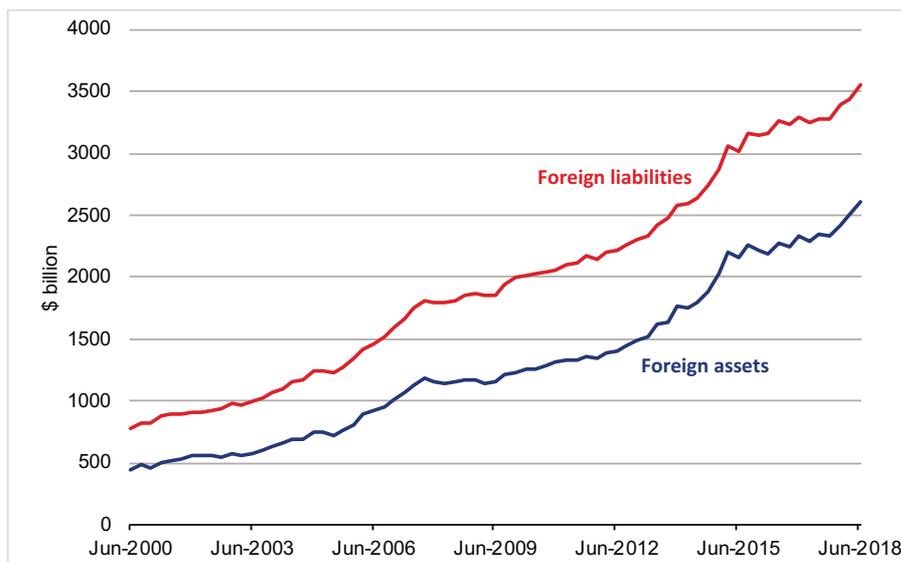
Foreign liabilities and foreign assets

Foreign liabilities are created when Australian residents borrow money from overseas or sell assets such as shares to foreign residents. It is called foreign investment in Australia, and is an inflow of money from overseas. Foreign assets are created

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

when Australian residents lend money to foreign residents or purchase foreign assets. It is called Australian investment abroad, and is an outflow of money. Figure 7.1 shows the growth of Australia's foreign liabilities and foreign assets since 2000. Over this period foreign assets increased from \$450bn to \$2,600bn, while foreign liabilities increased from \$780bn to just over \$3,500bn. It is interesting to note that foreign assets increased at a faster rate than liabilities. Instead of measuring

the change in billions of dollars we can compare the growth in assets and liabilities as a per cent of GDP. Since 2000, Australia's foreign liabilities increased from 118 per cent of GDP to 193 per cent. At the same time, Australia's foreign assets doubled from 68 per cent of GDP to 141 per cent.



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

Figure 7.1 Australia's foreign liabilities and foreign assets

The distance between the two line graphs in figure 7.1 represents Australia's net foreign liabilities. They have increased from \$334 billion in 2000 to \$953 billion in 2018 - almost tripling! Is this a cause for concern? Not really, because it is important to remember that net foreign liabilities represents net foreign investment into Australia which has enabled Australia to develop and grow over time, increasing our national income and standard of living. Measured as a percentage of GDP, net foreign liabilities has barely changed - from 51 per cent of GDP in 2000 to 53 per cent in 2018.

Foreign investment can be in the form of borrowing (foreign debt) or in the form of foreign ownership (foreign equity). If Australian residents (households, firms or government) borrow from overseas, then this increases Australia's foreign debt. If Australian residents sell assets to overseas residents, then this increases foreign equity. The following table summarises Australia's net international position for 2018.

June 2018	Debt \$bn	Equity \$bn	Total \$bn
Foreign Liabilities	2236	1319	3555
Foreign Assets	1200	1402	2602
Net International Investment Position	1036	-83	953

Total foreign investment in Australia (foreign liabilities) amounted to \$3,555 billion and this comprised \$2,236 billion of foreign debt and \$1,319 billion of foreign equity. Australia's foreign assets amounted to \$2,602 billion and this comprised \$1,200 billion of lending and \$1,402 billion of equity.

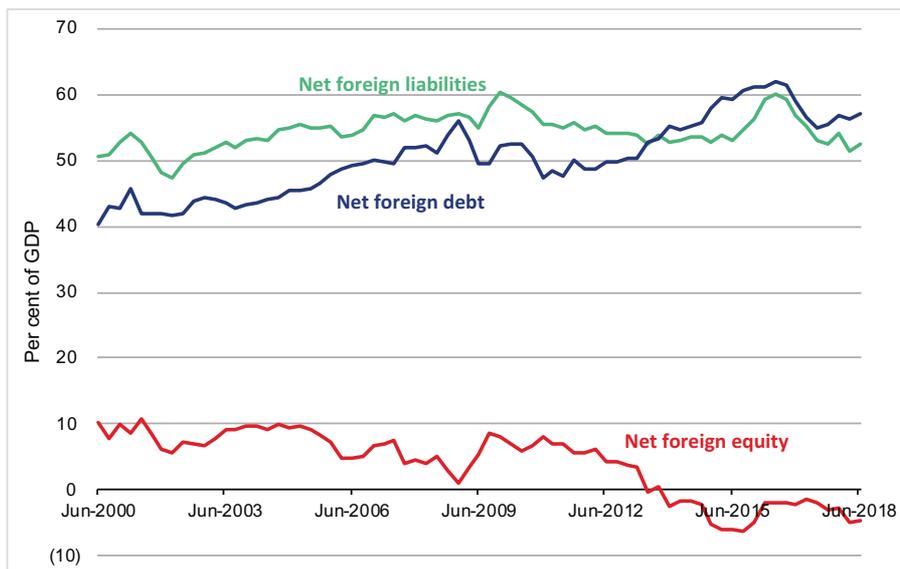
We are interested in the net figures - net foreign debt, net foreign equity and the net international investment position. Australia's net foreign debt in 2018 was \$1,036 billion, while net foreign equity was -\$83 billion. Overall, Australia had a net foreign liability of \$953 billion. These numbers appear large but it is important to remember that they consist of the accumulation of net capital inflow over many decades. In other words, the stock of foreign liabilities equals the sum of all of Australia's past financial account surpluses (or current account deficits).

All of Australia's net foreign liabilities are in the form of foreign debt rather than foreign equity.

Figure 7.2 shows Australia's net international investment position since 2000 measured as a proportion of GDP. Notice that Australia's net foreign liabilities have been relatively stable, fluctuating between 50 and 60 per cent of GDP. Australia has always favoured borrowing over selling assets in terms of foreign liabilities. Net foreign debt has risen from 40 per cent of GDP in 2000 to 57 per cent in 2018, while net foreign equity has fallen from 10 per cent of GDP to -5%. This means that now all of Australia's net foreign liabilities are in the form of foreign debt. This is no cause for concern, however, given that borrowing provides a far more flexible and prudent approach than selling ownership of one's 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. These income payments are recorded in the current account in the balance of payments. Remember that foreign investment flows are recorded in the financial account.

Each year Australia records a financial account surplus due to the net inflow of capital, mainly in the form of borrowing. The income payments associated with

Figure 7.2 Australia's net international investment position



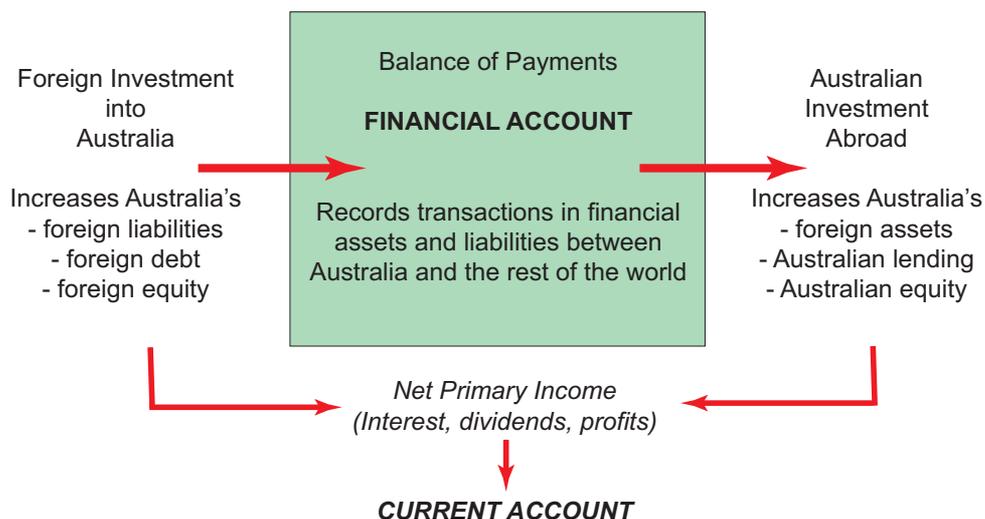
this foreign investment are recorded in the primary income account which adds to Australia's current account deficit.

Foreign liabilities and the current account

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

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

Figure 7.3 Foreign investment and the balance of payments



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

Australia's foreign debt

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

An important distinction should be made between gross foreign debt - the total of Australia's overseas borrowing; and net foreign debt - gross debt minus Australian lending to overseas residents. Net foreign debt provides the best view of our debt situation. An example will make this clear. If country A owed country B \$100 billion but was owed \$60 billion by country C, then country A's gross foreign debt equals \$100 billion, but its net foreign debt is \$40 billion. In 2018, Australia's gross foreign debt was \$2,236 billion but Australia's lending abroad equalled \$1,199 billion resulting in a net foreign debt of \$1,037 billion.

Most of Australia's net foreign debt is owed by the private sector - the government's share in 2018 was 26 per cent.

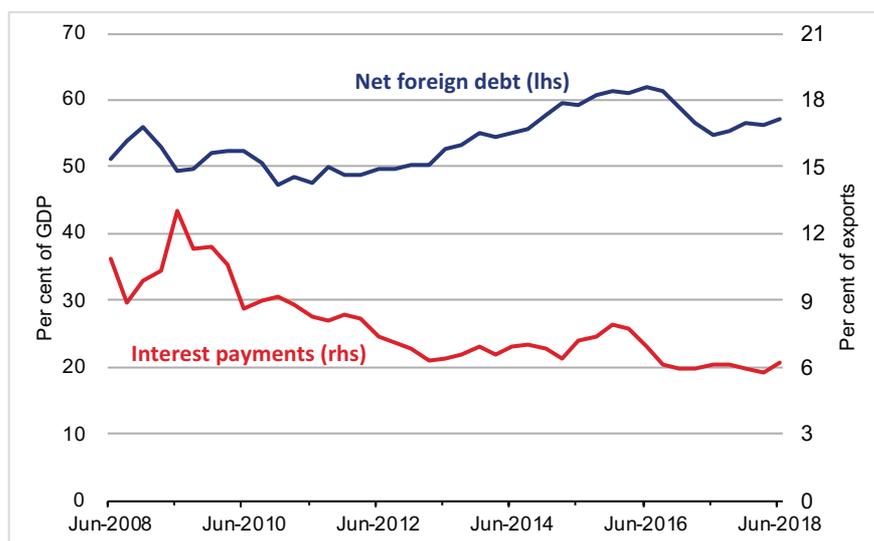
Australia's Net Foreign Debt \$ billion					
Year	Public \$bn	Public %	Private \$bn	Private %	Total \$bn
2009	38	6	585	94	623
2010	112	16	569	84	681
2011	147	22	528	78	675
2012	217	29	528	71	745
2013	205	25	604	75	809
2014	227	26	653	74	880
2015	244	25	714	75	957
2016	252	25	774	75	1026
2017	241	25	724	81	965
2018	274	26	762	74	1036

When people talk of Australia's foreign debt they think that it is owed by the Australian government - but this is incorrect. Most of Australia's foreign debt is private debt - out of a total of \$1,036 billion in 2018, private debt amounted to \$762 billion or 74 per cent. The government's share was \$274 billion or 26 per cent of the total. Over the past four years it has averaged 25 per cent. When the government borrows from overseas to fund its budget deficits, then foreign debt will increase. Every year since 2008, the government's budget has been in deficit, with government revenue being less than government spending. The reason was the GFC in 2008 and the end of the mining boom in 2012. The government was forced to increase its borrowing to fund successive budget deficits.

Private sector debt is considered superior to public debt in that it is incurred with the profit motive as the guiding hand. Private debt is more likely to result in increased investment and therefore will lead to increased future income to service the debt. Many people think that the foreign debt represents a large burden on future generations, but this is also a misconception. It may come as a surprise that a large proportion of Australia's foreign debt is paid within a very short period of time. In 2018, one third of the foreign debt had a maturity of less than one year while 70 per cent was to be repaid within 5 years. In other words, most of Australia's foreign debt has a relatively short maturity period.

Trends in Australia's net foreign debt are illustrated in figure 7.4. Between 2008 and 2018, net foreign debt has increased from 51 per cent of GDP to 57 per cent. This reflects the accumulation of debt over time resulting from continued current account deficits. Australia must use foreign savings to fund its national investment since its domestic savings are insufficient. Australia relies on net capital inflow

Figure 7.4 Australia's net foreign debt



While net foreign debt has increased as a proportion of GDP, the servicing proportion has fallen. Interest payments as a proportion of GDP have fallen from around 13% in 2009 to 6% in 2018.

or foreign investment to add to domestic savings. If foreign investment into the economy is in the form of borrowing, then it adds to Australia's foreign debt. If the foreign investment is in the form of buying Australian assets, then it adds to foreign equity. Over the past decade, net foreign equity has fallen, while net foreign debt has increased. Australian firms have preferred to borrow against, rather than sell their assets and this has resulted in the increase in foreign debt as a proportion of GDP.

Part of the issue concerning the size of foreign borrowing is that the interest payments on the debt feed into the current account deficit. Figure 7.4 also illustrates the size of Australia's interest payments on its foreign debt measured as a proportion of total export income. The interest payments represent the servicing costs of the foreign debt. One might expect that the growth in interest payments would follow the same pattern as net foreign debt, however, this is not the case. In 2008, the interest bill was equivalent to 11 per cent of export income. But notice how the interest burden has gradually fallen over time. This is mainly due to world interest rates declining over this period (reducing payments on loans), and by the fact that Australia's export performance had improved. By 2018, interest payments had fallen to 6 per cent of export income.

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. The problem is identifying the 'right' amount of borrowing. What is an acceptable level of foreign debt? What should be the size of the current account deficit? Many organisations such as the OECD do not even publish figures on foreign debt, believing that it is not that relevant. We know that a current account deficit occurs when a country's total investment exceeds total saving. The difference is equal to net capital inflow. However, there are many journalists in the Australian media who seem to think that a rise in Australia's foreign debt is a national crisis. Perhaps they need to complete a refresher course in basic economics to understand that the buildup in foreign debt mirrors the increase in foreign investment.

An important point to be aware of is that foreign debt is a stock variable – it represents the accumulation of debt over time, whereas GDP is a flow variable – it represents the increase in output from one year to the next. Measuring foreign debt as a proportion to GDP is therefore an inaccurate way to measure its relative

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

importance. Foreign debt should be compared with another stock variable such as Australia's total wealth, rather than GDP. It would be similar to comparing a household's total debt with its annual income instead of comparing it to the household's total assets. The ABS has started to publish a

'balance sheet' for Australia which details changes in Australia's assets, liabilities and net worth or wealth. What has happened to Australia's wealth during the time that the amount of foreign debt has increased?

Australia's national balance sheet shows that while Australia's foreign liabilities have increased over time, so also has Australia's assets measured in terms such as buildings, machinery and equipment, land, mineral resources, and financial assets with the rest of the world. The important point is that Australia's assets have increased at a faster rate than liabilities, so that Australia's net worth or wealth has been rising over time. Since 2000, Australia's liabilities increased by \$2 trillion but total assets increased by \$5.3 trillion. This means that Australia's wealth over this time rose by \$3.3 trillion. Not only has the total amount of Australia's wealth increased, but per capita wealth in Australia has also increased. Per capita wealth has risen from \$381,000 in 2000 to \$430,000 in 2017. This proves that the build-up of Australia's foreign liabilities - both foreign debt and foreign equity - has been used to increase Australia's net worth. Rather than a burden, foreign investment has enabled Australia to increase its level of real income and living standard. It is important to not just focus on a country's level of foreign debt and liabilities. A correct judgment and analysis can only be made by comparing a nation's total liabilities with a nation's total assets.

	Assets \$billion	Liabilities \$billion	Net Worth \$billion	Per capita \$'000
1990	6527	505	6022	353
2000	8403	1154	7249	381
2010	11274	2254	9020	410
2017	13749	3181	10568	430

Source: ABS 5204.0

Many critics of the increase in Australia's foreign debt highlight the following arguments as potential costs associated with an 'excessive' amount of borrowing:

- Australia's credit rating may be downgraded which means that future borrowing will be subject to higher interest rates
- higher interest payments lower a nation's standard of living as more income must be diverted from consumption
- if the terms of trade deteriorate this will reduce export income so that the burden of the debt increases
- if the AUD depreciates this will automatically increase the size of foreign currency denominated debt further increasing interest payments; and
- if the growth rates of our trading partners fall this will decrease our export income and increase the burden of the debt.

All of the above are big 'ifs'. Of course, one could equally argue that the Australian economy could be hit with positive shocks - for example, the terms of trade could improve, the AUD could appreciate, world interest rates could decline or world

growth may increase. In each of these circumstances, Australia's foreign debt burden will be reduced. The point is that while certain costs can be identified with foreign debt, one must not forget that there are also potential benefits. If debt results in a higher rate of economic growth and a higher level of investment, then the economy will gain.

Foreign investment

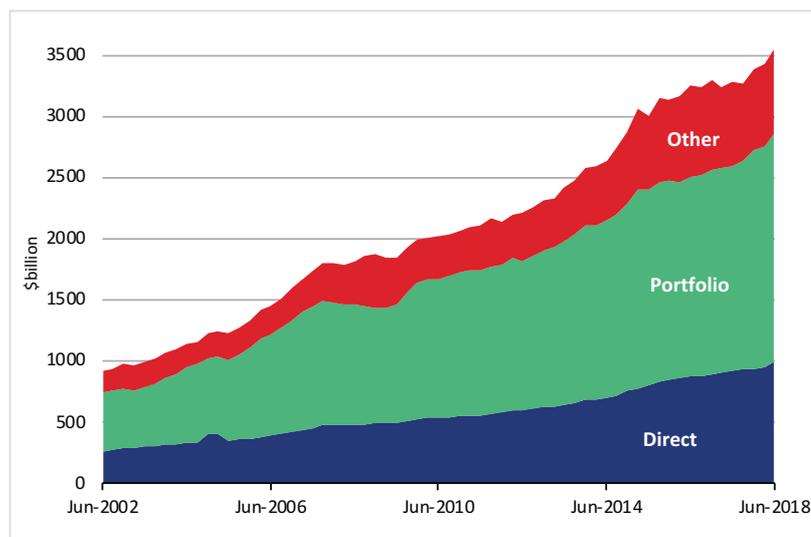
Foreign investment transactions involve changes in the levels of Australian foreign assets and liabilities. Foreign investment in Australia refers to the stock of financial assets in Australia owned by foreign residents and financial transactions in the balance of payments which increase or decrease this stock. Foreign investment flows are recorded in the financial account of the balance of payments. In more simple terms, foreign investment occurs when a foreign individual or business decides to establish a new business in Australia or purchases property or shares in an Australian-owned business.

Foreign investment may take the form of borrowing or it may be in the form of equity - the selling of assets (shares of companies, resources) to overseas residents. In other words, foreign investment into Australia basically comprises gross foreign debt plus foreign equity. Australia has, for most of its history, been a financial capital importer. This means that it has relied on foreign capital inflow to boost domestic savings. Australia is a small nation in terms of population and it

Foreign investment may take the form of borrowing or it may be in the form of equity. Most foreign investment into Australia is in the form of debt securities (60%) with equity comprising the other 40 per cent.

cannot raise enough savings to facilitate the development of its resources. Foreign investment is making use of overseas savings and it has been of great benefit to the Australian economy. Foreign investment has enabled Australia's living standards and rate of economic development to be much higher than they would otherwise have been. There are also costs associated with a high degree of dependence on capital inflow and these will be examined later in more detail.

Figure 7.5 illustrates the growth in the level of foreign investment into Australia, increasing from around \$925 billion in 2002 to just over \$3,500 billion in 2018. Foreign investment transactions are divided into direct, portfolio, financial derivatives, other investment, and reserve assets. The two most important categories are direct investment and portfolio investment. Financial derivatives are linked to a specific financial instrument or indicator, or to a particular commodity. Other investment is a residual group that comprises many different kinds of investment. Reserve assets are those external financial assets controlled by the Reserve Bank or the Australian Treasury for use in financing payment imbalances or intervention in foreign exchange markets. Figure 7.5 shows that portfolio investment is the dominant type of foreign investment in Australia, accounting for 52 per cent while direct investment makes up 28 per cent of the total. Most foreign investment into



Foreign investment into Australia totalled over \$3,500 billion in 2018. Portfolio investment is the dominant type of foreign investment in Australia, accounting for 52 per cent, while direct investment makes up 28 per cent of the total.

Figure 7.5 Foreign investment in Australia

Australia is in the form of debt securities (63 per cent) with equity comprising the other 37 per cent. Foreign direct investment occurs when a foreign investor establishes a new business or acquires 10 per cent or more of an Australian enterprise. The 10 per cent measure provides the foreign investor with a 'significant influence' over that enterprise. Examples of foreign direct investment include the establishment of Australian branches of multinational companies or joint ventures between Australian and foreign companies. Direct investment is thus associated with either the ownership and/or control of Australian enterprises and resources.

While the purchasing of shares is an example of equity investment, other types of direct investment include borrowing and the reinvestment of earnings. The reinvestment of earnings is specific to direct investment and refers to the income retained from after tax profits that would have otherwise left the economy and travelled to the direct investor. Many people are under the impression that all profits and income accruing from foreign investment leave the economy, but this is not the case.

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

Stock of Foreign investment in Australia 2018		
		\$ billion
Direct investment 28%	Equity securities	713
	Debt instruments	281
	Total direct	994
Portfolio investment 52%	Equity securities	606
	Debt securities	1260
	Total portfolio	1866
Financial derivatives		190
Other investment liabilities		505
ALL FOREIGN INVESTMENT		3555

the total. This is the opposite case to direct investment where the dominant type is equity capital.

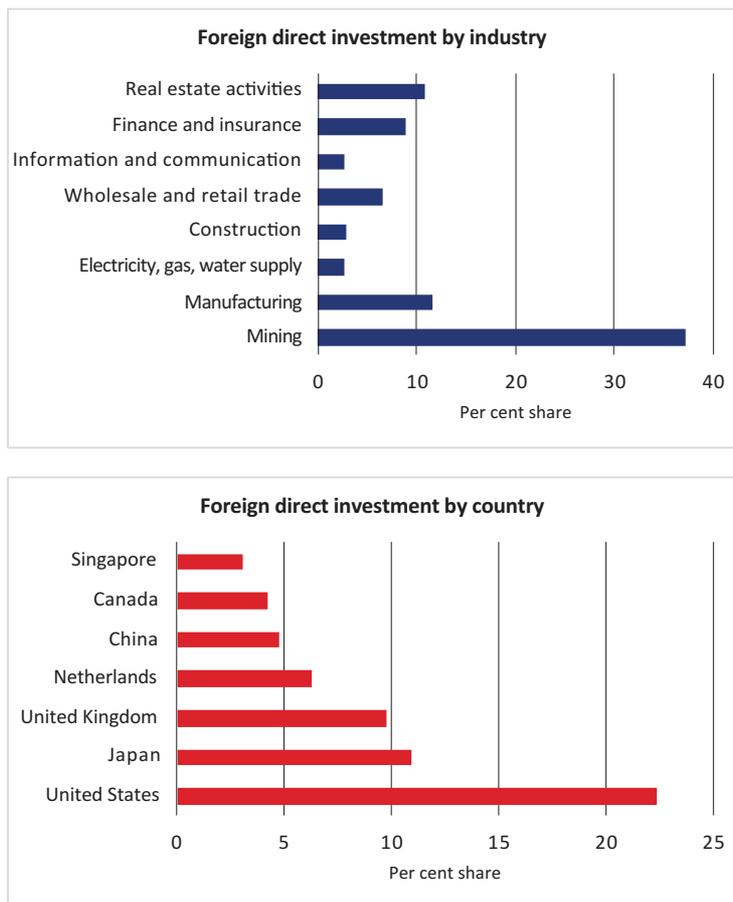
The sidebar shows the inflow of foreign direct and portfolio investment into the Australian economy for the past five years. This inflow adds to the stock or level of foreign investment and is recorded in the financial account in the balance of payments.. Usually the inflow of portfolio investment is greater than direct, however in 2016 and 2017 direct investment exceeded portfolio. Foreign investment is influenced by a number of factors. Profit expectations, interest rate differentials and

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

Figure 7.6 shows the levels of foreign direct investment in Australia by industry and by source country. The mining industry comprised the largest share of the stock of foreign direct investment in Australia in 2017, with \$315 billion, or 37 per cent of total foreign direct investment. Other major industries include manufacturing (12 per cent), real estate activities (11 per cent) and finance & insurance (9 per cent). Most people think that there is a high level of foreign ownership of Australian

	Direct \$ billion	Portfolio \$ billion
2014	54	94
2015	81	96
2016	57	31
2017	55	44
2018	73	119

business firms, but this is incorrect. Australian businesses with foreign ownership greater than 10 per cent accounted for just 3 per cent of all business firms. This means that 97 per cent of all businesses are Australian owned. The mining industry had the highest proportion of foreign ownership with 21 per cent of mining businesses having foreign ownership of greater than 10 per cent. Just three countries account for over 40 per cent of all foreign direct investment in



Most FDI flows into mining

The United States is the major source of FDI

Figure 7.6 Foreign direct investment in Australia

Australia. The United States has the largest share with 22 per cent, while Japan (11 per cent) and the United Kingdom (10 per cent) are the other major sources.

Costs and benefits of foreign investment

It is important to understand that in economics investment refers to the creation of capital goods whereas foreign investment is a flow of funds, some of which may be used to finance investment and some of which may be used for speculative purposes. Investment expenditure affects both aggregate demand and aggregate supply. Being a component of aggregate demand, investment increases the level of economic activity, employment and national income. So an increase in investment will shift the aggregate demand curve to the right. But 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.

Australia's Investment Flows				
	2001-10 (ave)	2015	2016	2017
Total investment flows \$billion	274	421	416	432
Domestic \$ billion	223	343	364	390
Foreign \$ billion	51	78	52	43
Domestic (% share)	81	81	87	90
Foreign (% share)	19	19	13	10

Figure 7.7 Australia's investment flows

This means that an increase in investment will also shift the aggregate supply curve to the right (refer to chapter 10). So foreign investment can boost GDP and employment.

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 has had to rely on foreign investment because its investment needs exceeds its level of savings. Figure 7.7 shows Australia's total investment flows. In 2017, Australia's total investment was \$432 billion comprising \$390 billion from domestic sources and \$43 billion from foreign investment. This means that foreign investment accounted for 10 per cent of Australia's total investment.

Foreign investment has enabled Australia to fund a much higher rate of investment and therefore to enable the economy to grow at a higher rate and to enjoy a higher standard of living. Foreign investment can help to increase the economy's infrastructure, By increasing the capital-labour ratio it can increase productivity. The most important benefit of foreign investment for Australia has been the development of our industries and resources. Without the large amount of foreign investment that has flowed to Australia, the mining and manufacturing sectors would have been much smaller. Australia's current account in the balance of payments is normally in deficit, with imports of goods, services and income payments far exceeding the export of goods, services and income receipts. A large surplus on the capital and financial account (foreign investment) is required to finance the deficit on the current account. If the funds from foreign investment were to fall, then Australia's standard of living would decline since less goods and services (as imports) could be consumed. Australia's economic growth would decline because there would be insufficient savings to finance the economy's capital needs.

Direct foreign investment has the advantage that it can bring with it new technology and managerial expertise. Most of the foreign investment into Australia comes from the countries of the US, the UK and Japan. Their technological know-how

Benefits of foreign direct investment
Helps to fund the I – S gap, allowing Australia to have a high rate of investment
Enables Australia to have higher real incomes & higher living standards
increases employment & economic growth
Enabled the development of Australia's mining & energy sector
Encourages competition and increased innovation through new technologies
Enhances productivity growth through capital deepening

and managerial skills can help improve the efficiency of Australian industry and aid the long term growth of the economy. Overseas firms establishing new subsidiaries will directly add to employment and contribute to increased taxation revenue for the government. A large percentage of the profits of these firms are also retained and invested back into the enterprise.

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

The costs of foreign investment are associated with the supposedly twin 'evils' of foreign ownership and foreign debt. When, in the 1970s, most capital inflow was in the form of equity, the major concern was the 'selling' of Australian assets. Foreign control, it was argued, might conflict with government economic policy, and profits would be siphoned back to the parent company. Equity investment has declined in recent decades being replaced by borrowing. Foreign debt has now become one of the media's favourite 'scare bears' but remember that it is the twin side of foreign investment. If foreign investment is seen as a benefit to the economy, then so must foreign debt - they are two sides of the same coin. It is a fact that interest payments on foreign debt have become the largest debit item in the income category of the current account. But as long as the foreign investment boosts Australia's future productive capacity, then the servicing of the debt does not impose a problem.

Worksheet - foreign liabilities

1. Distinguish between foreign investment in Australia and Australian investment abroad.
2. Explain what is meant by Australia's net international investment position.
3. Why have Australia's net foreign liabilities been increasing over time? Is this a problem?
4. Distinguish between the two types of foreign liabilities.
5. What is Australia's largest foreign liability?
6. Define the term foreign debt, and explain the reason for its growth.
7. Why is foreign debt larger than foreign equity?
8. Why is net foreign debt the preferred concept rather than gross foreign debt?
9. What proportion of Australia's net foreign debt is held by the private sector?
10. Explain the link between the financial account and the current account.
11. What role does the income deficit play in affecting the current account deficit and the level of foreign debt?
12. How are the debt servicing costs usually measured?
13. Why have the servicing costs of Australia's foreign debt, measured as a per cent of Australia's exports, been falling over time?
14. Why is private debt considered to be superior to public debt?
15. What effect did the global financial crisis have on the government's foreign debt?
16. What has happened to Australia's wealth over time?
17. What are some of the costs associated with incurring foreign debt?
18. What are some of the benefits associated with incurring foreign debt?

Multiple choice 1

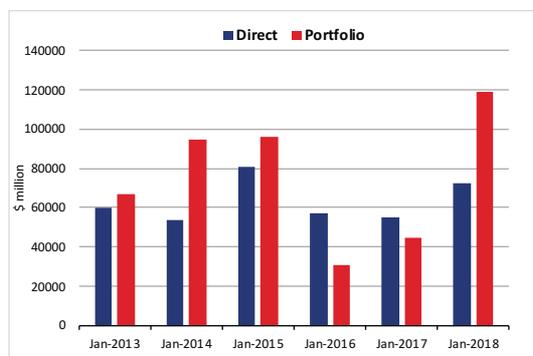
Select the best answer to the following questions.

1. In the short term, large amounts of foreign investment into Australia will
 - a. increase the current account balance, appreciate the dollar and lower exports.
 - b. increase the financial account balance and lower exports.
 - c. appreciate the dollar, increase exports and reduce imports.
 - d. increase the current account balance by boosting exports.
2. The difference between gross foreign debt and net foreign debt is that
 - a. gross foreign debt includes both private and government debt.
 - b. gross foreign debt excludes Australian lending to overseas residents.
 - c. net foreign debt is the difference between gross debt and gross equity.
 - d. net foreign debt excludes government borrowings.
3. One main difference between Australia's level of foreign debt and other countries is
 - a. Australia has a higher share of government debt relative to private sector debt.
 - b. Australia has a smaller share of government debt relative to private sector debt.
 - c. Australia's foreign debt is used to fund government infrastructure.
 - d. Australia's foreign debt is used to fund government budget deficits.
4. Most of Australia's foreign debt is owed by
 - a. the official sector (government).
 - b. private households.
 - c. private enterprises.
 - d. government enterprises, for example Telstra.

5. The main cause of the surge in Australia's foreign debt can be directly attributed to
 - a. the floating of the AUD.
 - b. the decline in the terms of trade.
 - c. the setting of fiscal and monetary policy by the government.
 - d. the increase in the current account deficit.
6. 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.
7. To reduce the foreign debt, exports need to increase relative to imports. Which one of the following would not be appropriate?
 - a. increasing the productivity of workers.
 - b. decreasing aggregate demand in the economy.
 - c. increasing government spending in the economy.
 - d. increasing savings in the economy.
8. Which of the following would reduce Australia's foreign debt?
 - a. an increase in the Commonwealth budget deficit.
 - b. an increase in the level of foreign investment into the Australian economy.
 - c. an increase in the current account deficit.
 - d. an increase in the rate of domestic saving.
9. The largest component of Australia's foreign debt is
 - a. interest payments to overseas lenders.
 - b. borrowing by the government sector.
 - c. borrowing by the private sector.
 - d. borrowing by the household sector.
10. Which one of the following would result from Australian companies increasing their overseas borrowing?
 - a. both the current account deficit (CAD) and the capital & financial account surplus will fall.
 - b. both the CAD and the capital & financial account surplus will rise.
 - c. the capital & financial account surplus will rise, but the CAD will not be affected.
 - d. the CAD will increase, but the capital & financial account surplus will not be affected.
11. If Australia runs a current account deficit, then this must be financed by
 - a. an increase in Australia's foreign debt.
 - b. an increase in Australia's foreign equity liabilities.
 - c. either an increase in foreign debt or foreign equity.
 - d. an increase in government borrowing.
12. Which of the following will reduce Australia's foreign debt if it is denominated in foreign currency?
 - a. an appreciation of the Australian dollar.
 - b. a worsening of the terms of trade.
 - c. a slowdown in world economic growth.
 - d. an increase in Australian interest rates relative to interest rates overseas.
13. Which of the following statements regarding Australia's net foreign liabilities is correct?
 - a. foreign equity is preferred to foreign debt because it is more flexible.
 - b. Australia's net foreign liabilities are decreasing over time.
 - c. foreign debt does not require an income payment.
 - d. most of Australia's net foreign liabilities are in the form of net foreign debt.

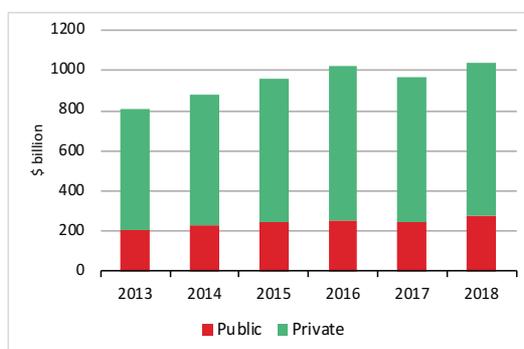
Data interpretation

Refer to the graph below showing Australia's foreign investment flows.



1. Distinguish between foreign direct and foreign portfolio investment.
2. Provide an example of direct investment and portfolio investment.
3. What was the value of direct and portfolio investment in 2018?
4. Which type of foreign investment is usually more volatile?
5. In which years did direct investment exceed portfolio investment? Provide two reasons.
6. What factors could have caused the change in foreign investment between 2017 and 2018?
7. Explain why direct investment is viewed as more beneficial than portfolio investment.

Refer to the graph below showing Australia's net foreign debt



1. Define net foreign debt.
2. Distinguish between public sector net foreign debt and private sector net foreign debt.
3. In 2018, Australia's net foreign debt = \$ _____.
4. In 2018, private net foreign debt = \$ _____ while public net foreign debt = \$ _____.
5. In 2018, the per cent share of private sector debt was _____.
6. How much has net foreign debt increased between 2013 and 2018?
7. In which year did net foreign debt decrease? Provide a reason for the decrease.
8. What factors have caused Australia's net foreign debt to increase?
9. Explain the link between foreign debt and the balance of payments.

Economics in the news

Australia 'better off' with large foreign debt

A Queensland economist says Australia's expanding foreign debt is boosting national income. Griffith University economist Tony Makin says the national debt has been put to good use by helping to expand productive capital stock. Professor Makin says foreign investment has generated billions of dollars over the past decade. "The servicing costs on the foreign debt is less than the extra production (GDP) that it generates, so that's making us better off," he said. "The capital inflow over the past 10 years has generated about an extra \$30 billion worth of national income." He says Australia's foreign debt has now increased to over \$1,000 billion due to high current account deficits.

Concerns about growing foreign debt

The latest official figures show Australia has a large current account deficit and record foreign liabilities. Despite the mining boom, Australia is in hock to the world, with the nation's net foreign liabilities (both foreign debt and foreign equity) now equal to 60 per cent of the economy's yearly output. Imports outpacing exports is part of the problem but the trade gap is dwarfed by the cost of servicing Australia's huge foreign liabilities, known as the net income deficit.

Foreign ownership ... brings in foreign capital, foreign innovation, foreign management techniques etc, world's best practice, but ... there's also a negative side - the fact that you always have to pay back profits and dividends to these overseas owners and that will weigh upon the current account deficit.

Foreign debt & the current account

Why do the media get so excited about Australia's foreign debt? Every month, the cost of our imports usually exceeds the receipts from our exports, leaving us with a trade deficit. When you add in the interest and dividends paid to foreigners you get the deficit on the "current account" of the balance of payments. Although in recent years, Australia has been recording a trade surplus which has meant that the current account deficit has been smaller.

The current account deficit has to be covered either by borrowing from foreigners (foreign debt) or by foreigners investing in the ownership of Australian businesses (foreign equity). Foreign savings flow into Australia each year which equates to the capital & financial account surplus. Over time, the accumulation of current account deficits increases the stock of foreign liabilities. Virtually all of our liabilities are now in the form of debt. Who owes this – the Australian economy. Some of it is owed by individuals, some by the government, but most of it is owed by the business and financial sector – large companies and banks. Should we be worried? No, Because Australia has always 'imported' foreign savings to supplement our small pool of domestic savings. This means that Australia has always relied on foreign investment to develop our resources and industries.

Questions

1. Why is Australia 'better off' with a larger foreign debt?
2. Explain the link between a current account deficit and the level of foreign debt.
3. What factors drive Australia's current account deficit?
4. What are the positives of foreign investment?
5. Does an increase in the CAD always result in a rise in foreign debt?
6. Why do some analysts see an increase in the foreign debt as a problem but others see it as a benefit?
7. Why does Australia record a current account deficit? How is it financed?
8. Explain the link between foreign savings and foreign investment.
9. Who owes Australia's foreign debt?
10. Should we be worried about the size of Australia's foreign debt?

Worksheet - foreign investment

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

News extract

The questions relate to the extract below.

Foreign direct investment

Australia accesses foreign saving through either borrowing (debt) or greater foreign ownership of Australian business (equity). Foreign direct investment (FDI) is one form of the latter. For official measurement purposes, 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 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 and service delivery*
- *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. Accordingly, the economy emerges better able to provide high-productivity, well-paid jobs into the future.

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

Multiple choice 2 - foreign investment

1. Foreign investment is considered desirable for the Australian economy because it reduces
 - a. Australia's reliance on domestic savings.
 - b. the stock of investment funds held overseas.
 - c. the competitiveness of overseas based firms.
 - d. Australia's budget deficit.
2. If the level of foreign investment in Australia increases relative to Australian investment abroad then
 - a. the level of Australia's foreign debt must increase.
 - b. Australia must sell assets to foreigners.
 - c. the capital and financial account surplus in the balance of payments must increase.
 - d. the Australian dollar will depreciate.
3. Foreign investment in Australia covers transactions which
 - a. increase or decrease Australia's foreign financial assets.
 - b. increase or decrease Australia's foreign liabilities.
 - c. increase or decrease Australia's foreign debt.
 - d. increase or decrease Australia's level of international reserves.
4. Increased direct foreign investment in the Australian iron ore industry would be recorded initially in Australia's balance of payments as a
 - a. debit in the net incomes account.
 - b. credit in the current account.
 - c. credit in the capital account.
 - d. credit in the financial account.
5. Which of the following is most likely to increase the level of Australia's foreign debt in the short term?
 - a. an appreciation of the Australian dollar
 - b. a fall in the proportion of income saved by households
 - c. an increase in the Federal Government budget surplus
 - d. a fall in the current account deficit
6. One major disadvantage of portfolio investment is that it can
 - a. lead to a depreciation of the currency.
 - b. result in a deficit on the financial account.
 - c. be speculative and destabilising.
 - d. reduce the level of direct investment.
7. An important difference in meaning between 'foreign investment' and 'investment' is
 - a. investment increases the productive capacity of the economy whereas foreign investment is purely speculative.
 - b. foreign investment is a flow of funds which may be used to finance investment.
 - c. foreign investment is affected more by interest rates than investment.
 - d. investment is the purchasing of capital goods whereas foreign investment is the purchasing of assets.

8. In the short term, a rise in real interest rates in Australia could be expected to, *ceteris paribus*,
 - a. cause increased levels of overseas investment in Australia resulting in an appreciation of the Australian dollar.
 - b. cause increased levels of overseas investment in Australia resulting in a depreciation of the Australian dollar.
 - c. cause decreased levels of overseas investment in Australia resulting in a depreciation of the Australian dollar.
 - d. have no effect on the levels of overseas investment in Australia or the exchange rate.
9. Foreign investment differs from foreign debt as
 - a. foreign debt involves a foreign entity gaining greater than 10% of the ownership of an Australian firm.
 - b. foreign investment is recorded on the capital and financial account whereas foreign debt is recorded on the current account
 - c. foreign investment is more likely to be associated with the transfer of new technology and management practices.
 - d. foreign investment is less likely to result in a loss of control and ownership of Australian resources.
10. The largest type of foreign investment in Australia is _____ while the most beneficial type of foreign investment is _____ .
 - a. portfolio; direct
 - b. direct; portfolio
 - c. portfolio; financial derivatives
 - d. direct; reserve assets
11. Foreign investment is a benefit to the Australian economy because it
 - a. increases the level of net foreign liabilities.
 - b. allows Australia to make up the shortfall in domestic savings.
 - c. reduces interest payments in the income category of the current account.
 - d. leads to a depreciation in the currency.

Extended responses

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

1. What are Australia's foreign liabilities? Explain why they occur and how they are linked to the balance of payments. [20 marks]
2.
 - a. Define the term 'foreign investment'. Explain why foreign investment is important to the Australian economy. [10 marks]
 - b. Identify and discuss the factors which influence the level of foreign investment in Australia. [10 marks]
3.
 - a. Describe the extent of, and recent (the last ten years) trends in Australia's foreign direct investment and foreign debt. [10 marks]
 - b. Discuss the benefits and costs of foreign direct investment and foreign debt to Australia. [10 marks]

The Business Cycle

8



Chapter concepts and skills

- *the concept of the business cycle*
- *characteristics of the phases, and causes, of the business cycle*
- *the relationship between the business cycle and economic indicators*
- *identify trends and relationships in economic information and data regarding Australia's economy*
- *interpret changes in economic data, including prices, unemployment, economic growth, the labour force and productivity*
- *interpreting changes in economic indicators, such as the CPI, GDP and labour force data*
- *calculating a percentage rate of change*
- *use evidence found in economic information and data to justify a conclusion.*

What is macroeconomics?

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

- collect and investigate data about total levels of production, expenditure and income in the economy;
- interpret the data in order to describe and explain trends in economic activity; and
- suggest policy measures to improve economic performance in both the short term and the long term.

Macroeconomics should be distinguished from microeconomics, which studies the behaviour of individual economic agents (households and firms) and sectors of the economy. Examples of microeconomic topics include why consumers buy more goods when prices are low; how firms make the most efficient use of productive inputs, and how the price of a commodity such as oil is determined by demand and supply.

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

A characteristic of developed economies such as Australia, however, is that economic growth does not occur at a constant rate. Sometimes it is faster, sometimes slower. The concept describing these fluctuations is called the business cycle. Chapters 8 - 10 develop the economic theory that describes the business cycle and explains its causes.

The relevance of macroeconomics

Reports about economic activity appear frequently in the media. They refer to topics like inflation; unemployment; economic growth; monetary policy; interest rates; and so on. The following excerpts are samples. The reason why we have gone all the way back to 1991 will become apparent later in the chapter.

- “The economic climate will remain tough for the first half of 1991, as job losses depress spending. However, some signs of a modest recovery should be present by year’s end.” (*ANZ Business Indicators, February, 1991*).
- “Continued growth in employment and real wages should underpin further expansion in disposable incomes and consumption, although not at the high rates of 1994-95” (*Reserve Bank Bulletin, January, 1996*).
- “The world economy is now expected to grow by around 2 per cent in 2001, down significantly from 3 per cent expected at Budget, and down sharply from the 4.7 per cent growth recorded in 2000. This would be the lowest

Investigation - macroeconomics and your family

Ask older members of your family about their standard of living when they were your age. For example, you could ask questions like 'how many rooms did the house have?; how many TVs were in the house?; did the car have a sound system?'

Then ask the same people questions about the economy, such as 'what is Australia's GDP?'; 'what is the current inflation rate?'; 'what is the current employment rate?'; 'whether the state of the economy is better this year than last year?'; and even 'do you think the current account deficit is too high?'

Record their answers and reflect upon them as your course progresses.

global growth rate since the early 1990s. World economic growth is expected to recover during 2002, to be 2 per cent, rising to 3 per cent in 2003". (*Treasury Pre-election fiscal outlook, October 2001*).

- Domestic economic data in recent months have signalled a pick-up in the pace of growth in demand and activity. Capacity utilisation is high after a lengthy period of expansion, and unemployment over recent months has continued to decline. Business and household confidence are strong. (*Reserve Bank of Australia Media Release, 8 August 2007*)
- "There is now a slew of evidence pointing to an economic slowdown. For businesses, the symptoms of weakening growth included falling profitability and heightened gloom about trading prospects, according to one closely watched gauge of sentiment released yesterday." (*Jacob Saulwick, Signs of a slowing economy, Sydney Morning Herald, 13 March 2008*)
- "Real Gross Domestic Product (GDP) declined 1.4% in the first quarter, the largest quarterly decrease since 1991. Both domestic and international demand continued to weaken. Real GDP fell 0.3% in March. The declines in February and March were less pronounced than those in the preceding three months". (*Source: Statistics Canada web site accessed August 2, 2009*)
- "The recorded rate of unemployment has increased recently, despite some improvement in most other indicators for the labour market this year. The Bank's assessment remains that the labour market has a degree of spare capacity and that it will probably be some time yet before unemployment declines consistently". (*Reserve Bank Media Release, 2 September 2014*).
- "Recent CPI data had confirmed that inflation was likely to remain low for some time. While prospects for growth are positive, there is room for stronger growth, which could be assisted by lower interest rates. *Reserve Bank Board minutes, 2 August 2016*).

What is the common theme in these excerpts? They show that economic conditions change over time. As all of us are participants in the economy (as buyers, sellers, borrowers, savers, employers, employees and taxpayers) it makes sense that we should try to understand how and why that happens.

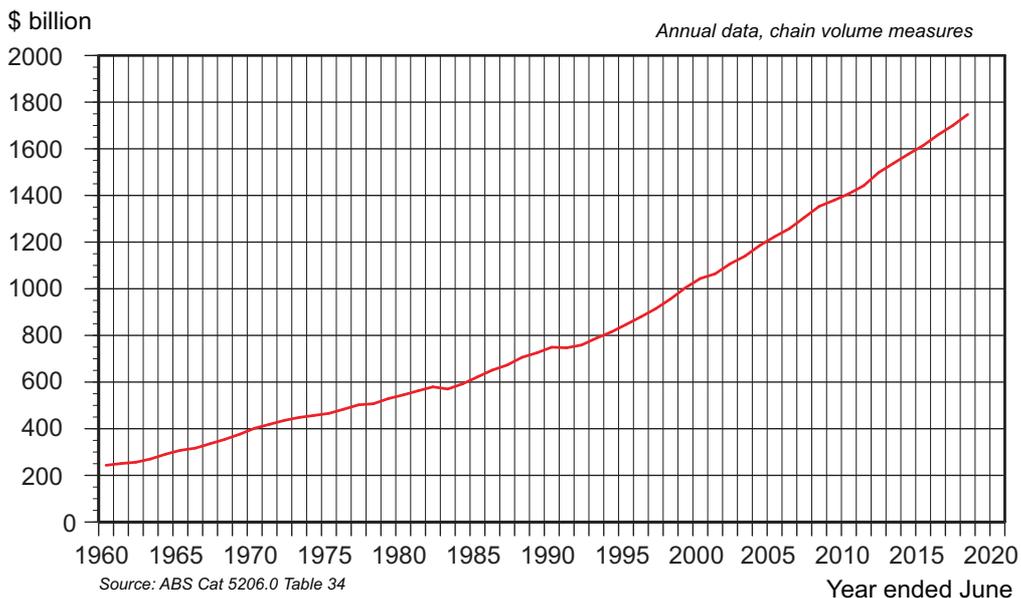
Macroeconomic trends and cycles

The key concept in macroeconomics is that while economic growth occurs over time, it is punctuated by regular fluctuations in the level of economic activity. Figure 8.1 charts Australia's Real Gross Domestic Product (GDP) between 1960 and 2018. From about \$220 billion in 1959-60, GDP grew at an average annual rate of 3.2 per cent to reach some \$1.75 trillion in 2018 - a near eight-fold increase. There is, apparently, more output and income and for everyone to share - economic growth has occurred.

Figure 8.2, based on the same data, shows the annual rate of change in real GDP. Like all 'rate of change' graphs, it gives us a better picture of changes in the level of economic activity over time. In nine of the years in the period 1960 to 2018 rates of economic growth exceeded 5 per cent, but in four years, growth rates were below 1 per cent. In two years, 1983 and 1991, Australia's GDP fell, and the economy was described as being 'in recession' - often defined as at least two quarters of negative economic growth.

In two other years, 2000 and 2008 (the Global Financial Crisis) many world economies entered recession, but Australia was able to maintain positive (albeit slow) growth - probably due to activity surrounding the Sydney Olympics in 2000, and then to the early stages of the mining construction boom in 2008 when Chinese demand for iron ore pushed up ore prices and provided an incentive for mining activity.

Figure 8.1 Changes in GDP: 1960-2018



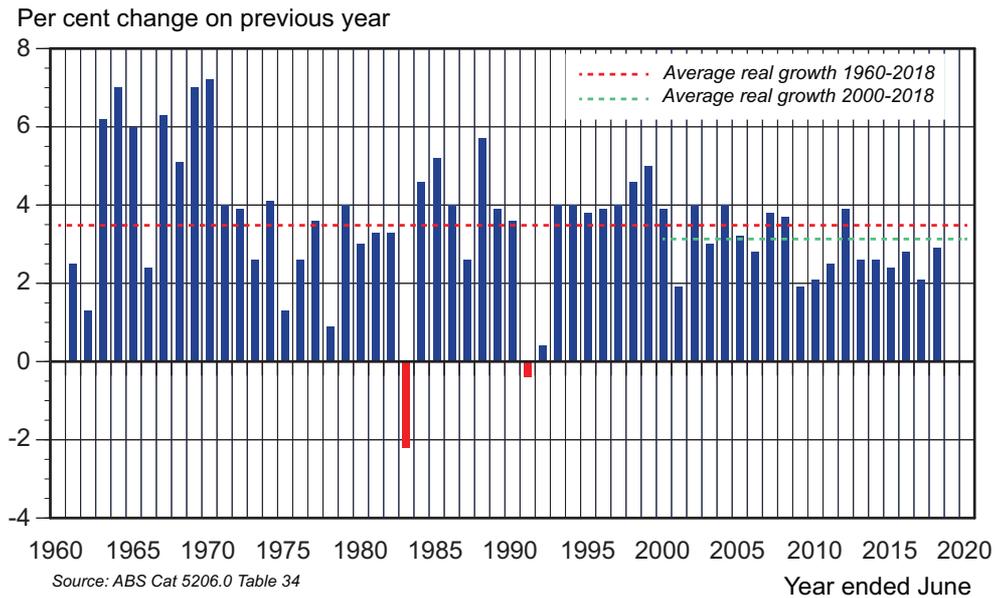


Figure 8.2 Rates of change in GDP: 1960-2018

Figures 8.1 and 8.2 tell us that (a) the economy grows slowly over time, and (b) the path of growth is not smooth - Australia had periods of rapid growth (e.g. the late 1960s; 1983-1986; 1998; 2007) and periods in which growth was slow (such as 1983, 1991, 2000, 2008-9 and 2014-2017).

The business cycle

Business cycles can be defined as fluctuations in economic activity in which many economic activities expand and contract together in a recurring fashion. A business cycle is characterised by four phases - boom, contraction, trough, and expansion. One business cycle includes both an expansion and contraction. The peak of the boom, and the bottom of the trough, could be called 'turning points'.

Although the model depicts a smooth and regular cycle, the reality is likely to be highly irregular, both in terms of the length of the phases, and their amplitude (the height of the boom or depth of the trough). This is evident by reviewing figure 8.2.

The phases of the business cycle

The business cycle is usually characterised as having four phases: boom, recession, trough and expansion. A full business cycle may take between 7-9 years, with expansions tending to occur slowly as a boom develops, followed by a relatively sharp period of contraction. Figure 8.3 shows a stylised model of the business cycle.

The business cycle model suggests that economic activity features recurring cycles. The cycle has four phases - boom, contraction, trough and expansion. The green line depicts the long term growth trend.

(Also see figure 10.8 on page 200)

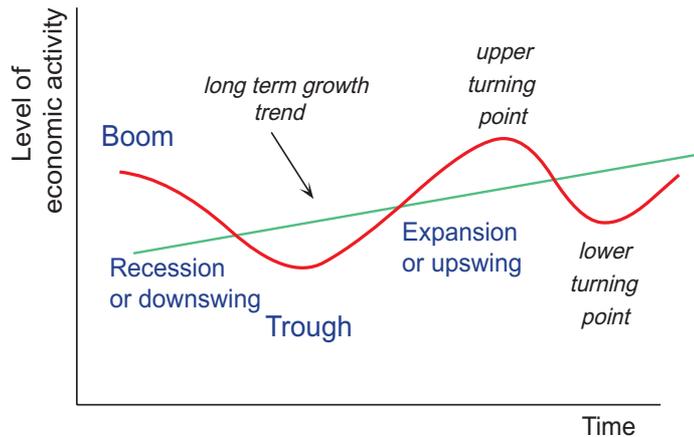


Figure 8.3 The Business Cycle

The boom

A boom occurs when the level of economic activity, and rate of growth, is higher than normal. The level of aggregate expenditure is at, or beyond, the level required for full employment of productive resources. Compared to other periods of the cycle, an economic boom typically features:

- a general feeling of confidence throughout the economy;
- relatively high levels of consumption expenditure, particularly on durable goods and luxuries;
- relatively high levels of profitability in the business sector;
- a high level of utilisation of productive capacity, perhaps with ‘bottlenecks’ in some sectors;
- relatively low cyclical unemployment;
- higher levels of labour market participation;
- upward pressure on prices in both final and factor markets; and
- relatively high levels of borrowing.

The contraction

Economic booms do not last forever! In the upswing, investment in infrastructure and capital equipment increases productive capacity. That is fine, as long as there is sufficient demand to purchase the goods and services produced. At some point, however, businesses sense that they have enough capacity to meet anticipated demand, which means further investment would carry greater risk. The increased levels of consumer spending that drove investment and output may now result in price increases as the economy reaches capacity. In some sectors of the economy, bottlenecks (shortages of labour or productive capacity) may occur.

At the peak of the cycle, the increases of income, output and expenditure that characterised the boom start to level off. Slower growth in spending, output and income start to spread throughout the economy, and it feels as if the economic climate has deteriorated. These events give rise to uncertainty as consumers and firms adjust their expectations about the future and change their planned spending.

Government policies designed to restrain the high level of economic activity (see chapters 12-13) usually contribute to the changing mood in the economy. If interest rates are increased, for example (tighter monetary policy) this will discourage borrowing and consumer spending on durable goods (because repayments will increase).

Some time after the peak period of activity, the economy enters the downswing (otherwise called contraction), which may appear dramatic (a recession) if accompanied by sharp declines in confidence or falling asset values.

The trough

The trough is a period of economic malaise (perhaps less than 2 per cent growth rate) in which the level of aggregate expenditure (income, consumption and investment) is below the economy's potential. During a trough, there may be:

- higher levels of cyclical unemployment;
- reduced company profits;
- lower sales of consumer durables;
- lower levels of consumer and business confidence;
- reduced pressure on prices;
- higher savings rates;
- lower interest rates; and
- a lack of confidence and reluctance to spend.

The expansion

The trough phase of the cycle cannot continue indefinitely. Productive machinery is eventually worn out and requires replacement, bringing on new investment. Businesses undertake product and process innovation (new products and more efficient processes) to attract buyers and seek a competitive advantage over their rivals. The level of economic activity and confidence gradually rises as the economy resumes its long term growth path. The expansion often takes a longer period of time than the downturn, which tends to be short and sharp.

Recession or downturn?

A recession is difficult to define. The 'r' word is meant to convey a serious downturn in the economy, but not a depression! There is no technical definition of a recession, although a popular view is that a recession is two consecutive quarters of negative economic growth. There are alternative views, one being that a recession is a 1.5 percentage point lift in the unemployment rate within a twelve month period. This could be a more meaningful definition because unemployment shows the real impact of an economic downturn.

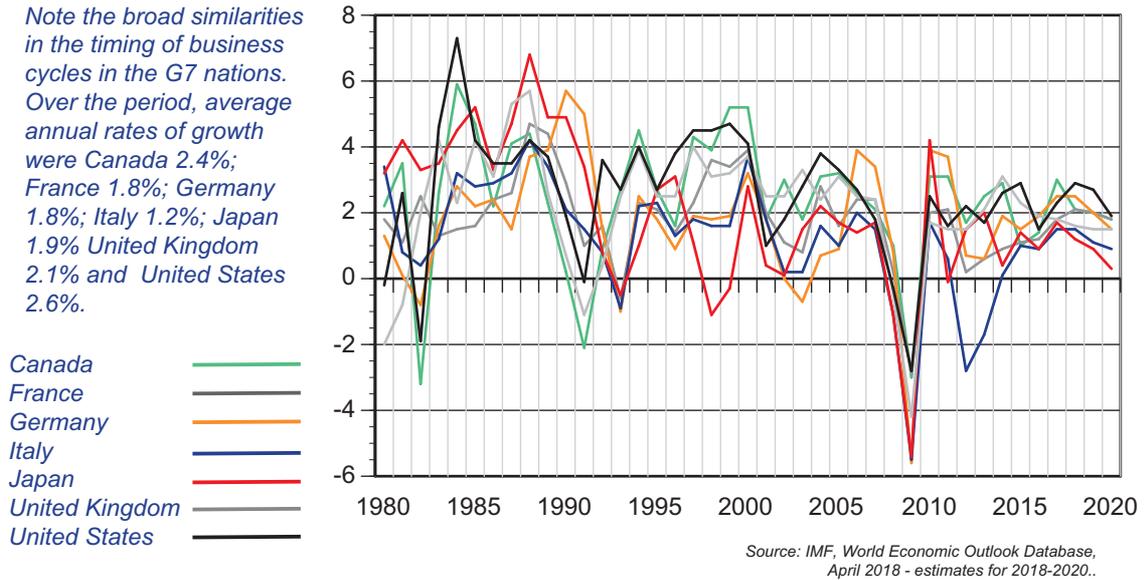


Figure 8.4 Economic fluctuations in developed countries

The business cycle model attaches particular importance to the role of investment spending. Investment plays an important role in the upswing because it creates the capacity that firms use to produce final goods and services.

Business cycle patterns in developed countries are closely (but not perfectly) related. The close relationship is due to globalisation, increasing trade intensity and the integration of financial markets. As indicated by figure 8.4, some similarities are obvious, with high levels of economic activity in the mid 1980s, late 1990s and mid 2000s; and troughs in the early 1980s; 1990-91; 2000 and 2008-9 (the Global Financial Crisis). There are also some regional differences, such as the Asian economic crisis that affected countries in that region in 1997.

Non-economic (exogenous) events may influence the path of the business cycle - drought, flood terrorism and war impact on economic activity. The World Trade Centre bombing in 2001 was followed by a crisis of confidence in many parts of the world, and significant downturns in major sectors such as travel and tourism. The 2011 earthquake and tsunami slowed the Japanese economy as supply chains (links between producers and factories) were interrupted. Floods in Queensland and Victoria in 2011 caused a temporary slowdown in economic activity in Australia, as has the recent drought in the eastern states.

Economic indicators and the business cycle

As the name suggests, the term 'economic indicator' refers to a piece of data or information that help us describe and interpret macroeconomic events. There are

thousands of such statistics that can inform us as to what is happening in the economy, ranging from construction expenditure to new car sales to spending on gambling.

The most valuable economic indicator is also the broadest. Gross Domestic Product (GDP) is the total value of new final goods and services produced in the country during the year. Being an aggregate measure, GDP is a key summary of economic trends. Updates on GDP are released by the ABS every quarter (three months).

There are many narrower or partial, indicators, examples being:

- the Consumer Price Index (CPI);
- average weekly earnings (AWE);
- labour force and unemployment statistics;
- business spending on capital equipment (i.e. investment);
- motor vehicle registrations;
- building approvals;
- industrial and agricultural production;
- interest rates;
- levels of public and private debt;
- exchange rates; and
- stock market indices such as the ASX S&P 200.

Most professional economists are involved in the collection and analysis of data. A big part of their work is building large data sets that allow them to discover trends, uncover relationships, and make forecasts about the future. Maintaining and interpreting economic indicators is big business in developed economies - indicators expose trends and help to forecast economic events in the future - they are an important input for business decision-making and planning.

Official statistics are published by government institutions such as the Treasury; Reserve Bank; Australian Bureau of Statistics; Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES); the Department of Foreign Affairs and Trade (DFAT) and the Productivity Commission.

Many private organisations collect economic data to provide advice to their clients. Examples include:

- the major banks;
- the Australian Industry Group; and
- Chambers of Commerce and Industry in each state.

Economic indicators are often classified according to whether they are 'leading', 'coincident', or 'lagging'. These labels refer to the timing of the relationship between changes in the indicator and changes in economic activity. Thus leading

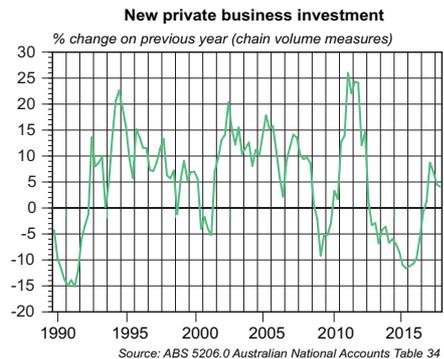
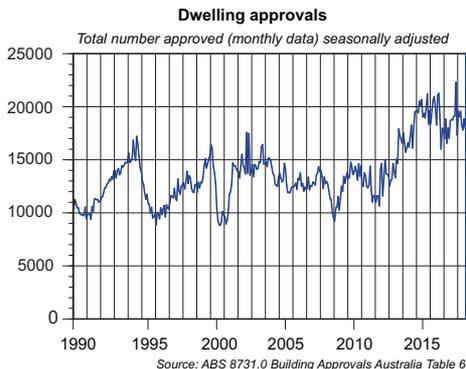
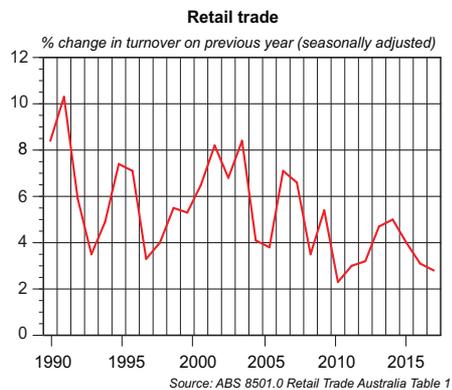
Economic indicators		
Leading indicators	Coincident indicators	Lagging indicators
Share prices Building approvals Levels of stock (inventory) held by retail firms Manufacturers' new orders Business and consumer confidence Consumer expectations New employment vacancies New business startups	GDP Manufacturing output Sales of consumer durables Production of building materials Retail sales Job advertisements Motor vehicle sales Money supply Capacity utilisation	Interest rates Consumer debt Unemployment rate Bankruptcies Inflation rate (CPI)

Figure 8.5 Examples of economic indicators

indicators predict changes in economic activity - we would expect them to change before a direction becomes evident in the rest of the economy. Examples of leading indicators include building approvals; share prices; levels of inventory held by firms; employment vacancies; levels of business confidence; and consumer sentiment. Leading indicators often reflect the expectations of households and firms.

Figure 8.6 Selected economic indicators

These graphs are examples of the economic indicators compiled by the Australian Bureau of Statistics. Data is in real (chain volume) form to enable comparison over time, and is often 'seasonally adjusted' if historical patterns show that there are regular spending peaks corresponding with seasonal events - retail trade for example would be expected to peak in December and January.



Coincident indicators appear to move in line with the level of economic activity, like manufacturing output; production of building materials; sales of consumer durables; retail sales; interest rates and the growth of real GDP.

Lagging indicators are not expected to show any change until after trends in the rest of the economy have been confirmed. Lagging indicators reflect developments that occurred some time in the past. Examples are unemployment levels; savings bank deposit levels and consumer debt levels.

Economic indicators may also be categorised by their relationship with other economic data. A 'pro-cyclical' indicator is one that moves in the same direction as the level of economic activity, such as Gross Domestic Product (GDP) and inflation. 'Countercyclical indicators', on the other hand, move in the opposite direction to the economy. The unemployment rate rises as economic activity slows, for example, making it a countercyclical indicator.

Careful collection and analysis of all of the official and non-official data helps economists to understand and explain current trends in the level of economic activity. Such analysis helps private and public policy-makers to make better decisions about the use of scarce resources.

Worksheet

1. Distinguish between the terms 'macroeconomics' and 'microeconomics'.
2. To what extent do you think macroeconomic events are relevant to you over the next few years, your parents; your grandparents? Find an article from Australian media that discusses a macroeconomic event that is relevant to your family. Explain its relevance.
3. Figures 8.1 and 8.2 in the text are both based on the same Real Gross Domestic Product (RGDP) data. What are the differences between the two graphs? Which, in your opinion, gives the best representation of changes in RGDP?
4. Draw the model of the business cycle and describe any two of its phases. What stage of the business cycle is the Australian economy currently going through, in your opinion? Explain your choice. What about the world economy?
5. Explain what leading, coincident and lagging economic indicators are. Provide three examples of each. Why do economists collect the data that we call economic indicators?
6. Distinguish between pro-cyclical and counter-cyclical economic indicators.

Economic indicators

Refer to the Trading Economics website at <http://www.tradingeconomics.com>. Select Indicators < Countries < Australia.

Select any five datasets from the list of Australian economic indicators. Navigate to the graphical view of each of your chosen indicators and select the pen the '10 year' view. Describe trends in the indicators you have chosen. Cut and paste each of the graphs into a document or presentation. Make sure they cover the same time period. Do you note any similarities between the graphs? What might that suggest?

Now compare one or two indicators across a range of developed countries. Describe any similarities. Note that it is difficult to use data for developing countries, even China and India, because consistent high rates of economic growth at this stage of their economic development do not exhibit clear cyclical patterns.

Australian car sales

The following table shows quarterly car sales (by total number of vehicles sold) in Australia for 2015, 2016 and 2017.

Year and quarter	Sales (trend)	Year and quarter	Sales (trend)	Year and quarter	Sales (trend)
2015 Q1	283869	2016 Q1	294714	2017 Q1	291329
2015 Q2	286293	2016 Q2	293014	2017 Q2	297830
2015 Q3	289847	2016 Q3	294255	2017 Q3	299349
2015 Q4	293713	2016 Q4	292748	2017 Q4	298794

Source: ABS Cat 9314.0 January 2018 (trend data)

1. Calculate the quarterly percentage change in sales, then graph your results over the 3 year period OR convert the sales data into an index number for each quarter (using the March quarter of 2015 (2015 Q1) as the base period). Explain why the data is often converted to a rate of change, or an index number. Update the data from ABS.Stat as it becomes available.
2. Suggest how this information may have been collected. Original data is often modified and shown as 'seasonally adjusted' or 'trend' data. Why would it be modified?
3. Would car sales be considered a leading, coincident or lagging indicator of economic activity? Justify your choice.
4. Explain why this economic indicator would be useful information for: a company importing car tyres; a retailer of car accessories; a bank; a transport planner in a state government; economists at the Reserve Bank of Australia (RBA).
5. On a scale of 1-5, with 5 being 'closest', suggest how closely the car sales data would be related to data on: consumer confidence; interest rates; electricity prices; fuel prices; furniture sales; job vacancies; and the rate of unemployment.

Economic sentiment survey

Carry out an economic survey in your local area. Do the survey twice, asking the same people, with the second survey following the first by at least three months.

Stages in your research:

1. Define the purpose of the survey - in this case, you wish to find out whether people you are surveying feel confident about the short to medium term future. Because 'confidence' is very difficult to measure in absolute terms, you could measure 'confidence compared to three months ago'.
2. Write some questions which you believe will measure 'confidence'. You could test these by asking a small group of people and changing the questions which perform poorly. The best questions are unambiguous; invite replies which can be converted to numbers on a scale (e.g. 1 = definitely disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree); and take a short amount of time to administer and record. Perhaps you could include one or two 'open' questions at the end of your survey, to give respondents a chance to explain their expectations in more detail e.g. which type of spending would your be most likely to cut if household income fell by ten per cent?

3. Send your questions to a small sample of people (by email, or include a stamped, self-addressed envelope). Try to ask at least 50 people by allocating everyone in the class two or three surveys each. The sample should contain people or firms of different ages, occupations, backgrounds, places of residence etc. Ensure you follow appropriate ethical requirements, including giving an assurance to your respondents that their answers will remain confidential .
4. Carefully collate and record all responses. Compile 'descriptive statistics' which describe the results (e.g. proportions in each of the five categories). Search for any relationships which appear to exist (e.g. 80 per cent of respondents who thought economic conditions would improve also expected lower interest rates).

Multiple choice

Choose the best alternative in the following questions.

1. Which of the following alternatives is NOT correct?
 - a. macroeconomics is the study of aggregate (total) levels of production, expenditure and income in the economy.
 - b. in studying macroeconomics, economists describe trends in economic indicators, and seek explanations as to why they change from time to time.
 - c. macroeconomics is the study of the main individual sectors of the economy.
 - d. macroeconomics includes the study of policy measures which can improve the state of the economy in the short term.
2. At the start of an upswing of economic activity, which of the following pairs of events would most likely be occurring?
 - a. falling employment AND rising interest rates.
 - b. improving business expectations AND rising private investment.
 - c. inflationary pressure AND excess capacity in manufacturing industry.
 - d. a reduction in inventory levels (business stocks) AND high levels of consumption of durable goods (such as electrical goods).
3. Which of the following pairs of events are more likely in the early stages of a downswing in economic activity?
 - a. replacement of worn-out equipment AND inflationary pressure
 - b. improved economic sentiment AND rising investment
 - c. firms become uncertain about the future AND retail sales rise
 - d. investment falls after previous increases in capital stock AND borrowers re-assess their credit limits.
4. Unemployment levels tend to:
 - a. change before real GDP because they reflect business hiring plans.
 - b. increase when GDP growth is above average.
 - c. rise during the recovery phase of the business cycle.
 - d. lag changes in the rate of change of GDP.
5. If GDP rose from \$250 million to \$258 million over the course of a year, the annual rate of growth was:
 - a. 0.8%
 - b. 1.6%
 - c. 3.7%
 - d. 8.0%

Data interpretation

The question refers to the table below.

1. In which year did the economy record its highest rate of economic growth; highest rate of inflation? [2 marks]
2. Describe the performance of the economy over the four year period. [4 marks]
3. Explain the relationship, over the four year period, between EITHER economic growth and unemployment; business investment and growth; or inflation and unemployment. [5 marks]

Indicator	Real GDP	Unemployment rate	Consumer price index	Current account deficit	Business investment
Unit	\$ bn	% labour force	Year 1 = 100	% of GDP	% of GDP
Year 1	912	4.6	100.0	3.5	14.2
Year 2	943	4.6	104.8	5.0	15.7
Year 3	960	4.2	106.6	3.6	16.3
Year 4	998	6.2	107.6	3.9	17.6

Extended responses

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

1. a. Describe two of the phases of the 'business cycle? [12 marks]
b. Explain why an economic boom cannot continue indefinitely. [8 marks]
2. a. Describe, using examples, the role of economic indicators in understanding macroeconomic events. [10 marks]
b. Discuss the characteristics of the recession (downswing) phase of the business cycle. [10 marks]
3. a. Explain how strong economic growth in countries in Australia's region, such as China and India, could impact upon the business cycle in Australia. [6 marks]
b. Referring to three examples, explain how economic indicators would indicate that an economic downturn was likely in the near future? [9 marks]
4. a. Suggest three reasons why the economy goes through cyclical fluctuations. [10 marks]
b. Discuss the likely trends of TWO of the following economic indicators in the trough phases of the business cycle: business profitability; the level of imports and exports; retail spending; and the Australian government Budget outcome. [10 marks]

The Aggregate Expenditure Model

9



Chapter concepts and skills

- *the components of aggregate expenditure, and the factors affecting each of those components*
- *the relationship between the consumption function, the marginal propensity to consume and the marginal propensity to save*
- *the concept of macroeconomic equilibrium*
- *the impact of changes in aggregate expenditure on the equilibrium level of output*
- *the impact of changes in aggregate expenditure i.e. the multiplier process*
- *apply mathematical techniques relevant to macroeconomic analysis, including: calculating the value of the marginal propensity to consume, the marginal propensity to save, and the multiplier*
- *use economic models to convey economic theory.*

Introduction

Macroeconomics concerns the relationship between spending, output and income at the aggregate (whole economy) level. This chapter examines the role of spending in determining the level of income and production in the economy. To start, we outline the components of aggregate expenditure and examine the factors that affect each of them. This will allow us to examine how changes in aggregate expenditure affect level of output, income and expenditure in the economy. We then develop the aggregate expenditure model - also known as the Keynesian aggregate expenditure model - that will help us to explain the concept of equilibrium, what happens when levels of spending change, and why economies go through the expansions and contractions associated with the business cycle.

Aggregate expenditure

Aggregate expenditure is the sum of all expenditure on finished goods and services undertaken in the economy during a specific time period. It consists of consumption (household expenditure on final goods and services); investment (spending on capital equipment); government spending and net exports (exports minus imports). Aggregate expenditure (AE) can be expressed using an equation:

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

The components of aggregate expenditure

Australia's Gross Domestic Product in 2017-2018 amounted to over \$1.7 trillion dollars - \$1,743 billion. The largest component of aggregate expenditure is consumption expenditure - household expenditure on goods and services. Consumption accounted for 58.6 per cent of the total (some \$1,020 billion).

Consumption consists of:

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

Goods are tangible (they can be seen and touched). Non-durable goods are consumed shortly after purchase (technically, up to three years). This includes perishables; 'fast-moving goods' such as food, drink and packaged products; and clothing and footwear. Much of this spending could be regarded as essential, because it satisfies regular needs. Because of this, non-durable consumption spending is fairly stable over time, typically accounting for about 35 per cent of total consumption expenditure.

As their name implies, durable goods last for a longer period of time - by definition, three or more years. Durable goods include white goods (washing machines, fridges,

Component		Description
Consumption	C	<ul style="list-style-type: none"> expenditure on non-durable goods - food, clothing, petrol; expenditure on consumer durables - whitegoods, furniture, motor vehicles; and expenditure on services - doctors, plumbers, mechanics
Planned investment	I _p	<ul style="list-style-type: none"> planned business expenditure on new capital equipment - machines, factories, buildings, tools; and expenditure on new housing
Government	G	<ul style="list-style-type: none"> G1 current (consumption) expenditure which are part of the day-to-day functions of government; and G2 capital (investment) expenditure to provide for future needs such as schools, roads, power, communications
Net Exports	X - M	<ul style="list-style-type: none"> exports of goods and services; and imports of goods and services

Figure 9.1 The components of aggregate expenditure

ovens); brown goods (furniture, carpets); toys; sporting equipment; and motor vehicles. Spending on durable goods is usually discretionary (it can be postponed or brought forward, depending on the individual household’s circumstances). Expenditure on durable goods is thought to account for about 15 per cent of aggregate consumption.

Services are intangible and usually provide transitory satisfaction of wants. Services include items such as education, transport, health, and recreation. In modern economies, spending on services makes up the largest of the three slices of the consumption cake, accounting for 50 per cent of all household expenditure. Some services are regarded as essential, such as health services and transport, while others are discretionary, such as spending on entertainment and leisure.

As illustrated in figure 9.2, consumption spending over the period 1961 - 2018 in Australia averaged 56.3 per cent of aggregate expenditure (ranging between 53 to 59 per cent of the total).

The second component of aggregate expenditure is private sector investment. Economists define investment as spending on new capital goods and additions to inventories. A capital good is any item of machinery that is used to assist labour in the production process.

In 2017-2018, private investment amounted to 20 per cent of aggregate expenditure in the Australian economy. Investment spending in the national accounts (gross private investment) is divided into three categories:

- business investment - privately funded business spending on capital goods used in production - equipment, machinery and buildings.
- housing investment - private expenditure on new housing.
- inventories - unsold goods, sometimes described as ‘stock’.

On average, consumption spending accounts for 56 per cent of GDP; investment 21.5 per cent; government spending 23 per cent and net exports -1 per cent (figures rounded). Investment shows greatest variability - minimum 16.3 per cent of AE (1992), maximum 26.1 per cent of AE (1961).

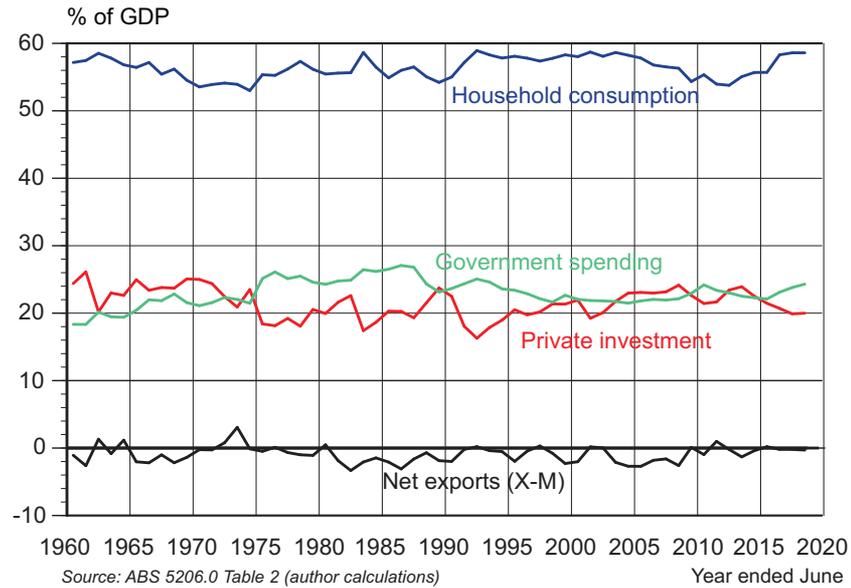


Figure 9.2 Aggregate expenditure - proportions of GDP

Inventories rise when all current production is not sold. An important point to note is that inventories are excluded from investment spending in the aggregate expenditure equation. The term planned investment (I_p) includes the planned spending by firms on business investment and residential investment by households. Actual investment comprises planned investment plus inventories. If there is no change to inventories, then actual and planned investment are equal.

Investment spending is the most volatile component of AE. Over the last fifty years, private investment has accounted for between 16 per cent and 26 per cent of Australia's GDP (see figure 9.2). Fluctuations in private investment spending are thought to be a key factor in explaining changes in economic activity over the course of the business cycle.

Government expenditure is the third component of aggregate expenditure. In 2017-2018, total government spending in Australia amounted to \$423 billion, which represented 24.3 per cent of aggregate spending. Government spending is often divided into current spending (G_1) and capital spending (G_2). Current spending is expenditure on the day-to-day business of government such as wages and salaries, and purchases of goods and services. Capital expenditure is spending on productive machinery and public infrastructure such as power and water supply, roads, railways and communications networks.

Net exports (exports minus imports) is the final element of aggregate expenditure. Exports occur when overseas residents purchase goods and services produced in Australia, which adds to aggregate expenditure on goods and services produced

in Australia. On the other hand, Australian households, firms, and governments purchase goods and services from overseas. Imports are a withdrawal from the circular flow of income, and thus reduce the aggregate amount of expenditure on Australian goods and services.

In 2017-2018, net exports were -\$52 billion - representing 0.3 per cent of GDP. The negative sign indicates that imports exceed exports. Net exports average about -1 per cent of Australia's GDP over the fifty year period illustrated in figure 9.2.

This completes the brief description of the components of aggregate expenditure (AE). We now want to investigate the factors that affect the components of aggregate expenditure - this will give us an insight into the causes of the business cycle.

The determinants of aggregate expenditure

Although economists are interested in how much spending happens in each sector of the macroeconomy, they are more concerned with why that spending changes over the course of the business cycle. Hence we need to explore the factors that influence each of the components of aggregate expenditure.

Factors affecting consumption spending

Aggregate consumption includes household spending on day-to-day items such as food and clothing (non-durable items), durables such as white goods, furniture and electrical equipment, and services such as health and education. Expenditure on household necessities is generally stable over the course of the business cycle. Discretionary expenditure is more likely to vary - influenced by changes in households' income, wealth, their willingness to borrow and expectations about future job security.

The most important factor affecting aggregate consumption is the level of disposable income (Y_d) - the income households receive after tax. As we would expect, there is a positive relationship between the amount households spend on consumption and their disposable income. But that proportion declines as income rises. A household with a disposable income of \$50,000 may spend \$40,000, or 80 per cent of their income. A family unit with a disposable income of \$100,000 may spend a greater amount in absolute terms (say \$70,000) but this represents a smaller proportion of their income. This relationship - the consumption function - is the cornerstone of the Keynesian aggregate expenditure model to be developed later in this chapter.

A second important factor affecting aggregate consumption is the cost of credit (the interest rate). 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:

- repayments on loans are a smaller slice of disposable income when interest rates are low, and
- the opportunity cost of consumption falls. That is, saving is less attractive when interest rates are low, because saved funds have a lower rate of return.

Rising interest rates, on the other hand, may cause households to postpone discretionary consumption. Higher rates mean repayments take up a larger proportion of disposable income, and increase the opportunity cost of consumption, so households have more incentive to save.

A reflection of the impact of confidence on economic behaviour is the net savings rate. The Australian rate was 0% in 2004-05, rose markedly to 10% after the GFC, but has since fallen to about 1% of household disposable income.

Households' current stock of wealth is another factor that influences aggregate consumption. Households that hold real assets such as property or shares tend to feel 'wealthier' or more confident when share prices or property prices are rising. Discretionary spending rose during the boom in share and house prices during the early 2000s, for example. Later in the decade, with the onset of the global financial crisis, many households saw the market value of their personal investments fall considerably. Although this fall in value may have only been 'on-paper', the decline in the stock of wealth brought influenced many households to change their saving and spending patterns.

Consumer expectations play an important role in spending decisions. Expectations are the positive or negative sentiments that people hold about the state of the economy. News concerning economic growth, changes in interest rates, changes in exchange rates, and movements in the share and property markets effect household confidence, and thus their willingness to purchase goods and services. The impact of changing expectations on spending on essentials such as food, clothing and transport, is probably small. Consumer sentiment has a greater impact on household intentions to purchase discretionary items such as holidays, computers, televisions and motor vehicles.

Government economic policy influences household consumption. The Reserve Bank of Australia administers monetary policy using the 'cash rate' - the official interest rate. If the cash rate rises, higher interest rates generally flow through other financial markets. Banks, for example, are likely to lift their interest rates on personal loans and housing mortgages, meaning households have less spending power. The Commonwealth Government (Treasury) is responsible for fiscal policy - using the government's spending and taxing powers to influence household spending decisions. Economic policy is explained in more detail in chapters 12 and 13.

The factors affecting household consumption spending described above are not exhaustive. Other influences on aggregate consumption include changes in exchange rates, the distribution of income and wealth, and demographic factors (such as the changing age structure of the population, and the fact that family sizes are smaller than they were a generation ago).

Factors influencing investment expenditure

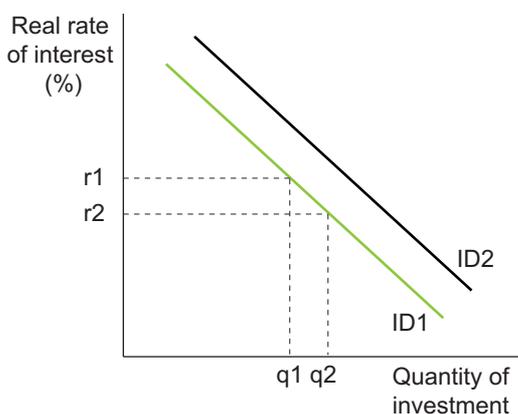
Investment is expenditure on capital goods that will be used to produce final goods and services in the future. The aggregate level of investment is a very important component of aggregate expenditure and the overall state of the economy. Aggregate private investment is the most volatile element of aggregate expenditure, ranging between 16 and 26 per cent of AE over the last fifty years.

It is important to remember that when businesses invest, they are expecting to get a positive return in the future. As the future is unknown, it involves risk. Investment rises and falls according to the perceived risk which the future entails. Many factors (both economic and non-economic) influence risk - political decisions; international events; and changes in consumer sentiment being examples.

Risk is the chance that the actual outcome from an investment will be different from the expected outcome. Returns could be better or worse than expected - in economics and finance, the term risk refers to the probability of difference.

The rate of interest plays a key role in business investment decisions. Other things being equal, interest rates and the level of investment expenditure are negatively related. This concept is illustrated by the investment demand curve, illustrated in figure 9.3. Lower rates of interest (r) tend to induce higher investment expenditure (I). If interest rates fall from r_1 to r_2 , for example, we would expect a movement along the investment demand curve ID1 - investment demand will expand from point q_1 to point q_2 .

Figure 9.3 The investment demand curve



The investment demand curve describes a negative relationship between the (real) interest rate and planned investment. Lower real rates of interest tend to induce higher investment expenditure. If interest rates fall from r_1 to r_2 , we would expect a movement along the investment demand curve - the level of investment will expand from q_1 to q_2 on ID 1.

The curve ID 2 shows a shift of the whole investment demand schedule. This would result from a favourable change in one of the other (non-price) factors affecting investment (e.g. improved business confidence).

There are two explanations for the inverse relationship between interest rates and investment. Firstly, interest rates represent the price of borrowed money, so when rates rise, so do the periodic repayments for capital items purchased with borrowed funds. Secondly, interest rates represent the opportunity cost of money. Firms have the choice of using retained profit for new investment or some alternative purpose. The opportunity cost of investment increases when interest rates are high. For example, if business interest rates were 12 per cent p.a., the prospective rate of return on capital equipment must exceed 12 per cent before a rational firm would consider the investment to be a wise business decision.

It is important to understand the difference between nominal and real rates of interest. Nominal interest rates are the current price of borrowed money (i.e. the advertised or published rate). The real rate of interest takes the rate of inflation into account. If nominal rates of interest are 8 per cent, and expected inflation is 4 per cent, then the real rate of interest is 4 per cent (8 minus 4). Real rates of interest are more important to decision-makers than nominal rates, because they reflect the 'true cost' of borrowed money.

In figure 9.3, the investment demand curve ID 2 represents a positive shift of the whole investment demand schedule brought about by a change in one of the non-interest rate factors affecting investment. This could include positive expectations about the business climate, or rising levels of profitability (both of which would cause a shift in the investment demand curve from ID1 to ID2).

While the relationship between interest rates and investment illustrated in figure 9.3 is clear, the responsiveness of investment 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 is influenced by the current stage of the business cycle and producer expectations. 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 reduce investment spending even though interest rates may be relatively low. At the time of writing (late 2018), interest rates are at historic low levels in Australia, yet investment spending remains below average levels.

Investment spending is linked to profitability in the business sector. Many firms retain a portion of their profits for expansion - to build new premises or buy new equipment. When economic conditions are challenging and profits low, firms may

Non-financial corporate profits were between 20 and 22 % of GDP between 2005 and 2015, falling to 16% in 2016, then rising again to 20% in 2018.

tend to run down their capital equipment over a longer period of time (depreciation). On the other hand, a booming economy increase profits and the pool of funds to spend on new capital equipment. We note here that technological progress is embodied in new capital items. This means that firms invest to take advantage of the lower average costs of production and increased efficiency

that the capital equipment can deliver. Investment in more efficient equipment is an important business strategy to lower unit costs, even when the level of economic activity is low.

Business expectations are an important determinant of investment - what business thinks about the current level of economic activity and forecasts for the future. Business perceptions are formed as a result of current economic events such as levels of sales and enquiries from buyers. If expectations about future sales and profit levels are positive, then it is likely that the investment demand curve will shift to the right. On the other hand, a downturn in the level of business confidence could result in a reduction in planned investment.

Government policies can also have a significant impact on private investment. Fiscal and monetary policies affect investment decisions because they affect costs and expected returns. Taxing the earnings of an industry can change the risk / reward relationship in that sector. On the other hand, tax incentives may attract investment funds to an industry.

The government's record in achieving key macroeconomic objectives (growth, price stability and full employment) also helps to foster a positive business environment. A stable macroeconomic environment is important for long-life private sector investment projects, such as construction, mining and transport. Stability really means the level of certainty provided by the institutional, political and legal system. Responsible and stable government is an important element in providing certainty for decision-makers. The government's regulatory framework can also affect market structures and the level of competition in the economy. In recent years, microeconomic reforms have improved productivity and competitiveness (see chapter 14). These reforms have had an impact on the cost of business regulations, the availability of funds for investment, and the openness of markets.

Factors influencing government expenditure

The majority of government spending is on current items - the goods and services consumed by government institutions and the wages and salaries paid to employees. In the main, this spending is governed by the need to provide a service to the public who fund the public service through their taxes! Since the 1990s, most government entities are required to make decisions as if they are part of the normal corporate landscape, so the economic factors influencing private business apply to some extent. Much government activity, however, is not specifically directed at making a profit - government institutions often provide essential services such as health, education; law and order; social security and defence where the funding required is determined by community needs at the time.

The government also undertakes considerable long term investment in essential infrastructure - public utilities such as power and water supply, roads, railways

and communications networks. These decisions are also governed by the need to provide appropriate levels of service across all communities. Sometimes, their timing might be influenced by the state of the economy. It would be inappropriate, for example, to undertake a major new infrastructure project when the economy was operating at full capacity, as this may worsen supply bottlenecks and build inflationary pressure.

In general, economic factors are not considered central to government consumption and investment decisions. They do, of course, affect government policy decisions, as will be discussed in chapters 12 and 13.

Factors affecting net exports

Exports and imports are reasonably volatile components of aggregate expenditure, particularly in Australia, because of the nature of its traded goods and services. Overseas demand for Australian commodity exports fluctuates according to regional and world economic conditions - witness the strong demand for Australia's resources associated with the development of the Chinese and Indian economies. 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 relatively elastic with respect to GDP - that is, if GDP rises by 2 per cent, then it is likely that imports will rise by more than 2 per cent. This has to do with 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 rises in value, domestic residents can buy more units of other currencies, and overseas residents can buy less units of the Australian currency (AUD). Australian exports become less competitive in overseas markets. Buyers of imports find they are cheaper, and this makes them more competitive against domestically produced items. Other things being equal, appreciation of the currency has a contractionary effect on aggregate expenditure because net exports fall. On the other hand, if the Australian dollar depreciates against other currencies, the price of Australian exports falls for overseas buyers, but prices of imports increase. The final effect on aggregate expenditure will depend on price elasticities.

Movements in the terms of trade (see chapter 5) play a significant role in determining spending on exports and imports. Australia's exports are dominated by resources such as coal, iron ore, gold and bauxite. The recent growth of the Chinese

Factors influencing aggregate consumption expenditure C	<ul style="list-style-type: none"> • disposable income (Y_d) • interest rates (r) • expectations • availability of credit • stock of wealth (property, shares)
Factors influencing aggregate planned investment expenditure I_p	<ul style="list-style-type: none"> • business expectations • interest rates (r) • level of past profits (π) • government policies (e.g. taxation)
Factors influencing government expenditure G	<ul style="list-style-type: none"> • discretionary changes in accordance with government policy objectives e.g. social policies, health, education • automatic changes due to the business cycle • can be used to stabilise macroeconomic fluctuations
Factors influencing net exports X - M	<ul style="list-style-type: none"> • level of domestic and overseas economic activity • exchange rates • terms of trade • presence of tariffs; quotas

Figure 9.4 The determinants of AE (by components)

and Indian economies meant that demand for those commodities rose and their prices reached record levels, boosting Australia’s export price index. Other things being equal, this means that Australia’s export income rises. Australian mining companies received a double dividend from rising world demand - higher prices and higher sales. At the same time, Australia’s import price index has fallen. Again the reason seems related to Asia, where labour is cheaper than it is to hire in Australia. No wonder an increase in the terms of trade is referred to as being ‘favourable’.

Alternatively, a falling terms of trade sees the prices received for exports fall relative to the prices paid for imports, in which case net export receipts are likely to fall (net of volume effects).

Figure 9.4 summarises the factors which affect the components of aggregate expenditure. Obviously, there are many factors that could potentially influence the level of aggregate expenditure at any point in time.

Changes in aggregate expenditure

Consider the following situations:

- You are the manager of a plumbing supplies firm. New home construction is at its highest level for four years. How would the building boom effect (a) your level of inventory (b) the size of the

- orders you lodge with suppliers, and (c) the size of your bank overdraft?
- You own a restaurant. How would an economic downturn affect the number of customers who make bookings; the number of staff you employ; and the quantity of food and beverage you order from suppliers each week?

It is logical that the plumbing supplies firm would turn over its stock more quickly in a building boom; that it would place larger orders with suppliers; and that it may have to ask the bank manager for more operating funds. In a downturn, the restaurant would sell fewer meals and bottles of wine as people reduced their entertainment budget. As a result, they would employ fewer chefs and wait staff, and place smaller orders with their suppliers.

The impact of any change in aggregate expenditure is felt widely across the whole economy. Macroeconomics is the study of all sectors in the economy - the study of economic aggregates. All economic activity revolves around the production of output (O), the earning of income (Y), and the spending of that income (E - expenditure). Essentially, when aggregate expenditure (AE) rises, output, income and GDP must also rise. On the other hand, a fall in aggregate expenditure (AE) will result in lower output, lower income and lower employment.

The Keynesian aggregate expenditure model

To analyse the impact of changes in aggregate expenditure on economic activity we introduce the Keynesian expenditure model, based on the work of British economist John Maynard Keynes. Keynes developed his theory of aggregate expenditure in the 1930s, in the midst of the Great Depression, when economic activity was low and unemployment in some countries exceeded 30 per cent! Prior to the Depression, economists generally thought that the economy would always operate at full employment if prices were free to adjust to market conditions. As a result, they believed there was no need for government intervention and that the government budget should be balanced - expenditure should match revenue collected - no matter what the state of the economy. Keynes showed that fluctuations in spending could have significant short term effects on output and employment, and that it was appropriate for government to take an active role in economic management. These 'Keynesian Revolution' had a significant impact on the way economic policy was formulated. Whilst the business cycle is still a feature of our economy, the size of the cyclical fluctuations are generally smaller than could be expected prior to the use of Keynesian policy.

The consumption function

The Keynesian expenditure model is based on the relationship between the level of disposable income received by households, and the level of consumption and

saving. This is known as the consumption function. Initially, we assume that there is no government sector and no overseas sector - so there are only two possible ways that people can use their disposable income: spend it or save it. In our simple model:

$$Y = C + S$$

where Y represents income, C is consumption and S is savings.

A hypothetical consumption function for the economy is illustrated in the table in figure 9.5, which shows the planned levels of consumption and savings expenditure at each level of income.

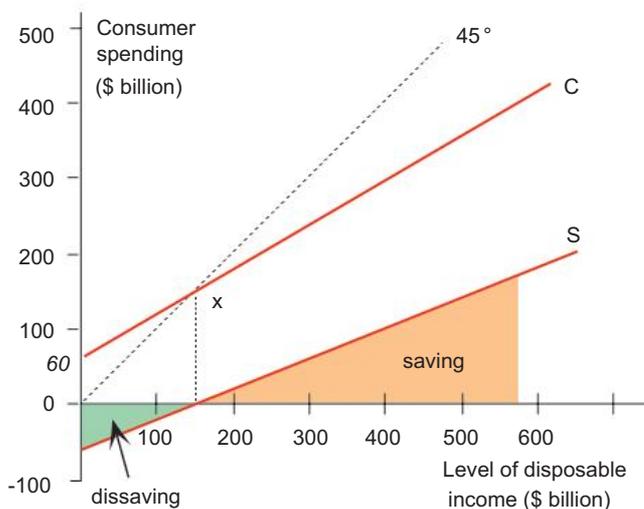
The level of spending (on consumption and saving) is shown on the vertical axis, and disposable income is shown on the horizontal axis. The 45° line is equidistant between the two axes, and thus shows all points where planned expenditure equals total income. When the consumption function intersects the 45° line, the economy is in equilibrium. Equilibrium means that the level of income, output and spending in the economy is in balance - the level of economic activity is stable.

Figure 9.5 The consumption function

Yd	=	C	+	S
0	=	60	+	- 60
100	=	120	+	- 20
200	=	180	+	20
300	=	240	+	60
400	=	300	+	100
500	=	360	+	140
600	=	420	+	180

figures in \$ Bn

The Keynesian consumption function shows that consumption increases as disposable income rises, but not by as much as the increase in income. This is shown in the hypothetical table at left. Note the assumption that income can only be spent or saved (i.e. $Y = C + S$).



The C function can be described in an equation $[C = a + bY]$, where a represents the autonomous component of consumption (here \$60 billion), and b represents the marginal propensity to consume (MPC). The MPC is the slope of the C line (in this case $MPC = 0.6$). The equation for the C function in this diagram is $C = 60 + 0.6Y$.

At point 'x' in figure 9.5, the total level of consumption expenditure (C) is \$150 billion, which equals the level of income. This is sometimes referred to as the 'breakeven' point. At levels of income greater than \$150 billion, consumption is less than income which means that saving is positive. For example, at an income level of \$300 billion, consumption equals \$240 billion and saving equals \$60 billion. At a lower level of income, such as \$100 billion, consumption (\$120 billion) exceeds income, which means that savings is negative. This is referred to as 'dissaving'.

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

$$C = a + bY$$

The right hand side of the equation has two parts. The variable 'a' is the vertical intercept - the point where the consumption function meets the y-axis. This is described as autonomous consumption - there would be some level of aggregate spending even if consumers had no income (presumably households would draw on savings or claim transfer payments). The second part of the right hand side (the variable 'b') is the rate at which consumption changes when income rises - the slope of the line.

In figure 9.5, the consumption function equation is $C = 60 + 0.6Y$. This means that if income was zero, the autonomous level of consumption for the economy would be \$60 billion. For every \$1 increase in disposable income, households will spend 60 cents, and save 40 cents. This fraction ($C = 0.6Y$) is known as the marginal propensity to consume (MPC). The MPC is the fraction of any change in income that is spent on consumption. It can also be represented as an equation:

$$MPC = \Delta C / \Delta Y$$

where Δ means 'change in'. Similarly, the fraction of any change in income that is saved is known as the marginal propensity to save (MPS). In our example, the MPS is 0.4. The MPS is the change in savings divided by the change in income:

$$MPS = \Delta S / \Delta Y$$

Given that our simple model assumes that all income is either spent or saved, then the MPC and the MPS must add to one:

$$MPC + MPS = 1$$

The size of the MPC depends on the attitude of consumers to spending and saving. If the MPC increases, then the consumption function will be a steeper line. For example, if the MPC were to equal 0.7, consumers would spend 70 per cent of extra income, and save the rest (30c) - the MPS would be 0.3

A consumption function having a slope of 0.9 would be steeper again, as households would spend a greater proportion of any increase in income (Y).

Applying mathematical techniques - MPC experiment

'Give' everyone on your class \$10 (their marginal income). Ask them to nominate how much of their extra income they would spend, and how much they would save. Tally the results and calculate the mean for both consumption and savings spending. What is the MPC and MPS for your class?

What do you think the MPC would be for your community? What factors might affect its size?

The overall proportion of income that is spent or saved at any level of income is known as the average propensity to consume (APC) and the average propensity to save (APS). The APC is defined as the proportion of total income which is spent on consumption. The APS is the proportion of total income which is saved. The APC and the APS must also sum to one. In our example in figure 9.5, when income is 200, consumption is 180 and saving is 20. So the APC equals 0.9, while the APS equals 0.1. Notice what happens as income rises. At an income level of 400, consumption has risen to 300 and the APC has fallen to 0.75. The APS is now 0.25. Thus, as income rises, the APC falls and the APS rises, even though the marginal rates stay the same!

What happens to MPC, MPS, APC and APS, as income rises?

The MPC and MPS do not change - they are constant. But the APC and the APS both change. In figure 9.6, when $Y = 300$, $C = 240$ and $S = 60$. The APC is 0.8, and the APS is 0.2. At $Y = 600$, $C = 420$ and $S = 180$. The APC has fallen to 0.7, and the APS has risen to 0.3.

Adding the financial sector

The consumption function is regarded as the cornerstone of the Keynesian aggregate expenditure model. We can now relax the assumption that consumers can only spend or save their income. Figure 9.5 showed how much people wish to consume and save at each level of income. What happens to those savings? The financial sector acts as an intermediary to channel the savings of households to firms who can draw on these funds to finance investment. To make the model easier to understand, we assume that investment spending is a fixed amount, independent of the level of income. We assume that business firms plan to invest \$60 billion.

The level of aggregate expenditure is now equal to the sum of consumption plus investment: $AE = C + I$. In the table in figure 9.6, the $C + I$ column is derived by adding the amount of investment (\$60 bn) to the amount of consumption at each level of income. Equilibrium in our model occurs where total planned spending ($C + I$) equals output or income. This is where the $C + I$ function intersects the 45° line (see point b). Equilibrium can also be defined as the income level where planned saving by households equals planned investment by firms. The equilibrium level of income in our model is \$300 billion.

If the level of income is either above or below the equilibrium level, then planned spending will not equal output and firms inventories will change, signalling them to either increase or decrease production. The economy will automatically move

Yd	C	S	Ip	C+Ip	Change in Inventories	Effect on Output
0	60	-60	60	120	-120	Increase
100	120	-20	60	180	-80	Increase
200	180	20	60	240	-40	Increase
300	240	60	60	300	0	No change
400	300	100	60	360	40	Decrease
500	360	140	60	420	80	Decrease
600	420	180	60	480	120	Decrease

This model extends the consumption function by adding planned investment. Aggregate expenditure is now equal to $C + I$. Equilibrium occurs where $C + I$ intersects the 45° line. The equilibrium level of income is \$300 bn, and $S = I$ at \$60 bn. At equilibrium, there is no addition to, or withdrawal from inventories.

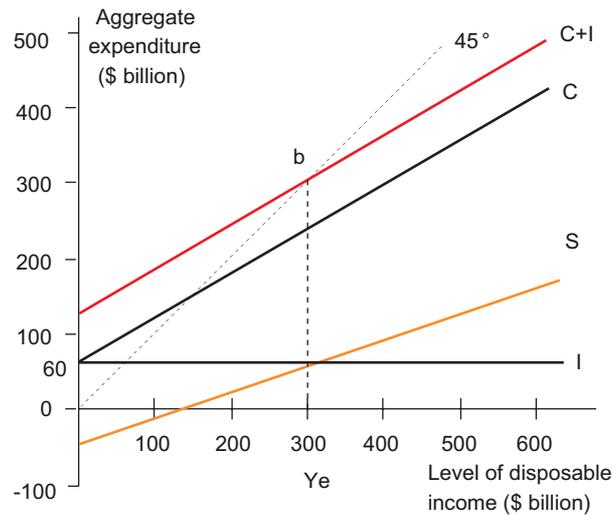


Figure 9.6 The model with savings and investment

towards the equilibrium level. At an income level of \$400 billion, for example, planned spending equals \$360 billion. Notice that the $C + I$ function is below the 45° line. Firms will have unsold output (inventories) of \$40 billion - inducing them to cut their output in the next time period, resulting in a fall in income earned.

If the level of income was \$200 billion (below the equilibrium level) total planned spending would equal \$240 billion. Notice that the $C + I$ function is now above the 45° line. This means that firms will have sold all their current output and will have to sell \$40 billion worth of output from inventories. Inventories will thus fall, and firms will react by increasing production in the next time period. This will increase the level of income earned.

Only when income is equal to \$300 billion can the economy be in equilibrium, with the levels of planned spending matching output (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 lies below the 45° line, the level of savings is greater than the level of planned investment, so inventories rise and firms cut production, and income earned from

production must fall. On the other hand, when $C + I$ is above the 45° line, investment is greater than savings, so inventories fall, firms increase production and they may employ more people, creating more income.

The full aggregate expenditure model

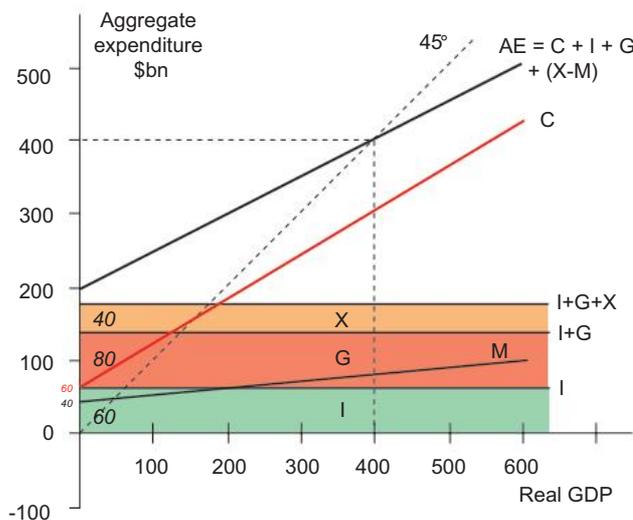
We now relax the assumption that the economy has no government or overseas sectors. Figure 9.7 reflects the addition of government spending and net exports into the model:

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

Government expenditure (G) is assumed to be a fixed amount and independent of the level of real GDP ($G = \$80$ billion). We also make the same assumption for exports - X is a fixed amount of $\$40$ billion. Imports, however, are assumed to increase with the level of disposable income. In our model, import spending increases by $\$10$ billion for each $\$100$ billion increase in GDP. This is the marginal propensity to import.

Figure 9.7 The Keynesian model

Real GDP	C	I_p	G	X	M	AE	Δ Inventories
0	60	60	80	40	40	200	-200
100	120	60	80	40	50	250	-150
200	180	60	80	40	60	300	-100
300	240	60	80	40	70	350	-50
400	300	60	80	40	80	400	0
500	360	60	80	40	90	450	+ 50
600	420	60	80	40	100	500	+100



The level of planned aggregate expenditure at each level of income is calculated by the equation $AE = C + I + G + (X - M)$. It is assumed that I , G and X are autonomous (independent of the level of real GDP), but M is a function of income. The equilibrium level of real GDP is $\$400$ billion. At this point planned spending matches actual production. At income levels above $\$400$ bn, total spending < output, and inventories increase. At income levels below $\$400$ bn, total spending > output, and inventories decrease.

We can now derive the total amount of aggregate expenditure by adding the individual types of expenditure (C, I_p , and G) and subtracting net exports (X-M). In the table with figure 9.7, aggregate spending equals real GDP at \$400 billion. This is the equilibrium level of real GDP, and all current production is sold so there is no change to inventories.

Figure 9.7 also includes a graph showing the complete AE model. We now label the horizontal axis as real GDP. The equilibrium level of income in this economy occurs when aggregate planned expenditure equals GDP - the point where the AE function intersects the 45° line. This occurs when GDP and AE equal \$400 billion.

At income levels below \$400 billion, total spending exceeds output and inventories fall. Firms will respond by hiring additional resources in order to increase output. Output will rise until \$400 billion of goods and services are produced. When this occurs, there are no unplanned changes in the level of inventories. This meets the definition of equilibrium - no tendency for change in the levels of income or output at that point in time. At higher levels of income, total spending is less than output so that inventories rise causing firms to cut back production.

It is useful to recap on the meaning of macroeconomic equilibrium. As depicted in figure 9.8, equilibrium occurs when total planned spending equals total output. This is the point where the AE function crosses the 45° line - at point E, corresponding with the level of income Y_e . At a lower level of income such as Y_1 , planned spending is greater than output and there is a decrease in inventories. Firms will increase aggregate output, so income and employment will rise. At an income level like Y_2 ,

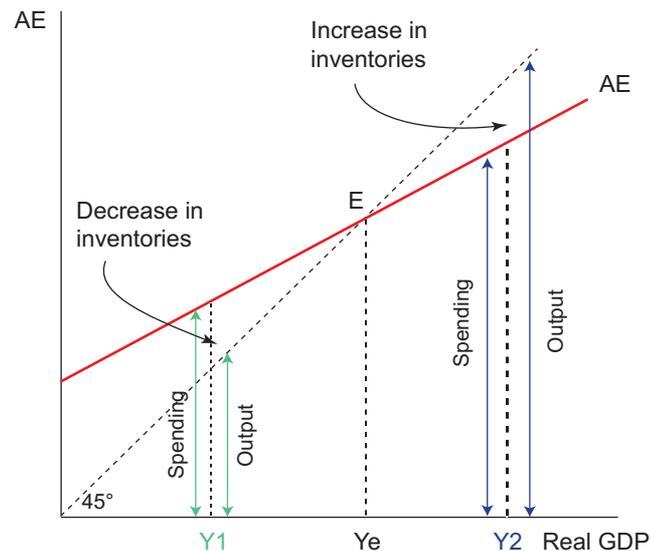
Figure 9.8 Macroeconomic equilibrium

Macroeconomic equilibrium occurs when total planned spending equals production - when the AE function crosses the 45° line (point E).

When spending equals output, there is no change to inventories.

When spending > output, inventories decrease and the level of income rises.

When spending < output, inventories increase and the level of income contracts.



planned spending is now less than output so that there is an increase in inventories. Again this will automatically lead to a decrease in production and the level of output and income will fall back to the equilibrium level Y_e (point E).

Is there anything special about the equilibrium level of income? Not really - it simply means that the level of income is stable.

Changes in expenditure - the multiplier

Changes may occur in any of the components of aggregate expenditure. For example, the following events would result in a higher level of AE - the AE line in the model would shift upwards at all levels of disposable income:

- a rise in retail spending due to an increase in consumer confidence;
- an increase in coal exports to supply steel producers in India; or
- an increase in business investment associated with new oil and gas projects in north-west WA.

To understand how such changes affect the rest of the economy, it is necessary to understand that new expenditure does not just have a once-off impact on the economy. Because 'one man's spending is another man's income', any addition to (or reduction of) the level of spending in the economy will have far-reaching effects on aggregate levels of income. Economists use a model called the multiplier to explain this process.

Initially, we assume our economy has just three sectors - households, firms, and the financial sector. Aggregate expenditure therefore consists of consumption plus investment. Assume a mining company decides to spend \$10 billion to develop a mine site and rail link in Western Australia. The initial (new) investment creates income for contractor firms and their employees, including engineers, architects and construction workers. These people will then spend part of that income on goods and services including food, clothing, rent and entertainment. This spending will flow on to other people in the economy through the circular flow of income. As a result, the final impact of the new spending is likely to be much greater than the initial value of the project.

The multiplier refers to proportion by which income will rise following an initial change in spending. If an increase in investment of \$10 billion caused the level of income to rise by \$25 billion, the value of the multiplier would be 2.5 - that is, the final impact on income is 2.5 times the new investment.

The following example shows the multiplier at work and how the marginal propensity to consume determines its final impact. The new investment in the mining venture (\$10 billion) will create new income of \$10 billion for suppliers and people currently working on the project. Assume the MPC is 0.6, in which case these people will now spend \$6 billion on goods and services and save the other \$4 billion. The \$6 billion

The multiplier shows how one person's spending creates another person's income. An initial investment of \$10 billion creates new income, which is either spent or saved. The proportion that is spent creates income for others in the second time period. This is also spent or saved. The total new income created by the initial investment can be determined using the formula $\Delta Y = k \times \Delta I$ (i.e. $2.5 \times \$10 \text{ billion} = \25 billion).

			Y	=	C	+	S
Time period			assumes MPC = 0.6				
new I (\$10)	1	creates new Y	\$10.00	=	6.00	+	4.00
	2		6.00	=	3.60	+	2.40
	3		3.60	=	2.16	+	1.44
	4		2.16	=	1.30	+	0.86
after 4 time periods			ΣY	=	ΣC	+	ΣS
			21.76	=	13.06	+	8.70
after n... time periods			ΣY	=	ΣC	+	ΣS
			25.00	=	15.00	+	10.00

figures in \$ billions

Figure 9.9 The multiplier over several rounds

of spending will flow on to others in the next period of time. In period 2, 60 per cent of this income will be spent (\$3.6 billion) and 40 per cent (\$2.4 billion) saved. In the third round of spending, new income is \$3.6 billion, of which \$2.16 billion will be spent. The cycle of 'one man's spending creating another man's income' will continue over many time periods until the change in income has reduced to zero.

Figure 9.9 shows the progressive impact of the new investment on the economy. After four periods of the income/spending cycle, \$21.76 billion of extra income has been created from the initial increase in investment of \$10 billion. If we follow the process to the end we can show that the total change in income caused by the initial investment of \$10 billion will be \$25 billion. We can now derive the value of the multiplier (often expressed as 'k'). The multiplier is the amount by which real income or GDP changes after an initial change in expenditure. So in our example of the increase in mining investment, the value of the multiplier would be:

$$\begin{aligned} k &= \Delta Y / \Delta I \\ &= 25/10 \\ &= 2.5 \end{aligned}$$

The value of the multiplier is determined by the marginal propensity to consume and can be derived from the formula:

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

Using this formula, if the MPC equals 0.6, then the multiplier equals 2.5:

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

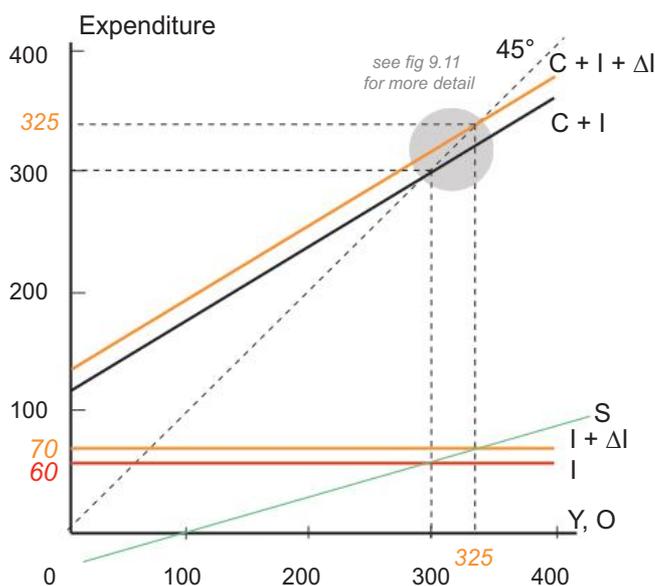
What would happen if the MPC increased? This would increase the ‘responding’ effect from a given change in investment and so the value of the multiplier must rise. For example, an MPC of 0.75 would mean that the multiplier would be 4. Small changes in the MPC can have a dramatic effect on the size of the multiplier. The sidebar shows different values for the MPC, the MPS and the multiplier. As the MPC increases (MPS decreases), the multiplier increases. The multiplier always has a value greater than one, unless the MPC is zero!

MPC	MPS	Multiplier
0.25	0.75	1.33
0.4	0.6	1.67
0.5	0.5	2
0.6	0.4	2.5
0.75	0.25	4
0.8	0.2	5

What determines the value of the marginal propensity to consume? This 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.

It is possible to illustrate the multiplier principle using the Keynesian aggregate expenditure model. Figure 9.10 demonstrates how an increase in investment causes the equilibrium level of income to increase by a much larger amount. Initially the economy is in equilibrium with income $Y = 300$. Saving and investment are equal at 60. Assume that planned investment increases by 10 (from 60 to 70). The investment schedule will shift up to $I + \Delta I$. The $C + I$ function will also shift upwards by the increase in investment. The level of income in the economy expands in successive rounds of new spending which generates new income. Each change in income will induce new spending via the marginal propensity to consume. Figure 9.11 shows the multiplier process in more detail, illustrating each of the steps as successive

Figure 9.10 The multiplier effect



Initial equilibrium occurs at $Y = \$300$ bn with savings equal to investment at 60. Firms then decide to increase I by 10 (shown on the diagram as $I + \Delta I$) to 70. This extra 10 sets off a spending / income cycle: “one man’s spending is another man’s income”.

Final income increases from 300 to 325 - an increase of 25. The value of the multiplier ($\Delta Y / \Delta I$) is 2.5. The initial increase in investment has resulted in a multiple change in income.

The shift to the right shown on the x-axis is greater (325 - 300) than the change in investment (70 - 60) shown on the y-axis.

This diagram shows the multiplier stages in greater detail - this is what happens in the circular shaded area in figure 9.10.

The initial increase in investment increases income (the 'tread' on each of the steps) which then induces increases in consumption (the 'rise' in the steps).

Here, a \$10 billion autonomous rise in investment will, after a series of stages, create \$25 billion more income.

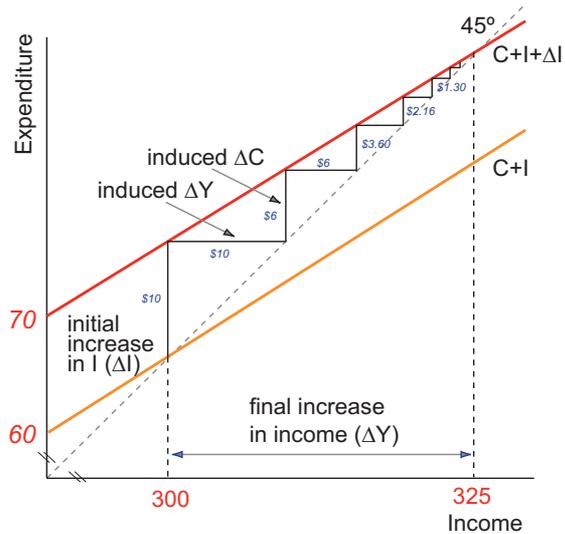


Figure 9.11 The multiplier 'steps'

increases in income induce new rounds of spending. Eventually, the initial increase in investment of 10 raises the equilibrium level of income to 325 - an increase of 25. In other words, the multiplier has increased aggregate income by a factor of 2.5.

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 exports. Examples include:

- new resource projects in the Pilbara region of WA;
- an increase in mining exports from the resources boom;
- an increase in government spending on new roads; and
- the increase in apartment construction in capital cities.

The multiplier process also applies for any decrease in autonomous spending. If investment falls, the level of income in the economy will fall by a greater amount. The closure of a bank in a rural town would have a ripple effect on other services as bank employees moved, cutting supermarket turnover, cafe sales, doctors' visits and so on. The global financial crisis of 2008-09 reduced business and household confidence which led to a fall in investment spending in Australia. This then slowed the growth in Australia's GDP and increased unemployment.

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 (highly unlikely) then the multiplier would equal infinity! In reality, there are a number of factors which restrict the value of the MPC and therefore reduce the size of the multiplier. The extent of the multiplier will be influenced by the size of leakages associated with savings, taxation and imports. Each of these leakages reduces the size of the multiplier. When these are taken into account, the formula for the multiplier becomes:

$$k = 1 / (\text{MPS} + \text{MPT} + \text{MPM})$$

where:

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

Assuming for example that the MPS is 0.2; the MPT is 0.3 and the MPM is 0.2, the combined leakages would be 0.7 of new income. This would imply that the multiplier would be

$$k = 1 / 0.7 = 1.43$$

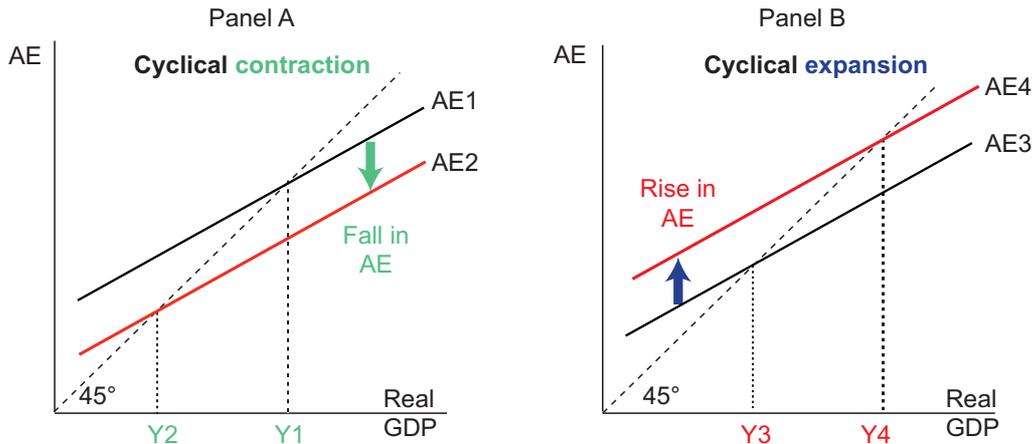
Can we estimate the value of the multiplier in the Australian economy? Estimates show that while it varies over the course of the business cycle, its average value is between 1.5 and 2.5. This is useful information for governments when formulating policy tools policy to influence the level of income and react to changes in the business cycle.

Aggregate expenditure and the business cycle

The Keynesian aggregate expenditure model and the multiplier principle enable us to develop an understanding of the economic impact of changes in any of the components of aggregate expenditure. In general:

- any autonomous increase in one of the components of AE will be multiplied to result in a higher level of real GDP.
- any autonomous decrease in a component of AE will be multiplied to result in a lower level of real GDP.

This is illustrated in figure 9.12, which shows the relationship between changes in aggregate expenditure and the business cycle. In panel A, a decrease in AE causes the equilibrium level of output and income to fall from Y1 to Y2. The model illustrates the impact of the multiplier - the horizontal difference between Y1 and Y2 is greater than the vertical difference between AE1 and AE2. In panel B, an increase in AE causes the equilibrium level of output and income to rise from Y3 to Y4. The multiplier is evident because the horizontal difference between Y3 and Y4 is greater than the vertical difference between AE3 and AE4. The increase in aggregate expenditure is associated with an expansion in economic activity.



The business cycle can be modelled using the Keynesian aggregate expenditure model. Falls in AE (panel A) bring about a contraction, as growth in real GDP slows from Y1 to Y2. Rises in AE, on the other hand, are associated with an expansion - growth in real GDP increases from Y3 to Y4.

Figure 9.12 The Keynesian model and the business cycle

Worksheet - aggregate expenditure

Read the aggregate expenditure sections to answer these questions.

- List the components of aggregate expenditure.
- Define the term 'consumption'. Provide three examples to illustrate the difference between durable and non-durable consumption.
- Define the term 'investment'. How is the economic definition different to the way the term is used in a 'personal finance' sense?
- What is the meaning of the term 'expectations'? Carefully explain how 'expectations' might affect the aggregate level of durable consumption; of investment?
- The cost of credit (interest rates) affects aggregate levels of consumption and investment for two reasons. Carefully explain those reasons.
- Draw an 'investment demand function', then explain what would cause a movement along that function and what would cause a shift of the whole function.
- Explain why the 'elasticity of investment demand with respect to interest rates' might vary over time.
- Distinguish between automatic and discretionary forms of government spending.
- What factors influence overseas spending on Australian exports?
- Draw up a table which summarises the determinants of each component of aggregate expenditure. Highlight what you believe are the two most important factors affecting each element. Provide an example of one recent instance of each influence.

Worksheet - the expenditure model

Read the sections on the consumption function and aggregate expenditure model to answer the following questions.

- Describe and draw the consumption function, labeling the 45° line; break-even point; the MPC; saving and dis-saving; and the point of equilibrium.

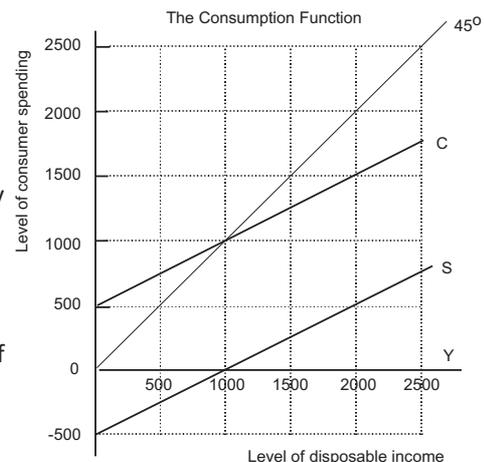
- In the three sector model (consumers, producers and the finance market), where is the point of equilibrium? In figure 9.6, why isn't $Y = 400$ an equilibrium level of income? What happens when the economy is not in equilibrium?
- Why are the I , G and X lines shown as horizontal lines in our model of aggregate expenditure, such as figure 9.7?
- Define the 'multiplier'. Recalculate the data in figure 9.9 using the same amount of new investment, but changing the marginal propensity to consume (MPC) to 0.7. Comment on differences between the results.
- Write the formula used to calculate the value of the multiplier? Describe the relationship between the size of the multiplier and the size of the marginal propensity to consume (MPC)?
- Using the Keynesian model, show how an autonomous reduction in the size of an injection (I , G or X) would lead to a multiplied fall in the level of community income.
- Using a model, explain how an increased rate of savings in the economy can lead to a reduction in the equilibrium level of income (unless there is an increase in the level of investment).

Consumption function 1

Refer to the data and the graph below. Assume no government or overseas sectors.

- What level of consumption (C) occurs in this economy if disposable income (Y_d) is 1000; 2000?
- Explain the significance of the 45° line.
- From the data, write the equation for the consumption function.
- What is the breakeven point?
- What level of saving (S) occurs in this economy if disposable income is 500?
- What does the savings (S) function represent?
- Define the marginal propensity to consume (MPC).
- Calculate the MPC when disposable income increases from 500 to 1000.
 - Calculate the MPC when disposable income increases from 1500 to 2000.
- Calculate the APC for each level of Y :
 - $Y = 500$; b) $Y = 1500$ c) $Y = 2500$
- Label or shade the area of the diagram where no saving is occurring.
- Is the slope of the savings function determined by APC, MPS, or APS? Explain.
- Why must the $MPC + MPS$ always equal 1.
- What will happen to the equilibrium level of income for this hypothetical economy if consumers become more thrifty and save more of their income?
- Illustrate what will happen to the consumption and savings functions if: consumer expectations improve; the savings ratio rises.

Level of disposable income (Y_d)	Level of consumer spending (C)	Level of savings (S)
0	500	-500
500	750	-250
1000	1000	0
1500	1250	250
2000	1500	500
2500	1750	750



Consumption function 2

From the table, plot the household consumption (C) and savings (S) levels at each level of disposable income (Yd). Choose your scales and label the axes carefully (expenditures on consumption and saving on the vertical axis, and disposable income on the horizontal axis). Include a 45° line to help see where expenditures are equal to incomes.

Level	Yd	C	S
a	0	60	-60
b	100	120	-20
c	200	180	20
d	300	240	60
e	400	300	100
f	500	360	140

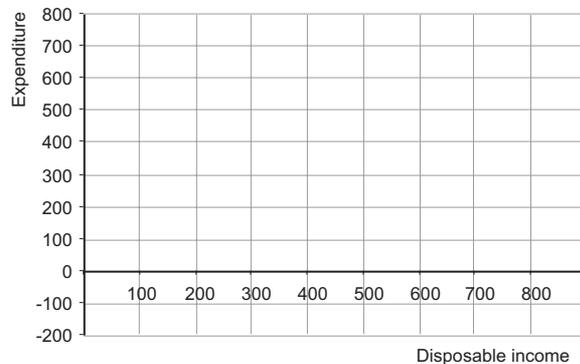
1. Label the section of the savings function where disposable income is less than consumption expenditure (dis-saving), and the part of the function where saving is positive.
2. Calculate the Average Propensity to Consume (APC) at Yd levels a, c and e.
3. Calculate the Average Propensity to Save (APS) at Yd levels a, c and e.
4. What happens to APC and APS as income rises? Why?
5. Calculate the Marginal Propensity to Consume (MPC) at levels b, d and f.
6. Calculate the Marginal Propensity to Save (MPS) at levels b, d and f.
7. Determine the equations for the consumption and the savings functions.
8. What determines the slopes of these lines?
9. List the determinants of consumption. Illustrate what happens if the MPC increases.
10. Draw a new consumption function on your graph, which has the equation $C = 60 + 0.7Y$. Explain how this function is different from the function you graphed initially.

Expenditure model - a graphical analysis

Refer to the table and set of axes below.

1. Calculate the missing cells in the table and graph the C, S, I, C+I and 45° lines.
2. Calculate the marginal propensity to consume (MPC) and the marginal propensity to save (MPS).
3. State the equation for the consumption function.
4. Shade in the area which represents 'dis-saving'.
5. Investment is assumed to be a fixed amount. Explain.
6. What is the equilibrium level of income for this economy?
7. State what would happen in this economy if the level of investment rose from its current level (50) to a higher level (70).

Yd	C	S	I	C+I
0	70	-70	50	120
100	140	...	50	...
200	210	10	...	260
300	280	50	50	330
400	...	90	50	400
...	420	130	50	470
600	490	...	...	540
700	...	210	50	610
800	630	250	50	...



The multiplier

Assume that a country had a GDP of \$200 million, and was initially in macroeconomic equilibrium, with aggregate savings and aggregate investment equal at \$25 million.

1. Using a table similar to that used in figure 9.9, show how an autonomous increase of investment of \$10 million would bring about increased levels of aggregate income, consumption and savings during the next five time periods. Assume that the MPC is 0.8.
2. Calculate the 'final' effect on the economy of the new autonomous investment. What is the size of the multiplier in this case?
3. In one sentence, state how your answers to questions 1 and 2 would change if the MPS increased to 0.25.
4. If the marginal propensity to tax in this economy was 0.2, and the marginal propensity to import was 0.1, recalculate the final effect that the autonomous increase in investment has had on the economy. Is the effect smaller or larger than the answer you calculated in question 2? Why?

Multiple choice

For each of the questions below, choose the best alternative.

1. Aggregate expenditure is defined as
 - a. the sum of consumption and investment expenditure undertaken by private households, firms and government.
 - b. the total amount that firms and households plan to spend on goods and services at each level of income.
 - c. the sum of consumer expenditure, firms' expenditure on capital items, government expenditure, and expenditure on net exports.
 - d. expenditure on new capital equipment to produce final goods and services in the future.
2. Which of the following factors is LEAST likely to affect business investment?
 - a. the level of real interest rates.
 - b. the level of nominal interest rates.
 - c. the current level of corporate profit.
 - d. changes in business expectations.
3. Which combination of the following factors is most likely to increase the level of durable consumption?
 - i an increase in interest rates.
 - ii an increase in asset prices, such as housing.
 - iii a depreciation of the Australian dollar.
 - iv positive expectations about economic growth.
 - a. i and ii.
 - b. ii and iii.
 - c. i and iii.
 - d. ii and iv.
4. If Australian imports are elastic with respect to GDP, then which of the following results is more likely?
 - a. a two per cent rise in GDP will bring about a one per cent increase in import volumes
 - b. a two per cent rise in GDP will bring about a two per cent increase in import volumes.
 - c. a two per cent rise in GDP will bring about a four per cent increase in import volumes.
 - d. a two per cent rise in imports will result in a four per cent GDP increase.

5. If, in a particular period of time, $Y = 4000$, $C = 3000$, $S = 1000$ and $I = 800$, then
 - a. there will be no change in the level of income in the next period.
 - b. the amount of income earned in the next period will increase.
 - c. the amount of income earned in the next period will be the same.
 - d. aggregate output produced in the next period will fall.

6. If the level of investment exceeds the level of saving, it is likely that
 - a. the level of investment cannot be sustained because there are insufficient funds available from the savings pool.
 - b. the level of income in the economy will rise in the near future.
 - c. unsold stock (inventories) will increase.
 - d. the level of saving will fall during the next period.

7. For the consumption function expressed by the equation $C = 80 + 0.8Y$, the marginal propensity to save (MPS) is, so the multiplier is

 - a. 0.8; 1.25
 - b. 0.2; 5
 - c. 0.2; 4
 - d. -20; 1.25.

8. Which of the following statements about the consumption function is correct?
 - a. APC falls, and MPC rises as disposable income (Y_d) rises.
 - b. APC rises as Y_d rises; MPC does not change.
 - c. APC falls as Y_d rises; MPC does not change.
 - d. both APC and MPC fall as Y_d rises.

9. The 45° line in the Keynesian expenditure model of income analysis
 - a. shows all points where aggregate expenditure equals aggregate output.
 - b. shows the point of equilibrium national output.
 - c. shows all points where real GDP equals the value of production.
 - d. shows all equilibrium levels of aggregate expenditure.

10. The slope of the consumption function is determined by:
 - a. the marginal propensity to invest.
 - b. the marginal propensity to consume.
 - c. the top marginal tax rate.
 - d. the spending multiplier.

11. Which of the following will cause an increase in the value of the overall multiplier?
 - a. an increase in the terms of trade index.
 - b. a reduction in income tax rates.
 - c. a rise in the marginal propensity to save.
 - d. an increase in investment spending.

12. If the value of the investment multiplier is 5, an autonomous increase in
 - a. income of \$10 will result in investment increasing by \$50.
 - b. investment of \$10 will result in income increasing by \$60.
 - c. investment of \$10 will result in consumption increasing by \$40.
 - d. consumption of \$10 will result in investment increasing by \$40.

13. Suppose that real GDP equals \$700 billion while full employment real GDP equals \$800 billion. To close this gap, the government should
 - a. increase its spending by \$25 billion if the MPC is 0.80.
 - b. increase its spending by \$30 billion if the MPC is 0.70.
 - c. increase its spending by \$20 billion if the MPC is 0.75.
 - d. increase its spending by \$15 billion if the MPC is 0.80.

14. Macroeconomic equilibrium in Australia occurs when
 - a. total spending equals total output.
 - b. government spending equals government tax revenue.
 - c. imports equal exports.
 - d. savings equal investment.

15. Assume that the government increases its spending by \$9 billion. If the MPS is 0.4, what will be the total increase in income?
 - a. \$9 billion
 - b. \$10 billion
 - c. \$22.5 billion
 - d. \$2.5 billion

Aggregate expenditure data

The table details aggregate expenditure data for Australia over the period 2005-06 to 2012-13. Figures are in \$m.

Australia - aggregate expenditure data: 2005-06 to 2012-13					
Financial year	Household consumption	Private investment	Government spending	Net exports	AE
2005-2006	702862	256551	281499	27728	
2006-2007	736433	269024	291928	15107	
2007-2008	771274	295214	304342	-10277	
2008-2009	773642	296697	320772	4257	
2009-2010	791250	289651	340159	1095	
2010-2011	821388	306716	346018	-24882	
2011-2012	842498	351549	354403	-46476	
2012-2013	855791	361414	356111	-32159	

1. Calculate aggregate expenditure for each year, using the formula $AE = C + I + G + (X - M)$.
2. Calculate the proportion of AE made up by each of the components in each year. For example, in 2005-2006, private consumption made up 55% of AE.
3. Which element of AE is most stable over the years? Suggest why.
4. Which element of AE is the most volatile (subject to change) ? Suggest why.
5. Explain why net exports are negative in some years?
6. In which years did private investment expenditure fall? Suggest three possible reasons. Using the aggregate expenditure model, explain the impact of a fall in investment on the economy.

Extended responses

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

1. a. Explain why private investment expenditure is more volatile than consumption spending. [10 marks]
- b. Explain how TWO of the following events would be expected to affect aggregate consumption in Australia? [5 + 5 marks]
 - i. a rise in interest rates.
 - ii. the level of disposable income falls during a recession.
 - iii. an increase in mining investment in Australia.

2.
 - a. How would a fall in the real interest rate affect the demand for non-durable and durable consumer goods? [10 marks]
 - b. Explain how TWO of the following events may affect aggregate private investment in Australia? [5 + 5 marks]
 - i. a fall in interest rates.
 - ii. the level of disposable income falls during a recession.
 - iii. levels of corporate profit are the highest recorded in the past three years.

3.
 - a. The Reserve Bank of Australia (RBA) cut interest rates to their lowest ever level in 2016. Discuss the likely effects of these cuts on consumption and investment. [10 marks]
 - b. Over the year to September, 2014, new business investment in Australia declined by 1.4 per cent. Using an appropriate model, explain how this decline would have affected the Australian economy. [10 marks]

4. Using the Keynesian Cross model, describe the concept of macroeconomic equilibrium and explain how changes in investment and savings can alter the level of equilibrium. [20 marks]

Aggregate Demand and Supply

10



Chapter concepts and skills

- *the aggregate demand (AD) curve and factors that can cause movements along and shifts of the AD curve*
- *the aggregate supply (AS) curve and factors that can cause movements along and shifts of the AS curve*
- *demonstrate macroeconomic equilibrium using the AD/AS model*
- *demonstrate 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*
- *use economic models to convey economic theory*

The aggregate demand / aggregate supply model

The Keynesian aggregate expenditure model and the multiplier principle explained in the previous chapter enable us to develop an understanding of the economic impact of changes in any of the components of aggregate expenditure

The aggregate expenditure model, however, only shows the impact of a change in spending on output. It says nothing about the impact of changing expenditure on the general price level. This is an important omission - it means the model says nothing about inflation (one of the 'twin evils' associated with the business cycle).

Another weakness of the expenditure model is that it only focuses on the demand side of the economy - it ignores the supply side. This means that the effect of changes in important economic variables such as the labour force, the capital stock, the level of technology and productivity are not considered.

The purpose of this chapter is to introduce a more complete macroeconomic model - the aggregate demand/aggregate supply model (usually abbreviated as the AD/AS model).

Aggregate demand

It is important to note that the aggregate demand curve is very different to the demand curve for an individual good or service studied in microeconomics.

Aggregate demand is the total amount of spending in the economy. It is a similar concept to aggregate expenditure, with one key difference. Aggregate demand (AD) also includes the effect of changes in the price level on total spending in the economy.

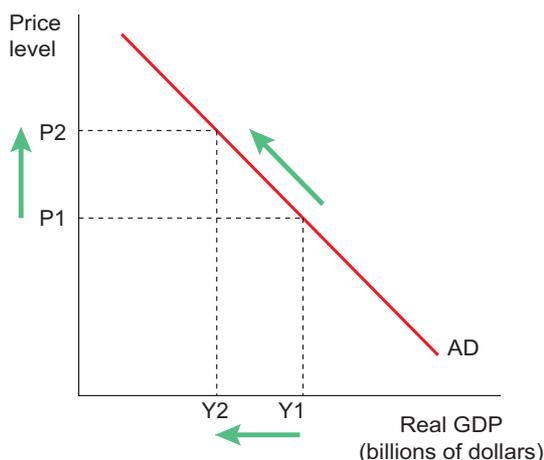
The AD curve shows the relationship between the price level and the quantity of output demanded by households (C) firms (I), government (G) and net exports (X-M). As illustrated in figure 10.1, the AD curve describes a negative (downward sloping) relationship between the level of aggregate demand and the price level.

There are three explanations for this negative relationship:

- the income or wealth effect;
- the interest rate effect; and
- the open economy effect.

Firstly, a rise in the price level (inflation) reduces the purchasing power of household income or wealth. If prices were to rise by 10 per cent tomorrow, would you be able to buy more or less goods and services? The answer, of course, is less (assuming you had no increase in income). As the price level increases, the purchasing power of household income falls.

Secondly, inflation affects interest rates. A rise in the general price level means that households and firms will demand more funds to finance their transactions.



The aggregate demand curve shows the total amount of spending in the economy at each price level. A rise in the price level (higher inflation rate) causes a movement upwards along the AD curve reducing aggregate spending and real GDP

Figure 10.1 The aggregate demand (AD) curve

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, which is 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 investment and consumption spending.

Thirdly, the aggregate demand curve slopes downward as a result of the 'international' or 'open economy' effect. If the domestic price level (inflation) rises relative to other countries, domestically produced goods and services become less competitive with those produced overseas, leading to a decrease in exports. At the same time, a rise in the domestic price level will mean that consumers and business firms will purchase more goods and services from foreign producers and less from domestic producers. In other words, spending on imports will increase and net exports ($X - M$) will fall.

In summary, increases in the general price level (inflation) can be expected to reduce total spending in the economy and cause a movement up and to the left along the AD curve. Falls in the price level can be expected to increase total spending in the economy and cause a movement down and to the right along the AD curve.

Shifts of the aggregate demand curve

The whole AD curve will shift to the left or the right if factors other than the price level were to change. That is, a change in any factor that influences consumption (C), investment (I), government spending (G) or net exports (NX) could cause a shift of the entire aggregate demand curve. If, for example, the government reduced income tax, household spending would tend to increase. The AD curve would shift to the right - described as 'an increase in AD'. An increase in AD increases real GDP and employment. Other economic events that might cause



A rise in consumer confidence will increase household consumption causing an increase in AD - the AD curve will shift to the right

A fall in business confidence or a rise in interest rates will decrease investment causing a decrease in AD - the AD curve will shift to the left.

Figure 10.2 Shifts in aggregate demand

an increase in consumption could be a rise in consumer confidence, a rise in share prices affecting household wealth, or a fall in interest rates.

If investment spending were to fall because of a decline in business confidence or a rise in interest rates, then the AD curve would shift to the left - this is referred to as a 'decrease in AD'. A decrease in AD will reduce real GDP and employment.

Changes in government spending will also shift the AD curve. An increase in government spending would shift the AD curve to the right, while a decrease in government spending will shift the AD curve to the left. Changes in global economic growth will have an impact on Australia's exports. Higher economic growth in India, for example will increase Australia's exports and shift the AD curve to the right, increasing real GDP and employment.

Figure 10.2 illustrates the impact of two economic events on the AD curve.

The aggregate supply curve

The LRAS curve shows the economy's maximum or potential level of GDP when all resources are fully employed. The LRAS curve is vertical, because the price level does not influence potential output.

The aggregate supply curve is the relationship between the total production of goods and services and the general price level. We distinguish between two aggregate supply curves - the long run aggregate supply curve (LRAS) and the short run aggregate supply curve (SRAS).

The LRAS curve is vertical because it represents the maximum level of output at a particular point in time. The position of the LRAS curve is determined by the size of the economy's work

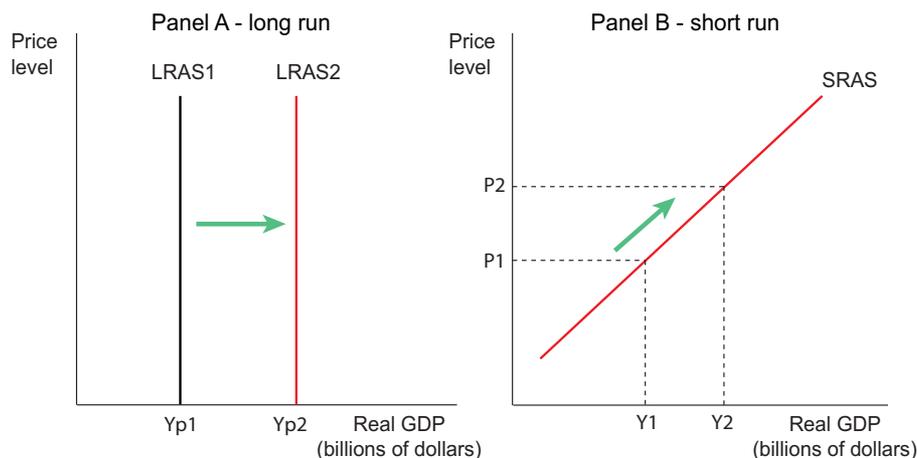


Figure 10.3 The two aggregate supply curves

force, the quantity of capital and the state of technology. In other words, potential GDP is independent of the price level. Over time, the potential level of output (Y_p) increases because technology improves, and both the labour force and the capital stock increase. This means that the vertical LRAS curve shifts to the right over time, as illustrated in Panel A of figure 10.3. Over the long term in Australia, the rate of increase is probably about 3.25 per cent per year, consisting of the growth in the labour force plus the growth in labour productivity.

The potential level of output and income (Y_p) is unlikely to correspond to a zero rate of unemployment. In recent times, the presence of both frictional and structural unemployment suggests there is a natural rate of unemployment - around 5 per cent of the workforce in the Australian economy.

The SRAS curve is positively sloped. As the level of economic activity increases, the price level rises. Why does this occur? To increase production, firms require more labour and capital, which puts pressure on resource prices. The most important cost of production is the price of labour - wages. As production in the economy increases, wages should begin to rise, causing the general price level to rise. This is especially true as the economy approaches its potential capacity or full employment. In panel B of figure 10.3, the increase in real GDP from Y_1 to Y_2 will cause the price level to rise from P_1 to P_2 because production costs have increased.

The SRAS curve shows how an increase in economic activity increases the general price level.

Shifts of the aggregate supply curve

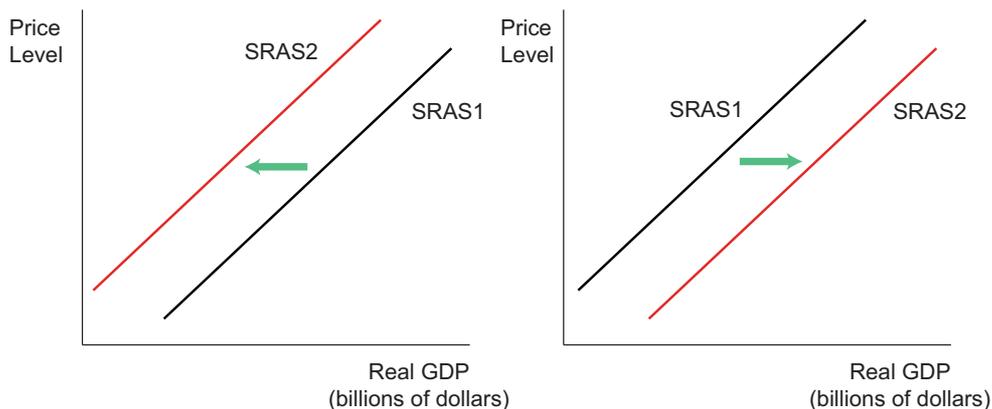
Shifts in the SRAS curve are caused by factors that can affect the supply of resources and the costs of production across the entire economy. If the labour force increased due to higher workforce participation or migration of skilled workers,

the model shows the whole short run aggregate supply curve shifting to the right. This is referred to as ‘an increase in aggregate supply.’ The level of real GDP and employment would both increase. On the other hand, a ‘negative event’ such as an increase in world oil prices would have a major effect on the macroeconomy, increasing the price of fuel and transport costs. The model would show a decrease in the level of aggregate supply (a shift to the left).

Unanticipated shifts of the SRAS curve are sometimes referred to as ‘supply shocks’. Negative supply shocks cause an leftward/upward shift in the SRAS curve, while a positive supply shock causes a rightward/downward shift. Significant weather events often cause a negative supply shock – storms and droughts can have a significant impact on agricultural production, as well as seriously reducing the capacity of other industries to operate effectively. Figure 10.4 illustrates two examples of economic events impacting on the short run aggregate supply curve.

It is important to distinguish the factors that can shift the short run AS curve from those factors that will shift the long run AS curve. Any changes in input prices, such as the price of oil, the price of labour (wages) and raw materials will shift the SRAS curve, but not the LRAS curve. Changes in the quantities of factors of production, on the other hand, will shift both short run and long run aggregate supply. For example, an increase in the size of the labour force or the capital stock will shift both AS curves to the right - the economy’s potential level of real GDP will increase. Similarly, an increase in the productivity of resources or an improvement in technology will also shift both AS curves to the right.

Figure 10.4 Shifts of the SRAS curve



An increase in the price of an important input in the economy, such as oil, would increase production costs and shift the SRAS curve to the left (a decrease in SRAS). The level of real GDP and employment will fall.

An increase in knowledge or technology would reduce production costs. The SRAS curve would shift to the right (an increase in SRAS). The level of real GDP and employment will rise.

Box 10.1 An alternative model of aggregate supply

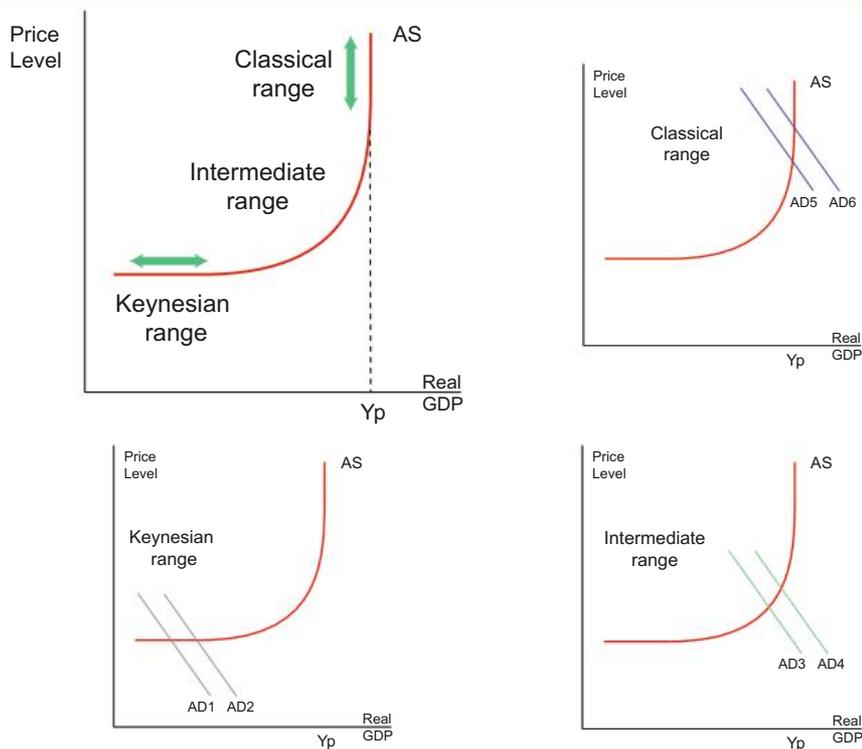
An alternative AD/AS model combines the short run AS curve with the long run AS curve into the one curve - as shown below.

When the economy is in a trough (lower left), aggregate demand is very low, and would intersect the AS curve in the Keynesian Range, where the AS curve is flat or horizontal. The economy has significant spare capacity, so the economy can expand (demand shifts from AD1 to AD2) with little impact on prices.

As the economy approaches its full employment or natural rate of output, the AS curve starts to slope upwards. This is referred to as the 'intermediate' section of the curve. Rises in real GDP caused by an increase in AD from AD3 to AD4 (lower right) cause the price level to increase because labour and other factor markets are beginning to tighten. Competition among producers for reduced supplies of resources will cause their prices to increase (especially as production and employment levels rise and the economy is closer to potential output).

When the economy reaches the full employment level of output (Y_p), the AS curve becomes vertical. This is referred to as the 'Classical' range of AS. Increases in economic activity, such as a shift from AD5 to AD6 (top right) cannot increase real GDP because the economy is at full capacity. This increase in demand would be highly inflationary.

In this version of the AD/AS model, the ranges of the AS curve describe different phases of the business cycle. The Keynesian range is typical of an economy in a recession or trough. The level of real GDP is below the full employment level and unemployment is high. The Classical range describes to an economy in a boom - the economy has reached its full employment potential (at the natural rate of unemployment) and high levels of aggregate demand puts pressure on the price level. Between these extremes, the economy would be in the Intermediate Range.



Macroeconomic equilibrium

The ADAS model brings together the aggregate demand and aggregate supply sides of the macroeconomic equation. The economy is said to be in short run equilibrium at the point where the AD curve intersects the SRAS curve. This is

What would 'long run macroeconomic equilibrium' look like in Australia? The rate of unemployment would be 5 per cent; the rate of inflation would be around 2 per cent, and the growth rate of GDP would be 3.25 -3.5 per cent.

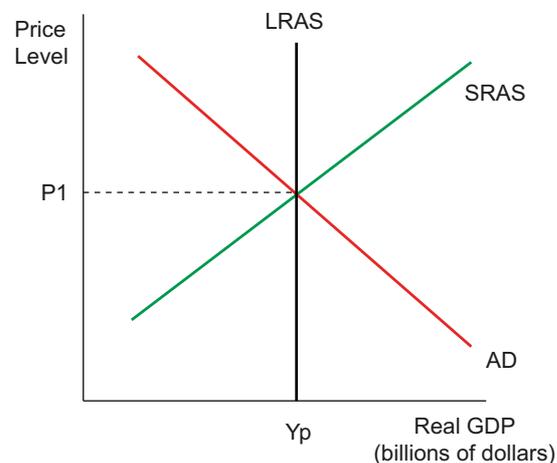
the economy's actual level of production. The economy is said to be in long run equilibrium when all three curves (AD, SRAS & LRAS) intersect. This would mean that actual output would equal potential output. Short run equilibrium would coincide with long run equilibrium. Figure 10.5 shows the economy in macroeconomic equilibrium at potential GDP (Y_p). The economy is at its natural rate of unemployment - not a zero rate.

Does the economy always operate at long run equilibrium? The answer is no. As at June 2018, annual growth was 2.9 per cent – less than the long term average. Actual GDP of \$1,743 billion was less than potential GDP which was estimated to be around \$1,800 billion. The unemployment rate of 5.4% was a little higher than the natural rate (estimated at 5 per cent). These three pieces of data suggest that the economy's short run equilibrium was to the left of the LRAS curve.

Over time all three curves on the model - the AD, SRAS and the LRAS - tend to shift to the right due to economic growth. The population and labour force grow because of natural increase and migration. The capital stock, consisting of machinery, business equipment, factories and roads also grows as new projects and businesses are developed. This means that both the short run and the long aggregate supply curves are shifting to the right. At the same time, aggregate demand tends to increase due to the increase in aggregate consumption that

Figure 10.5 Macroeconomic equilibrium

The economy is in long run macroeconomic equilibrium when the AD and SRAS curves intersect at the potential level of output Y_p (that is, on the LRAS curve). Unemployment is at the natural rate. A shift in either the AD curve or the SRAS curve will cause short run equilibrium to diverge from long run equilibrium.



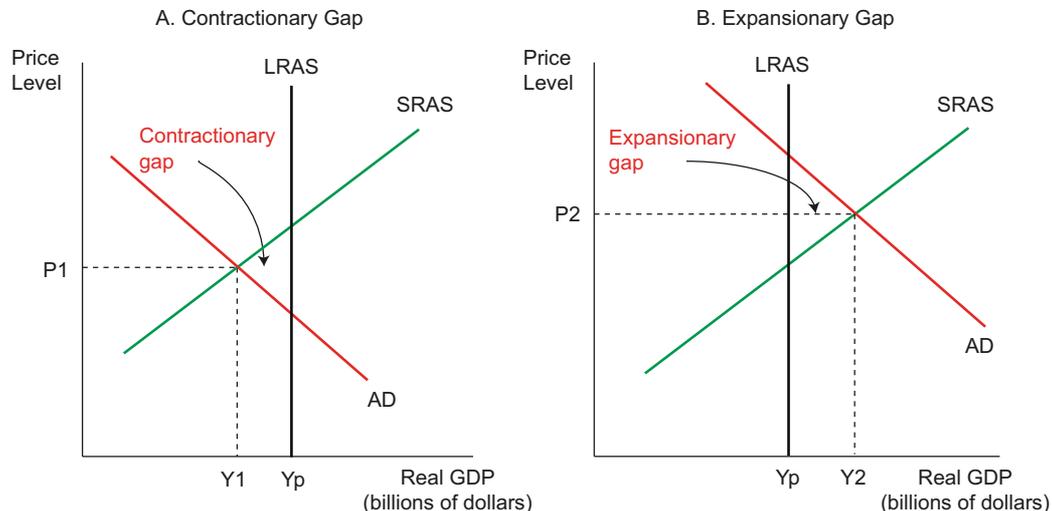
economic growth brings. But the AD curve may not shift at the same rate as the AS curves. At any point in time the economy's short run equilibrium may be below, or above, its potential. We therefore distinguish two types of short run equilibrium - a contractionary gap and an expansionary gap. These are described in figure 10.6.

The model in panel A shows the economy in short run equilibrium below the full employment level of real GDP (Y_p). The AD curve intersects the SRAS curve to the left of the LRAS curve. This is a contractionary gap because the current equilibrium level of real GDP (Y_1) is less than potential GDP.

Characteristics of a contractionary gap include:

- lower rates of inflation, due to spare capacity in the economy;
- higher levels of cyclical unemployment;
- a fall in the labour force participation rate - many people feel they have less chance of finding a job, so they withdraw from the work force;
- lower company profits;
- slower growth of consumer expenditure;

Figure 10.6 Contractionary and expansionary gaps



In panel A, short run equilibrium is below the potential level of output - AD intersects SRAS to the left of the LRAS curve. The contractionary gap is the distance between Y_1 and Y_p . Economic indicators will reflect the output gap (the unemployment rate will rise; business investment will tend to fall; inventories will rise, for example).

In panel B, the economy is in a short run equilibrium above its potential - AD intersects SRAS to the right of the LRAS curve. The expansionary gap is the distance between Y_p and Y_2 . We would expect to see falling cyclical unemployment; strong retail sales; rising business profits and higher motor vehicle sales, for example.

- a reduction in sales of consumer durables;
- increased need for social security (job search allowance);
- lower interest rates; and
- the current account deficit usually falls if investment decreases relative to savings.

Will an economy become ‘stuck’ in a contractionary or recessionary gap? No, because the economy has a self correcting mechanism to push the economy to its long run equilibrium. When actual GDP is below potential GDP, the unemployment is above the natural rate. This should cause real wages to fall, shifting the short run AS curve to the right, moving the economy back towards potential GDP. At the same time, aggregate demand may start to rise as consumer and business confidence improves or as the government and/or the Reserve Bank implement expansionary policies to encourage private sector spending.

Panel B shows the economy in short run equilibrium above the natural employment level of real GDP (Y_p). The AD curve intersects the SRAS curve to the right of the LRAS curve. This is an expansionary gap - the equilibrium level of real GDP (Y_2) is greater than potential GDP (Y_p). Possible characteristics of an expansionary gap include, for example:

- higher rates of wage inflation if there is a tight labour market (competition for workers);
- lower levels of cyclical unemployment - consumer demand for goods and services is high, so firms need to employ labour to produce those goods and services;
- an increase in the participation rate, as people expect they will be able to find a job if they seek work;
- an increase in company profits and business confidence;
- increased consumer confidence and sales of consumer durables;
- reduced need for government welfare payments, such as unemployment benefits; and
- the current account deficit usually rises if investment increases relative to savings.

Will an economy become stuck in an expansionary or inflationary gap? Again, the answer is no, because the economy has a self correcting mechanism to bring the economy back to its long run equilibrium. If actual GDP is above potential GDP, unemployment is lower than the natural rate. We would expect wages to rise, so the SRAS shifts to the left, moving the economy back towards potential GDP. We would also expect tighter fiscal and monetary policies to reduce spending in the economy which will shift the aggregate demand curve to the left.

The AD/AS model and the business cycle

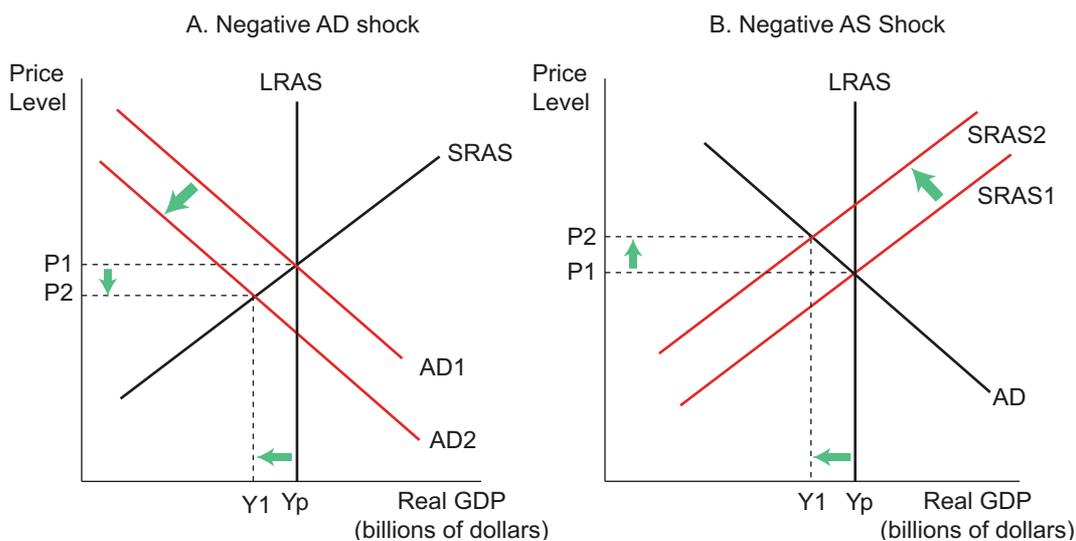
The AD/AS model helps us to visualise expansions and contractions of the business cycle and its associated ‘twin evil’ problems of unemployment and inflation. We use the AD/AS model to show how an economy can experience a downturn or recession.

We begin by assuming the economy is initially in long run equilibrium at potential GDP. Initially, as shown in both panels of figure 10.7, the level of aggregate demand (AD1) matches short run aggregate supply (SRAS) at the economy’s potential level of output (that is, on its LRAS curve). The initial price level (rate of increase) is P_1 , and the level of output is Y_p .

Panel A of figure 10.7 shows the impact of a reduction in aggregate demand from AD1 to AD2. Firms would react to lower demand by cutting production, so income and employment would fall. Real output falls from Y_p to Y_1 . Reduced inflationary pressure sees price inflation fall from P_1 to P_2 .

Panel B shows how contraction could result from a negative supply shock - perhaps a rise in world oil prices or a natural disaster such as a drought. The model again shows that the equilibrium level of output falls from Y_p to Y_1 , but this time prices rise from P_1 to P_2 because these events cause production costs to rise throughout the economy. The term ‘stagflation’ was coined to refer to a negative supply shock - a stagnant (lower growth) economy in which prices are rising due to higher costs.

Figure 10.7 Modelling a contraction



In panel A, the contractionary gap ($Y_p - Y_1$) is caused by a decrease in aggregate demand. Cyclical unemployment rises, but the rate of inflation falls. In panel B, the contraction is caused by a negative supply shock that shifts the SRAS curve to the left. Both unemployment and inflation rise - sometimes referred to as ‘stagflation’.

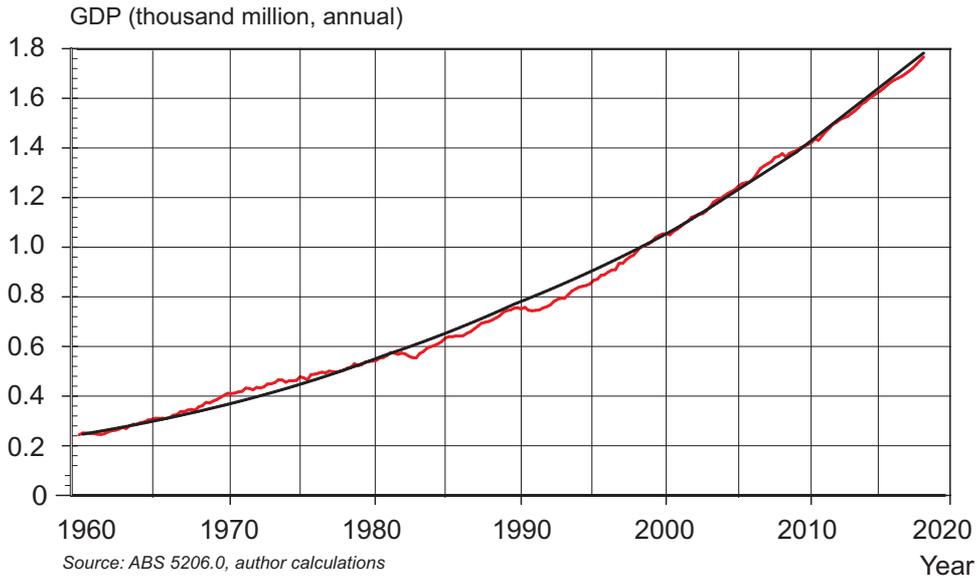


Figure 10.8 Australia - actual vs potential GDP since 1960

Cost inflation is a difficult policy issue for policymakers to deal with. For example, the Reserve Bank cannot reverse a natural disaster, such as a flood or drought, or reduce world oil prices so that Australian motorists can have lower-priced petrol. In most cases, we have to 'ride out' a negative supply shock and wait for the economy to self-correct.

The AD/AS model can also be used to show a business cycle expansion. In Australia's recent mining construction boom, investment spending and strong commodity exports drove increases in output, employment and income. The economic growth rate jumped to 4.4 per cent - well above the long term average. Economic growth in Queensland and WA was nearly 10 per cent in one year! The unemployment rate fell to just 4 per cent - well below the natural rate of unemployment. The increase in investment and exports would be modelled as a rightward shift in aggregate demand, leading to an increase in economic activity (higher production, employment and aggregate incomes), perhaps with some pressure on the price level (increasing as the economy nears its full capacity).

An expansion that is caused by the short run AS curve shifting to the right will cause inflation to fall. This could occur in the event of the application of new technologies which boost labour productivity.

Figure 10.8 shows a historical view of Australia's business cycle since 1960. Potential GDP increases at a consistent (smooth) rate over time as the labour force grows (due to natural increase and migration) and productivity increases. Over the long term in Australia, the rate of increase is about 3.25 per cent per

year. Growth in potential GDP would be represented on the AD/AS model as the rightward shift in LRAS over time.

Actual GDP is shown as a red line. When actual GDP is above potential GDP, the economy is experiencing an expansion, while when actual GDP is below potential, the economy is experiencing a contraction. This graph should be compared to figures 8.1, 8.2 and 8.4. Actual GDP stays fairly close to potential GDP over the long run. This is because the economy has a number of self-correcting mechanisms, and because macroeconomic policy has been fairly successful in helping to stabilise the business cycle. The next three chapters investigate these processes and policies in more detail.

Worksheet - the AD/AS model

Read chapter 10 to answer the following questions.

1. What three key macroeconomic variables does the AD/AS model explain?
2. Define aggregate demand. What are the four elements of AD?
3. Draw an AD curve. In what way are the axes different to the AE model?
4. Outline the three reasons why the AD curve has a negative slope.
5. How does an increase in the price level affect a person's real income?
6. Why does a rise in the price level increase interest rates?
7. Explain what is meant by the 'open economy' effect?
8. List two events that could lead to an increase in the AD curve.
9. What effect would a stockmarket crash have on the AD curve?
10. Define aggregate supply. Distinguish between the short run and long run AS curves.
11. Explain why the LRAS curve is vertical.
12. What factors can cause an increase in the LRAS curve?
13. Explain why the SRAS curve is upward sloping?
14. List two events that could lead to a leftward shift of the SRAS curve.
15. Explain the difference between short run and long run macro equilibrium.
16. Draw a diagram to illustrate a contractionary or expansionary gap. Provide an explanation for the economy to be not at full employment equilibrium.
17. Explain how the economy will 'self correct' if actual GDP is less than potential GDP.
18. Explain the two main causes of a contraction.
19. Explain why the LRAS curve typically shifts to the right over time.
20. What impact does technology have on the economy? Use the AD/AS model to support your answer.
21. Use the AD/AS model to illustrate the effect of the mining construction boom in Australia.
22. Using the AD/AS model, explain the impact on the price level, real GDP and unemployment of the following events:
 - a. higher economic growth in China
 - b. a natural disaster e.g. a severe cyclone
 - c. an exchange rate appreciation
 - d. a decrease in the terms of trade
 - e. the government reduces income tax rates
 - f. the Reserve Bank increases interest rates

The AD/AS model

For each of the following events, determine whether the AD or AS curve would shift and in which direction- an increase or decrease.

	Event	Curve (AD or AS)	Effect (increase or decrease)
1	An increase in the labour force		
2	An increase in investment		
3	A cut in income taxes		
4	A decrease in interest rates		
5	An increase in the labour force participation rate		
6	A depreciation of the AUD		
7	A fall in the terms of trade		
8	A fall in the price of oil		
9	A natural disaster		
10	A global financial disaster		
11	Australia signs an free trade agreement with China		

News extract

Read the news extract and answer the questions that follow.

Economy grows 0.5 per cent in June quarter (2016)

Australia's economic growth slowed in the June quarter. Data released by the ABS show that Gross Domestic Product (GDP) grew 0.5 per cent in the June quarter 2016, down on the growth of 1.0 per cent the economy experienced in the March quarter. GDP grew 3.3 per cent through the year.

GDP growth in the June quarter was driven by domestic final demand, which rose 0.6 per cent this quarter, supported by ongoing growth in household and public consumption. Total investment was flat in the quarter, with the continued reduction in engineering construction associated with the mining sector offset by growth in public investment.

International trade detracted from growth in the quarter due to strong growth in imports and a slowing in the rate of growth in exports. After strong growth in the March quarter, production in the mining industry was lower in seasonally adjusted terms in the June quarter.

Source: ABS 5206.0

Questions

1. Explain the difference between the quarterly rate of growth and the annual rate of growth.
2. According to the extract, what factors were responsible for the low growth rate of 0.5%?
3. Describe the effect of a fall in the rate of growth have on household s and business firms.
4. Use an AD/AS model to show the events of June quarter in 2016. Assume the economy was below its potential in 2015 and the first three months of 2016.
5. Explain how the fall in investment mentioned in the extract can affect both the AD curve and the SRAS curve.

Multiple choice questions

For each of the questions below, choose the best alternative.

1. Which if the following statements explains why the aggregate demand curve is downward sloping?
 - a. falling price levels cause a reduction in spending in the economy.
 - b. rising price levels increase real interest rates.
 - c. rising prices increase purchasing power.
 - d. a depreciation of the AUD decreases overseas purchasing power for Australian goods.

2. A rise in net exports shifts
 - a. the aggregate demand curve to the right.
 - b. the aggregate demand curve to the left.
 - c. the short run aggregate supply curve to the right.
 - d. the long run aggregate supply curve to the left.

3. An increase in the value of the AUD relative to the Japanese yen will
 - a. increase aggregate demand in Australia.
 - b. decrease aggregate supply in Australia.
 - c. increase aggregate demand in Japan.
 - d. increase aggregate supply in Japan.

4. A recession overseas would
 - a. increase Australian net exports and increase domestic aggregate supply.
 - b. increase Australian net exports and increase domestic aggregate demand.
 - c. reduce Australian net exports and reduce domestic aggregate demand.
 - d. reduce Australian net exports and increase domestic aggregate demand.

5. The LRAS curve shifts to the right by about 3.25% each year. This is due to
 - i. increases in aggregate demand.
 - ii. rising productivity.
 - iii. economic growth.
 - iv. increases in the size of the labour force.
 - a. i and ii.
 - b. ii and iii.
 - c. ii and iv.
 - d. iii and iv.

6. Which of the following could explain an increase in the AD curve?
 - a. a reduction in wage levels
 - b. a fall in interest rates
 - c. a rise in interest rates
 - d. an appreciation of the Australian dollar.

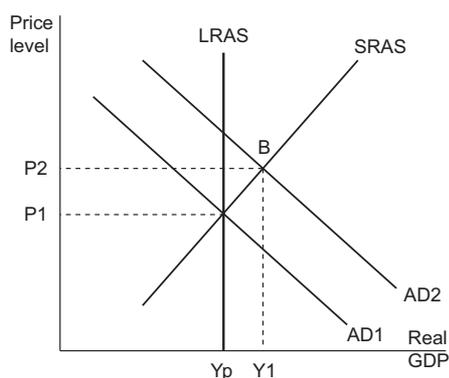
7. Beginning at a lower-than-potential level of GDP, an increase in one of the components of aggregate demand will increase the:
 - a. interest rate.
 - b. unemployment rate.
 - c. potential level of real GDP.
 - d. level of employment.

8. Suppose technology improves. If aggregate demand remains constant, what will happen to the long-run equilibrium price level and output level?
 - a. the price level will fall, and the level of output will rise.
 - b. the price level will rise, and the level of output will rise.
 - c. the price level will fall, and the level of output will fall.
 - d. the price level will rise, and the level of output will fall.

9. Assume the economy has experienced a sudden bout of inflation - the price level, as measured by the CPI, has risen by five per cent. In an aggregate demand aggregate supply model (AD/AS), this would be represented by
- a rightward shift in aggregate demand such that the intersection of AD and SRAS is to the right of the position of the LRAS curve.
 - a rightward shift in aggregate demand such that the intersection of AD and SRAS is to the left of the LRAS curve.
 - a rightward shift of the AS curve.
 - a leftward shift of the LRAS curve.
10. Suppose over time aggregate demand grows more rapidly than aggregate supply. Which of the following will occur?
- potential GDP will increase, but the price level will remain constant.
 - both the price level and actual GDP will increase.
 - neither the price level nor potential GDP will change.
 - both the price level and potential GDP will decrease.
11. Which of the following is an example of a 'negative supply shock'?
- a fall in interest rates during an economic slowdown.
 - an unexpected improvement in business expectations.
 - an unexpected increase in the price of a key resource such as labour.
 - an unexpected fall in oil prices.
12. Suppose the economy experiences a 'supply shock' due to a rise in oil prices. In the short run the price level will _____ and the level of output will _____
- increase; increase
 - decrease; increase
 - increase; decrease
 - decrease; decrease
13. Which of the following would shift the SRAS curve to the left?
- an increase in labour productivity due to improvements in technology.
 - a decrease in the cost of education due to tighter quality controls
 - drought conditions impacting on the supply of agricultural crops.
 - a fall in business confidence.
14. The GFC decreased business confidence. How would this affect the AD curve?
- this will move the economy up along a stationary aggregate demand curve.
 - this will move the economy down along a stationary aggregate demand curve.
 - this will shift the aggregate demand curve to the right.
 - this will shift the aggregate demand curve to the left.
15. Which of the following is most likely to reflect government policy designed to increase efficiency and productivity in the economy?
- the AS curve shifts to the left.
 - the AD curve shifts to the left.
 - the AS curve shifts to the right.
 - the AD curve shifts to the right.

Data interpretation

Q1. The AD/AS model illustrates an economy operating at point B.



- Briefly describe what this model tells you about the state of the economy - refer to unemployment, inflation & GDP growth.
- Describe three events that might have caused the shift in aggregate demand from AD1 to AD2.
- Explain what would happen in the long run to return the economy to potential GDP. [3+4+5 marks].

Q2. This question refers to the following news extract.

“The collapse of mining investment in the resources sector and slower population growth will reduce the growth in Australia’s potential GDP over the next few years. Slower productivity growth will also contribute to a slowdown in potential GDP. This means that the trend rate of growth is likely to be relatively lower than previous decades. This has important implications for the growth in living standards over time”.

- Describe how “the collapse in investment” affects the aggregate supply curve. [2 marks]
- Explain how the events discussed in the extract would impact on Australia’s long run aggregate supply curve. [4 marks]
- Explain how the events discussed in the extract would impact on levels of output, employment and inflation in the Australian economy [6 marks]

Q3. Refer to the following economic indicators:

- Real GDP growth rate 4.2%,
- Terms of trade increases by 12%,
- Unemployment rate of 4.5%
- Inflation rate of 3.3%.

Describe the state of the economy suggested by the indicators. Would the economy be operating above or below potential GDP? Draw an AD/AS model to depict the position of the economy. [12 marks]

Extended responses

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

1.
 - a. Distinguish between the causes of a movement along the aggregate demand curve and a shift of the curve [10 marks]
 - b. Explain how an increase in aggregate demand would impact on macroeconomic equilibrium, assuming the economy was initially in a trough. [10 marks]

2.
 - a. Using the aggregate demand/aggregate supply model, explain how an increase in business investment would affect the economy. [8 marks]
 - b. Show how the impact of the following events can be modelled using an AD/AS framework:
 - (i) Australia's recent mining construction boom.
 - (ii) an economic recession in Europe.
 - (iii) a rise in productivity. [12 marks]

3.
 - a. During 2015-16 there was a large reduction in business investment in Australia. Use the AD/AS model to explain how this would have affected economic growth. [10 marks]
 - b. Use the AD/AS model to explain the results of a business cycle expansion. [10 marks]

4. Use the AD/AS model to depict and explain each of the following statements.
 - a. "the economy has experienced a large expansionary shock from the high terms of trade and has relatively modest amounts of spare capacity. Looking ahead, the risk of inflation rising again over the medium term remains". [10 marks]
 - b. "House prices in Queensland are likely to sink as the financial effects of the state's devastating floods strain household budgets and dent banks' willingness to lend". [10 marks]

Economic policy objectives

11



Chapter concepts and skills

- *the economic objectives of the Australian Government: sustainable economic growth; low inflation (price stability); and low unemployment (full employment); more equitable distribution of income and efficient allocation of resources*
- *the economic policy objectives of the Reserve Bank of Australia (RBA)*
- *the extent to which the economic objectives of the Australian Government may conflict and complement each other*
- *time lags and how they affect the use of economic policies i.e. recognition, decision (implementation) and effect (impact) lags*
- *select appropriate print and electronic media sources of economic information and data on Australia's economic policy and management*
- *apply economic reasoning to Australia's economic position and policy mix*

The economic roles of government

As we know from chapter 8, government spending in developed economies typically accounts for about 23 per cent of all spending in the economy. Governments have a wide range of responsibilities and functions, not all of which have an economic focus - governments also regulate aspects of business operation; provide public goods and services; and provide a system of social welfare.

The next four chapters are concerned with the role the government plays in managing the macroeconomy. This chapter discusses the objectives of economic policy, and chapters 12-14 discuss the types of policies that can be implemented in trying to achieve those objectives.

Western governments have played an active role in macroeconomic management since the 1950s. The development and use of policy measures to reduce the fluctuations in economic activity associated with the business cycle came about as a result of the influence of 'Keynesian' economics amongst academics and government advisers.

Government economic objectives

Australia has had two official statements outlining government economic objectives:

- a 1945 White Paper (a policy discussion document) entitled "Full Employment in Australia" that concluded that the basic economic objective of the Commonwealth Government was to 'stimulate spending on goods and services to the extent necessary to maintain full employment'. The title of the paper reflected concern that the high levels of unemployment (up to 32 per cent) seen in the Great Depression of the 1930s should not occur again after World War II.
- the Vernon Report (1965) that concluded that the broad objective of economic policy should be a "high rate of economic and population growth with full employment, increasing productivity, rising standards of living, external viability and stability of costs and prices".

A lot of time has elapsed since these statements were released. Are they still relevant? Rapid economic growth is now regarded as unsustainable from an economic, environmental and social point of view. High rates of population growth were promoted in the 1950s and 1960s to support infrastructure and resource projects and the development of a manufacturing economy. Population growth, at 1.6 per cent, is strong by international standards, and the 25 million people milestone in August 2018 was reached some years ahead of expectations. The 'external viability' objective is no longer valid

The key driver of variation in population growth continues to be net overseas migration (NOM) which contributed 240,000 to population growth of 388,000 in 2017.

because, under the floating exchange rate system introduced in 1983, ‘external balance’ has no meaning. Both the Reserve Bank of Australia and the Australian Treasury have stated that external balance and the current account deficit are no longer specific targets of economic policy. The importance of economic efficiency and productivity grew in the 1980s when governments of both political persuasions put in place a raft of reforms in the finance system, the labour market and in international trade.

If a list of economic objectives and policy goals was drawn up today, it would probably be somewhat different from the priorities listed in the Vernon Report. A sustainable rate of economic growth would probably be the top priority, given that our living standard in the future depends upon the foundation created today. Price stability is crucial to maintain the spending power of our income and the competitiveness of our economy. High employment is a very important objective, although the concept of ‘full employment’ has a different meaning today than in the 1960s. Productivity, efficiency and competitiveness would also feature prominently in any current discussion of economic objectives. Equality of opportunity is considered important in achieving an equitable distribution of income and wealth in the long term.

Policy objectives of the Reserve Bank

The Reserve Bank’s Charter states:

“It is the duty of the Reserve Bank Board, within the limits of its powers, to ensure that the monetary and banking policy of the Bank is directed to the greatest advantage of the people of Australia and that the powers of the Bank ... are exercised in such a manner as, in the opinion of the Reserve Bank Board, will best contribute to:

- *the stability of the currency of Australia;*
- *the maintenance of full employment in Australia; and*
- *the economic prosperity and welfare of the people of Australia”.* (RBA, 2018)

The Charter effectively sets out the economic objectives of the Bank. The phrase ‘currency stability’ refers to price stability, not exchange rate stability. Since 1992, the RBA has followed the objective of keeping consumer price inflation between 2 and 3 per cent, on average, over the business cycle.

‘Economic prosperity and welfare’ can be taken to mean the achievement of rising living standards in the long term (economic growth), along with the management of the business cycle through monetary policy.

‘Full employment’ can be taken to mean achieving the ‘natural’ rate of unemployment, which is currently thought to be about 4.5 - 5 per cent of the workforce. At this level, cyclical unemployment would be close to zero.

The Reserve Bank Board makes decisions independently of the political process – that is, it does not accept instruction from the government of the day on the conduct of monetary policy (interest rates). Central bank independence in the

operation of monetary policy is the international norm. It prevents manipulation of interest rates for political ends and keeps monetary policy focused on long-term goals.

The following sections provide further detail about government economic objectives.

Economic growth

Economic growth is defined as the increasing capacity of the economy to satisfy the material needs and wants of its members. Growth is usually measured by calculating the rate of change in real Gross Domestic Product (GDP) over a period of time. In Australia, the target rate of growth is between 3 and 4 per cent per annum.

The rate of increase in potential GDP is determined by growth in the labour force, and growth of productivity. If, for example, the labour force grew by 1.75 per cent, and productivity by 1.5 per cent, then potential GDP growth is 3.25 per cent. The actual rate of growth in any year, however, depends upon the level of aggregate demand.

Figure 11.1 illustrates Australia's economic growth since 1980 (read the line graph using the right hand scale). Growth has ranged between -2 and 5.4 per cent over the period, averaging 3.2 per cent per annum.

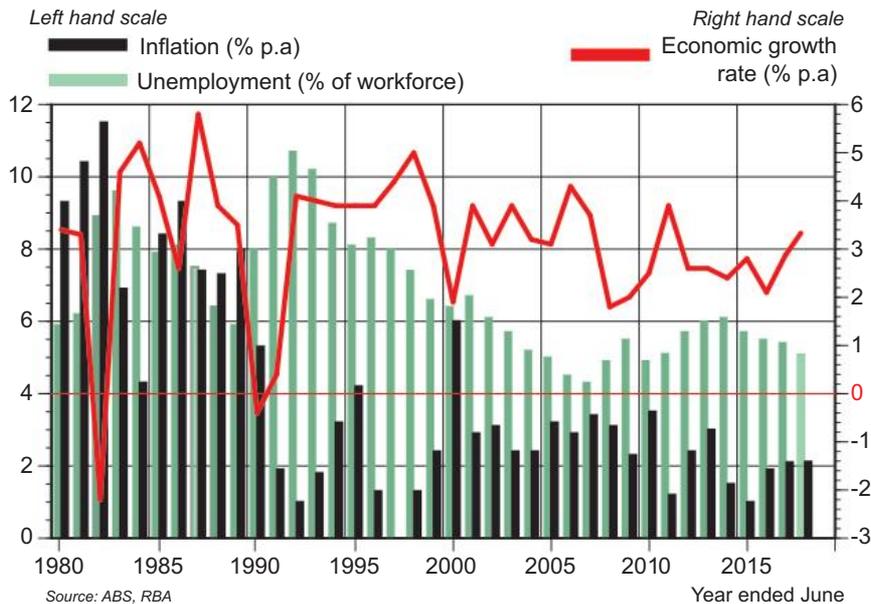
Growth is a worthwhile economic objective because it delivers higher real income, and enables people to consume of more goods and services. Growth creates more demand for productive resources, including labour. The extent to which growth helps achieve higher employment depends, however, on whether the growth rate exceeds the rate of growth of the population and workforce.

Growth rates in Australia exceeded 5% on three occasions since 1980. Rates this high are unsustainable in a mature economy as they put pressure on factor markets (i.e. markets for raw materials and labour) and risk driving up their prices (demand inflation). On the other hand, when growth is slow (as in the three years when it was below 2%) there is insufficient demand to fully employ resources. In developed

countries, a rule of thumb is that economic growth rates have to exceed 3 per cent p.a. before unemployment can be reduced.

The Australian economy recorded its 109th consecutive quarter of economic growth in the September quarter of 2018 - the longest period of recession-free growth for a developed country.

It should be pointed out that GDP is not necessarily considered the best measure of economic welfare. Many economists prefer broader measures of national well-being that include a 'dashboard' of welfare indicators including environmental sustainability; objective indicators of social welfare such as education, health and economic security; and subjective measures of well-being such as life satisfaction and happiness.



During the late 1970s and 1980s, most western economies suffered 'stagflation' - concurrent high rates of inflation and unemployment. The average rate of inflation in the 1970s and 80s was 9 per cent, and unemployment over that period averaged 5.6 per cent. Inflation was choked out of the economy in the early 1990s. Since then, the three main economic objectives have essentially been achieved, with economic growth averaging 3.2 per cent per annum; inflation within the 2-3 per cent target band; and unemployment within 0.5 - 1.0 per cent of the 'natural rate'.

Figure 11.1 Australia's macroeconomic record: 1980-2018

Price stability

Price stability occurs when there is little change in the general price level - that is, there are low rates of inflation. The Reserve Bank and the Treasury agree that the appropriate target for inflation rate is 2-3 per cent, on average, over the course of the business cycle. Although the target was not achieved in the 1980s, price increases have been within the target range for most of the last twenty years (read the dark columns in figure 11.1, using the left hand scale).

Controlling inflation is a very important economic objective, as sustained inflation rates above the upper end of the target range bring a number of economic costs.

Firstly, inflation erodes the purchasing power of household incomes (real income). Price increases mean consumers are able to buy smaller quantities of goods and services than they previously could, unless their income increased at the same rate as general prices.

Inflation also impacts on interest rates, which are an important influence on decisions concerning investment and discretionary spending on consumer durables. When

Inflation can be described as the 'headline' rate or the 'underlying' rate. The headline rate is the rate of change in the Consumer Price Index (CPI) which reflects the prices consumers pay for goods and services. The underlying rate takes volatile and seasonal price changes into account, and is also adjusted for the influence of government policy such as changes in tax rates or interest rates.

prices rise, interest rates must follow otherwise lenders are paid in inflated dollars which do not provide a positive rate of return. That said, the real interest rate is more important than the nominal rate - the real rate is the nominal interest rate minus the inflation rate. If the initial inflation rate was 3%, and the nominal interest rate was 7%, the real rate of interest is 4%.

Persistent inflation erodes the confidence people have in money as a store of value, so many seek 'hedges' against expected price rises. One way to hedge against inflation is to purchase assets which are likely to appreciate in value, such as property, antiques or precious metals. This speculative activity has a negative impact on the potential output of the economy because it diverts resources away from productive activities.

Business investment decisions are more risky in an inflationary environment because rising costs and prices make it more difficult to determine a rate of return on investment.

Other things being equal, international competitiveness is eroded by price increases. To illustrate, assume a buyer in the United States could source a product from either New Zealand or Australia - if the quality of the competing products are similar, the decision will be made on the basis of price. If inflation levels in New Zealand were running at 4 per cent p.a., whilst prices in Australia were increasing at 7 per cent p.a., then over a period of time the US importer will tend to favour the New Zealand product as it becomes cheaper relative to the Australian product. Similarly, imports become more competitive in the domestic market as their prices

Figure 11.2 The importance of price stability

Costs of high inflation
Erodes the value of money over time (lower purchasing power)
Reduces the value of savings
Increases interest rates which may adversely affect private spending on consumer durables and business investment.
Promotes speculative activity over productive activity
Increases uncertainty about future prices and values, which may impact on long term growth and job creation
Erodes international competitiveness if domestic prices rise faster than overseas prices
Redistributes income - people on fixed incomes suffer
Imposes unnecessary costs in dealing with inflation

Numeracy - interpreting statistical information

Use the International Monetary Fund's World Economic Outlook (WEO) database (search for IMF WEO) to collect economic performance data for any six countries. The data should refer to:

- price stability
- level of unemployment
- annual rate of economic growth

Compare your findings with the Australian data in figure 11.1.

fall relative to those charged by domestic firms.

The relationship between inflation and the exchange rate is a 'double-edged sword'. Other things being equal, if our inflation rate was higher than that experienced overseas, we would predict currency depreciation because demand for our exports would fall. But depreciation means exports become more competitive (overseas buyers can buy more volume for the same cost), and imports become more expensive. It also means the prices of imports rise, which is inflationary! The net effect of depreciation on inflation depends upon the relative price elasticities of imports and exports – that is, the responsiveness of domestic and overseas buyers to price changes.

Sustained inflation may help to bring about structural changes in the economy. For example, capital-for-labour substitution occurs if wages (the price of labour) rise faster than productivity, in which case labour 'prices itself out of a job' and employers replace labour with machines (that don't ask for pay rises). The rising oil prices that led to cost push inflation in the 1970s provided an incentive for companies to focus on energy efficiency and reducing fuel consumption.

The burden of inflation does not fall evenly on all sectors of the community. Households that are able to anticipate inflation may be able to arrange their financial affairs to benefit from expected price increases. As explained above, households in a financial position to purchase real assets which rise in value with inflation (e.g. property) insulate themselves from falls in real purchasing power.

The living standards of low income earners and recipients of transfer income (e.g. pensions) will fall during periods of inflation unless these payments are indexed to compensate for price rises. Sectors of the economy with market power (perhaps business owners who can pass on price increases to their customers, or aggressive trade unions who can achieve wage increases for their members) seem more capable of maintaining their real incomes.

Sustained inflation also effects taxation and government revenue. 'Pay as you go' (PAYG) taxpayers suffer bracket creep as inflation gradually causes their income levels to rise to levels where they are liable for higher marginal rates of taxation. Government revenue increases as a result.

Full employment

Full employment occurs when everyone in the workforce who is willing to work can find a job. Given the dynamic structure of developed economies, it is impossible to achieve a zero rate of unemployment due to the existence of frictional unemployment and structural change. The 'friction' associated with job search (uncertain matching of demand and supply across the labour market) is responsible for some joblessness. Depending on the phase of the business cycle, perhaps 1.5 to 2.5 per cent of the workforce is frictionally unemployed at any point in time. Structural unemployment occurs when there is a mismatch of available and required skills in a geographical or occupational sector of the economy. Currently, structural unemployment may account for 2-3 per cent of the total unemployment rate at any point in time.

Together, the frictional and structural rates constitute what economists call the 'natural rate' of unemployment - the lowest rate of unemployment that can be achieved without inflationary pressure developing. In current conditions, the natural rate is thought to be about 5 per cent of the workforce. Cyclical or demand-deficient unemployment adds to this level during periods of lower economic activity.

The average rate of unemployment during the period covered by figure 11.1 is 6.8 per cent. Unemployment rates at the peak of the boom in 2007-08 were the lowest in thirty years, although that seems high when compared with the 1950s and 1960s, when unemployment was below 2 per cent. Peaks in unemployment followed recessions in 1982-83 and 1990-91, and there was also some increase after the Global Financial Crisis (although much smaller than expected). At the time of writing (November 2018), unemployment was again edging towards five per cent.

Figure 11.1 does not tell the full story about whether the unemployment objective was achieved, however! Firstly, ABS data understates the true extent of joblessness in the workforce, perhaps by a significant amount. Many people holding part-time or casual jobs would prefer to work longer hours, and are thus underemployed. In mid 2018, the underutilisation rate (unemployment plus underemployment) was 13.6 per cent. Secondly, it's important to consider the duration of unemployment (i.e. average period of time for which a worker is unemployed). In 2018, about half of all unemployed people found a job within three months, with the rest fairly evenly divided between medium term (13-52 weeks) and long term unemployment (more than one year). Thirdly, unemployment among young people is consistently higher than adult unemployment. 12.7 per cent of 15-24 year-olds were unemployed in July, 2018, compared to 8 per cent in 2008 (just prior to the GFC) and 10.1 per cent in 2000 (a mild recession in Australia). Finally, unemployment can be much higher than the headline rate in outer suburban and regional areas.

The economic cost of unemployment is modeled by the 'GDP gap', where actual levels of production and income lie inside those that could be achieved at the economy's 'production possibility frontier'. The gap represents two types of cost for the economy. A direct monetary cost arises because unemployment results in lower levels of aggregate consumption, investment and business confidence, and increases the welfare payments paid to the unemployed from employed taxpayers' pockets. Unemployment also has an opportunity cost - the alternative use that could have been made of lost taxation and welfare payments, such as spending on infrastructure, health, or education. Over the long term, persistent unemployment reduces economic growth because the capacity of the economy to satisfy future wants is reduced. Long term unemployment also bears considerable personal and social costs on those who cannot find work.

With a few assumptions, it is possible to estimate the extent of lost production and income. In June 2018, the AWOTE (average weekly ordinary time earnings) for adults employed full time was approximately \$1590. About 712,000 people were unemployed. The total cost to the community in lost output and income was thus \$1.1 billion per week, or about \$57 billion in a full year (three per cent of GDP). This does not include welfare payments paid to Job Search Allowance

Other objectives

Economic growth, price stability and full employment are primary macroeconomic objectives in all countries. Other objectives such as an equitable distribution of income and welfare can be achieved as a by-product of achieving these objectives (growth promotes prosperity and opportunity). Most countries have considerable inequality of income and wealth (as measured by the Gini Index).

Efficient resource allocation is also an important economic objective related to macroeconomic performance, although in a policy sense it involves changes at the microeconomic level (i.e. to individual sectors of the economy). As will be demonstrated in chapter 14, increasing productivity and efficiency are seen as key ways of promoting prosperity in the future.

Economic objectives: conflict and compatibility

The economic problem applies to national economic objectives as much as it does to personal ones - at any point in time, a nation has limited resources with which to address the satisfaction of unlimited wants. Hence, choices have to be made about the way resources are used to meet societal objectives.

Some economic objectives are compatible, in the sense that the policies applied to achieve one objective also help to achieve other objectives at the same time. Other objectives are in conflict because they cannot be pursued simultaneously.

Compatible policy objectives

Some of the objectives above can be achieved simultaneously, because the policies used to achieve them are complementary. Examples of compatible policy objectives include:

- economic growth and full employment (lower unemployment) - growth creates demand for more goods and services, particularly in expanding sectors of the economy. As a result, the resources used to produce these goods and services are also in greater demand (the demand for resources, including labour, is derived demand). Economic growth also improves material welfare, so aggregate demand will rise, providing further stimulus to the expansion of output and employment. Policies to achieve lower unemployment also promote growth - higher levels of employment reduce the 'GDP gap' and have the economy operate nearer its potential.
- full employment and equitable income distribution - policies designed to lower unemployment should lead to a more equitable income distribution because, other things being equal, work provides the income to consumer, save and build wealth.
- price stability and economic growth - keeping inflation low is an important prerequisite for promoting sustainable growth. Low inflation reduces uncertainty, encourages investment in productive activities and promotes international competitiveness.
- efficient resource allocation, productivity and economic growth - efficiency and productivity are the driving force in increasing long run aggregate supply. More efficient resource use also lowers the cost of supply and helps to reduce inflationary pressures.

Conflicting objectives

Some macroeconomic objectives are difficult to achieve at the same time, as illustrated by the following examples.

- price stability and full employment - policies to reduce demand pull inflation generally aim to reduce the level of economic activity. If this reduces business activity and investment there may be less demand for labour. On the other hand, reducing unemployment by expanding economic activity puts pressure on available resources and prices. This suggests a trade-off between high employment and stable price levels.
- economic growth and price stability - a booming economy places demand pressure on resources, especially if there is no excess capacity - this is inflationary because competition for resources pushes up their prices in factor markets (including labour).
- economic growth and structural unemployment - economic growth

is associated with structural change. Despite growth, demand for outdated skills will fall, bringing about an increase in structural unemployment. This could be long term unemployment.

- economic growth and equitable income distribution: - while economic growth increases the size of the economic pie, not everyone may benefit equally from the growth in income. This is especially the case in the short run. People employed in the expanding sectors and owners of appreciating assets such as property and shares tend to gain in relative terms.

Note that the 'ceteris paribus' assumption should be mentioned when outlining the compatible and conflicting objectives above. The actual size of any of the above effects is difficult to measure because the relationship between cause and effect is rarely direct - there are likely to be several stages in the transmission from one event to another.

Economic policy institutions

This section briefly describes the institutions in the Australian economy primarily responsible for setting policies to achieve those objectives. There are three types of government economic policy:

- fiscal policy (the use of government revenue raising and spending powers to influence the level of economic activity);
- monetary policy (the use of the 'cash rate' to influence other interest rates); and
- competition and industry policy (measures taken to improve efficiency and productivity).

The first two policies are concerned with aggregate demand management in the short term - i.e. stabilising the business cycle. Competition and industry policy, on the other hand, is more directed towards improving competitiveness, efficiency and productivity which will drive long term growth - what we might call the 'supply side' of the economy.

Fiscal policy is developed in the government budget - a statement of expected revenue and expenditure issued each May. The Federal Treasurer's Budget Speech estimates government revenue (such as income tax and company tax) and expenditure in the coming year. The institution mainly responsible for constructing the Budget is the Treasury. The process of preparing the Budget takes several months of Treasury time each year.

Monetary policy is currently regarded as the most important stabilisation tool. As previously mentioned, the institution responsible for monetary (the Reserve Bank of Australia - RBA) is not a government department, but a statutory authority established by an Act of Parliament. It has two specific obligations - the conduct of

monetary policy and the maintenance of the financial payments system. The nine-member Board holds its monetary policy meeting on the first Tuesday of each month. Bank staff monitor a large set of domestic and international data series, including all the major ABS releases and several privately compiled Australian business surveys, and present their analysis for consideration by the Board. As we noted earlier, the Bank operates independently of government although it is required to 'inform the Government, from time to time, of the Bank's monetary and banking policy'.

At national level, the Productivity Commission plays a dominant role in competition and productivity policy. The Commission conducts inquiries into many aspects of the economy's efficiency and productivity, but only has advisory status in recommending policy to government.

The nature and impact of time lags

The level of economic activity in Australia is determined by and large by the thousands of economic agents (producers and consumers) that make up 'the market'. Economic agents make independent decisions based upon their own best interest - how much to produce, what quantities to buy; whether to employ more staff or less; whether to invest; and so on.

Nearly all economic activity is subject to time lags, which occur whenever time passes between when an activity is initiated and when that activity has its impact. For many consumer decisions, like buying food, the lag is short. Others, like building a house, involve long lags because of the processes involved such as obtaining approval, negotiations with a builder and construction of the building. Some business decisions involve very long lags. A big investment project like the construction of LNG gas plants in Dampier and Onslow (WA) involved lengthy consideration of the 'business case', preparation of contracts and plans, hiring of workers, purchasing of materials and so on. Such investments might take several years to build, during which time economic conditions could change significantly. This is sometimes called a 'stock-flow lag': a one-off addition to capital stock will generate a flow of product for a considerable time into the future. A new truck may deliver goods for five years, a cargo ship will carry goods for thirty years .

Past decisions affect economic outcomes a long time into the future. This creates complications for those who study economic activity and manage policies around it. How do the policy makers know where the economy lies on the cycle at any point in time? How do they know what policy settings are appropriate?

The first issue is that the data that describes the state of the economy is always out-of-date. Economic indicators take at least a month (and more often three) to compile, analyse and publish. As a result, policy-makers are subject to a recognition lag - the period of time it takes to recognise what is happening in the economy

(at macro level). The recognition lag makes driving the economy somewhat akin to driving a car looking in the rear-view mirror! Policy makers are forced to look backwards to see which direction the economic road just took!

A second time lag (the decision lag) occurs because it then takes policy-makers some time to decide what policy changes should be made in the light of the economic data. In the case of monetary policy, the decision lag is fairly short because the Reserve Bank Board meets every month. In the case of fiscal policy (the Federal Budget), the decision lag is longer because the Budget is prepared annually (although there have been 'mini-budgets' on occasions where significant events occurred). Budget proposals also have to be agreed by both houses of Parliament before they become law - sometimes a long and tortuous political process!

It can then take some time for policy decisions to have an effect on household and business behaviour (the impact lag). Amongst other things, the length of the impact lag is affected by the speed of the multiplier process. If taxes were cut, for example, households have more disposable income. If they choose to spend it (rather than save it, or reduce household debt) consumption spending would rise, triggering increases in income, further changes in consumption (the multiplier), and rises in output as business firms react to higher orders. The full impact of the policy change might not be felt for some months.

It is estimated that changes in interest rates can take more than 18 months to take effect. If rates were reduced, it could take time for retail banks to pass them on to their customers. It might take time for households and businesses to react to lower rates - for example, people with fixed mortgages may not be able to switch to a new loan with lower repayments for 2-3 years. Lower interest rates may also have lower impact in times where economic activity and confidence is low, as in a recession.

Worksheet

Read chapter 11 of the text in order to answer the following questions.

1. Briefly outline the economic objectives mentioned in the 1965 Vernon Report. Discuss the degree to which Australia's current objectives should be similar. Are there any objectives you would add to the 1965 list? Would you delete any?
2. What are the four major objectives of macroeconomic policy? Define each. Is it possible to quantify each objective?
3. How successful has Australia been at achieving each of these objectives in the last five years? Which of the four has posed the largest economic problem for this economy?
4. Outline the economic costs of economic growth being too low, or too high.
5. Outline the economic costs of high levels of unemployment.
6. Compare the objectives of the Treasury and the RBA.
7. Explain, using examples, the meaning of the phrase 'compatible economic objectives'.
8. Why is it impossible for all of society's economic objectives to be achieved simultaneously? Is this any different from the economic problem at individual or group level?
9. Describe the time lags which can impact on the effectiveness of economic policy.

Cartoon Economics

The Mitchell cartoon below appeared in the Australian newspaper in June 1993, and is reproduced by kind permission. The driver of the car is the Prime Minister at the time, Paul Keating.



1. The cartoonist is reflecting on the announcement of the lowest inflation rate in 30 years (June 1993 - rate of inflation approximately 1.4%). Referring to figure 11.1, state the rates of unemployment and economic growth in June 1993.
2. List three advantages of maintaining low inflation in the Australian economy.
3. Refer to figure 11.1. In what stage of the business cycle was Australia in 1992-93?
4. Identify the cartoonist's message about the costs of reducing inflation and achieving a "gold medal result"
5. Refer again to figure 11.1. Find the inflation rates in each of the business cycle peaks and troughs. Do your figures support the idea that levels of inflation and unemployment are inversely related?

Multiple choice questions

Choose the best alternative in the following questions.

1. Most governments in developed economies play an active role in economic management in order to
 - a. reduce fluctuations in economic activity associated with the business cycle.
 - b. collect revenue to finance expenditure on community needs and wants.
 - c. redistribute wealth from the rich to the poor.
 - d. provide competition for private firms which might otherwise have been able to monopolise the market for a particular commodity.
2. Which of the following is not regarded as an economic objective of the government?
 - a. low interest rates.
 - b. full employment.
 - c. maintaining a stable exchange rate.
 - d. efficient resource allocation.

3. Other things being equal, which of the following groups benefit most from periods of inflation?
 - a. lenders and salaried workers.
 - b. borrowers and salaried workers.
 - c. lenders and people who 'invest' in property.
 - d. borrowers and speculators.

4. Which of the following statements about unemployment is FALSE?
 - a. it is possible for the economy to achieve a zero rate of cyclical unemployment.
 - b. frictional and structural unemployment together constitute the 'natural rate' of unemployment.
 - c. the opportunity cost of unemployment is less than its cost in welfare payments.
 - d. people are officially classified as unemployed if they have not completed one hour of paid work per week in the last month.

5. Which of the following statements about inflation is correct?
 - a. rising inflation is likely to place downward pressure on interest rates as there is less demand for borrowed money.
 - b. low inflation protects the real value of household savings.
 - c. inflation makes Australian exports more competitive on overseas markets.
 - d. long term inflation probably increases the chances of structural unemployment.

6. Which of the following policy objectives would be regarded as compatible - i.e. the objectives can be targeted at the same time?
 - a. price stability and full employment.
 - b. economic growth and reduced structural unemployment.
 - c. rising productivity and low cyclical unemployment.
 - d. economic growth and a more equitable distribution of income.

7. Higher economic growth and lower unemployment are compatible objectives because
 - a. economic growth increases demand in both goods and factor markets.
 - b. economic growth improves welfare, so Australians are less likely to import products produced overseas.
 - c. growth leads to structural change in the economy, and this reduces structural unemployment in the short term.
 - d. high employment attracts resources from overseas, bringing new ideas and technology that promotes growth.

8. The extent to which high rates of economic growth affect demand inflation depends upon
 - a. the level of interest rates - high rates are associated with rising inflation, which is in conflict with economic growth.
 - b. the amount of excess capacity in the economy.
 - c. whether growth causes greater demand for imports - meaning production costs tend to rise.
 - d. whether growth is associated with higher wage levels.

9. Which of the following statements about the economic policy objectives of the Australian Government is correct?
 - a. the Reserve Bank of Australia aims to keep the inflation rate between 2%–3% over the course of a business cycle.
 - b. increasing government expenditure will tend to assist in achieving the objective of economic growth.
 - c. a more efficient allocation of resources is a major objective of fiscal policy.
 - d. the objectives of low unemployment and an equitable distribution of income can be achieved at the same time.

10. Fiscal policy suffers from a relatively short impact or effect lag. This refers to the fact that
 - a. changes in the taxation and government spending can only be made annually, in the Budget.
 - b. it takes only a few months for changes in tax rates or government spending to change aggregate expenditure.
 - c. key economic indicators are available very soon after real trends in the economy are observed.
 - d. changes in tax rates have an immediate effect on spending in the economy.

News extract

Low inflation is causing us some problems!

The three objectives of the RBA are well known: to 'contribute to the stability of the currency, full employment, and the economic prosperity and welfare of the Australian people.'

To achieve these goals, the RBA uses the cash rate to target the medium term inflation rate. In a period of slow activity, reducing cash rates should increase household and business spending, although inflation would probably increase slightly.

In recent years, however, things have changed slightly. Inflation was once considered a major enemy because of the way it eroded the value of money. But most central bankers would now like some inflation — the problem now is to prevent inflation going negative! Even if inflation doesn't fall below zero, this reduction in prices seems to be putting the brakes on the economy. Falling prices seem to act as a deterrent to spending! Rather than buying now, people defer larger purchases. The reduction in demand leads to lower production and output, which puts another dent in consumption because incomes fall and there is less money in the economy to share around. This leads to further problems - workers seem less likely to spend their money in case they too are put out of work.

One way of ensuring some inflation is wages growth, but this has also been falling, in Australia wage growth has halved over the last few years. Low wages growth tends to put a cap on household spending. On the other hand, slow wages growth has also helped keep unemployment lower than it might have been. "The more flexible labour market in recent years has enabled companies to limit wages growth in a slow jobs market, with workers possessing little real negotiating power," one economist said in a bank research note. "There are still plenty of people working; it's just that many aren't expecting pay rises anytime soon".

Until there are signs of inflation starting to rise again, we can expect interest rates to remain low. This will help to put a floor under demand. But until wages start to grow again, the economy will be stuck in second gear.

Questions

1. What, according to this excerpt, are the three objectives of the Reserve Bank?
2. Give three reasons why inflation is usually considered an enemy for policy makers.
3. How would the RBA traditionally use monetary policy (using the cash rate) to speed up economic activity?
4. According to the writer, what problems does low inflation cause for the economy?
5. Explain why the slow economy and low inflation could have caused slow wages growth.
6. Explain how the post GFC recession could have impacted on the distribution of income.

Data interpretation

Q1. This question refers to the table which shows the unemployment, inflation and economic growth data for a hypothetical country over a four year period.

- a. Briefly describe how the macroeconomic position of this economy has changed between year 3 and year 4. [2 marks]
- b. Identify and explain the apparent relationship between economic growth and inflation in years 1-3. [3 marks]
- c. To what extent has this economy met its macroeconomic objectives over the course of the four years (assuming its objectives are similar to those used in the Australian economy)? [5 marks]

Year	Unemployment rate (% of workforce)	Inflation rate (% p.a.)	Economic growth rate (% p.a.)
1	4.5	2.6	2.7
2	4.9	2.0	2.4
3	5.2	1.1	2.0
4	4.9	1.2	2.3

Q2. The table shows the rate of inflation, as measured by the Consumer Price Index (CPI) over a five year period.

- a. Calculate (i) the rate of inflation in Year 5, and (ii) the average rate of inflation over the five year period. [2 marks]
- b. If an economic report released in Year 5 stated that the economy was operating near capacity, predict what might happen to the economic growth, inflation and unemployment rates in Year 6. Explain. [3 marks]
- c. If policy makers decided it would be appropriate to reduce the level of inflation in Year 6, how might that decision impact on cyclical unemployment and economic growth [5 marks]

Year	CPI
1	101.2
2	103.7
3	106.8
4	110.5
5	115.4

Extended responses

Answer each of the following questions in about 2-3 pages of normal writing. Use economic models and examples where appropriate. Pay attention to the specified allocation of marks.

1. a. Outline appropriate targets for unemployment, inflation and economic growth in Australia in the current economic circumstances [10 marks]
- b. Discuss the extent to which these targets have they been achieved since 2010? [10 marks]
2. Discuss the extent to which high rates of population increase; a high rate of economic growth and high employment are appropriate objectives in Australia at this point in time? [20 marks].
3. a. Outline the macroeconomic objectives of the government? [10 marks]
- b. Explain why it is difficult to achieve the aims of price stability and low unemployment simultaneously. [10 marks]

4. a. Describe the types of unemployment. [10 marks]
b. Discuss the costs of inflation for households, business and international competitiveness. [10 marks]

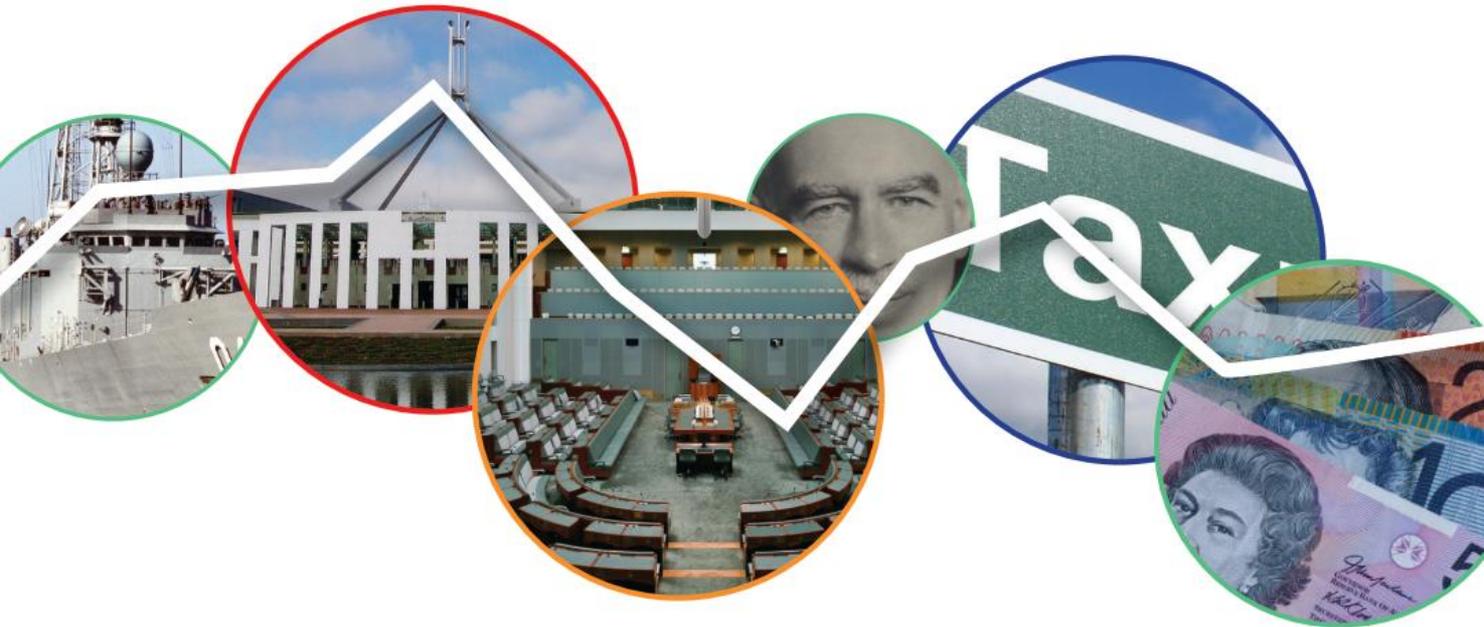
5. Discuss the effect of high levels of economic growth (i.e. levels in excess of 5 per cent) on the simultaneous achievement of the following objectives:
 - a. low unemployment
 - b. price stability
 - c. the sustainability of natural resources
 - d. economic welfare. [20 marks]

6. a. Describe Australia's macroeconomic performance, against its objectives, over the last three years [12 marks]
b. To what degree can the economic objectives be achieved simultaneously? [8 marks]

7. a. Explain how time lags prevent the ability of policy makers to understand current trends in the economy [10 marks]
b. Compare and contrast the nature and length of the time lags associated with fiscal and monetary policy measures in Australia. [10 marks]

Fiscal Policy

12



Chapter concepts and skills

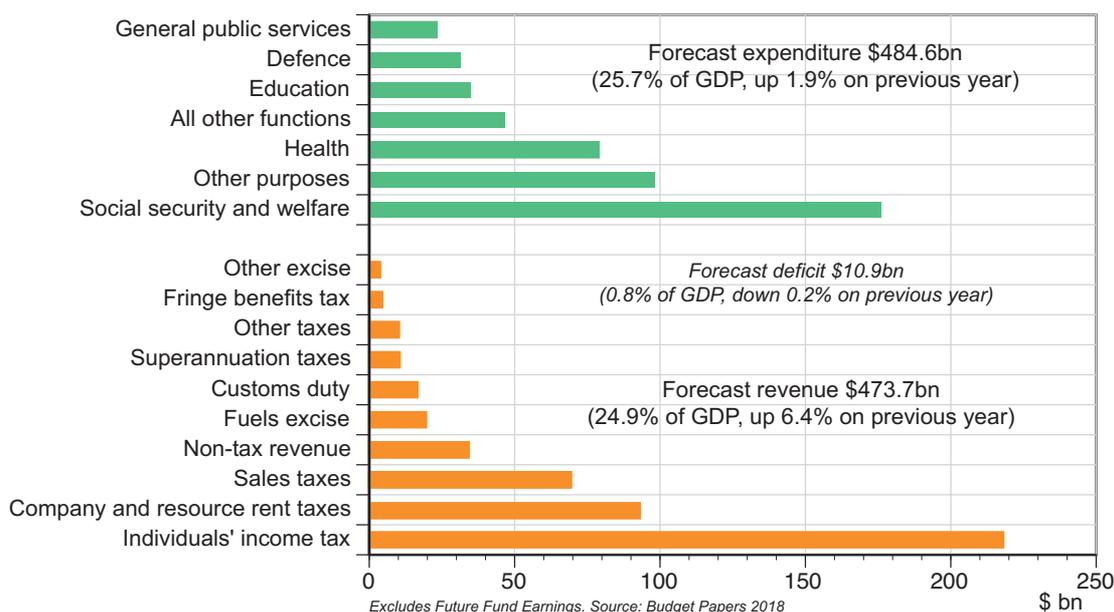
- *the concept of fiscal policy*
- *the components of government revenue and expenditure in the budget*
- *the nature of balanced, surplus and deficit budget outcomes*
- *differences between planned and actual budget outcomes*
- *methods of financing a budget deficit and the uses of a budget surplus*
- *the distinction between automatic stabilisers and discretionary fiscal policy*
- *the distinction between budget outcomes associated with fiscal stabilisers and outcomes associated with discretionary fiscal policy*
- *the concepts of expansionary, contractionary and neutral fiscal stances*
- *the impact of different policy stances on the level of economic activity*
- *the strengths and weaknesses of fiscal policy*
- *aspects of contemporary fiscal policy in Australia*

Government revenue and expenditure

Every individual, household, business firm or organisation has a budget in which it identifies its sources of income and the ways in which those funds will be spent over a period of time. In the same way, the Federal Budget, delivered in Parliament in May of each year, estimates government revenue and the cost of expenditure plans for the coming year. As shown in figure 12.1, projected revenue in 2018-19 was \$473.7 billion, with forecast expenditure of \$484.6 billion, leaving a deficit of 4.3 per cent of government revenue (or 0.8 per cent of GDP).

Over a period of several months prior to the Budget, the Expenditure Review Committee of Cabinet decides how much to spend on all the varied functions of the federal government for the following fiscal year: how much to spend on building schools, equipping the defence forces, investing in medical research, and so on. The budget has a three-fold purpose. Firstly, it decides how revenue will be raised, and allocates funds to areas of need. Budget allocations don't change much from year to year, because they are often determined by on-going funding needs. For example, education spending could not be cut by 20 per cent one year then raised by 20 per cent the next, because it is an essential public service that provides for the needs of school-age children. Funding allocation is partly driven by the political process, as the government of the day needs funds to support its initiatives (recent examples being the National Broadband Network and the National Disability Insurance Scheme).

Figure 12.1 Revenue and expenditure: 2018-19 Budget



Secondly, the budget redistributes income from the wealthy to the less-wealthy. The wealthy pay higher rates of income tax, and people on lower incomes receive more government support (both directly and indirectly) than those on high incomes.

Thirdly, the government can use the budget to influence the level of macroeconomic activity. (i.e. to stabilise fluctuations in the business cycle). In Australia, the first time a budget was deliberately used for this purpose was in 1951-52, when the Treasurer delivered a budget designed to cool the booming post-war economy (inflation was above 15 per cent, and unemployment less than one per cent of the work force).

Prior to the early 1950s, governments thought it sensible to balance their budget (to ensure that revenue and expenses were similar). Keynes argued that this balanced budget policy could actually destabilise the economy because government expenditure was tied to revenue. In a trough, when revenue falls, a balanced budget would result in a fall in government expenditure - just the opposite of what the economy needed to boost levels of spending and output. Keynes advocated interventionist economic policy, meaning governments should use fiscal and monetary measures to reduce the adverse impacts of business cycles.

John Maynard Keynes (1883 – 1946) was a British economist whose ideas were a significant influence on macroeconomic theory and government policy.

Budget outcomes

The outcome of the budget refers to the relationship between government revenue and government spending. There are three possible budget outcomes:

- if revenue and expenditure are equal, the budget is in balance;
- if total revenue is greater than outlays, the budget is in surplus; or
- should spending exceed revenue, the budget is in deficit.

As will be explained, a surplus budget is planned when levels of economic activity have been high, and a deficit budget is necessary in an economic downturn.

It is almost certain that the actual budget result at the end of the year will differ from the planned outcome, for a number of reasons. Should there be a downturn in economic activity, business conditions would be tougher and taxation revenue from households and businesses would fall. This would mean the actual deficit would be worse than the planned deficit. On the other hand, an unanticipated upswing after the announcement of the budget would result in rising government revenues and lower spending, in which case the actual outcome would be a smaller deficit than the forecast outcome. Changes in conditions in world markets could impact on the Budget outcome. Higher costs (such as rising oil prices) would put pressure on the budget because they signal higher transport costs. A fall in commodity prices (such as the fall in iron ore prices after 2014) would have a significant impact on tax revenue.

Applying mathematical techniques

Refer to the web sites of government treasuries in other countries, such as the United States, United Kingdom, New Zealand, Canada, France, Germany, Singapore or Japan. For the latest year, find out whether the budget in those countries is in deficit or surplus. What is the level of accumulated government debt in the country you have chosen? Calculate government debt per head of population.

Exogenous factors (events not related to the budget process such as exchange rate movements; rapid changes in the terms of trade or non-economic events) may also cause the actual outcome to differ from the predicted result. More government funding could be called upon in the event of major floods, droughts or fires - events that could not be anticipated when compiling Budget forecasts.

The Commonwealth Government released the 2017-18 final budget outcome in September, 2018. The underlying cash deficit was \$10.1 billion (or 0.6% of GDP), down from the \$29.4 billion deficit (1.4%) forecast in May 2017.

Budgets and government finance

In any budget, when spending is greater than income, the shortfall has to be financed. Conversely, surplus funds can be used to reduce debt, or saved for the future.

Technically, a budget deficit exists whenever government expenditure exceeds government revenue. A budget deficit allows the community to consume goods and services now and pay for them in the future - comparable to an individual household using credit for some of its purchases.

There are several ways in which a government can finance a budget deficit:

- selling government bonds;
- borrowing from the central bank;
- borrowing from overseas; and
- selling government assets.

Government bonds are one of many types of financial instrument available to investors with surplus funds. As they are backed by the government, bonds are very safe - the risk of default is low. Low risk usually means low returns, so the rate of interest bonds offer reflects their safe status.

The financing method used can have consequences for the success of policy measures. The government raises money to finance a budget deficit by selling bonds. 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. If you use surplus cash to buy a \$1000 government bond, on which the rate of interest is 6 per cent p.a., you are effectively lending money to the government in return for an annual interest payment of \$60.

A large bond issue may, however, cause an increase in interest rates across the market, because government borrowing creates higher demand for funds in financial markets. Economists call this competition for loanable funds ‘crowding out’ - the private sector finds it more difficult to attract funds because the government is a competitor for scarce funds. Borrowing from the private sector has no impact on the money supply, however. The public withdraws money from the banking system to pay for purchases of securities - when the government spends the borrowed funds, the net effect on the money supply is nil.

\$75 bn worth of Treasury Bonds were issued in 2017-2018 financial year. Source: Australian Office of Financial Management.

A second way of financing the deficit is to borrow from the central bank. In this case, new money is injected into the economy. This may have the desired expansionary effect on the economy, but the increase in money supply will have an inflationary impact if the growth in money supply exceeds the growth in real output.

Thirdly, the government could borrow from overseas to fund its deficit. Doing so would not increase the money supply under Australia’s system of floating exchange rates, but the exchange rate would appreciate due to the inflow of money capital (other things being equal). Exchange rate appreciation makes exports less competitive, and imports more competitive against domestic goods. This would be counter to the objectives of the planned budget deficit.

A government could also sell public assets to finance a deficit, but the one-off revenue boost from privatisation has to be balanced against the continued good service of public wants.

As we know, the budget is in surplus when revenue exceeds expenditure. 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 as tax cuts. All three happened in the mid 2000s, when Australia was one of the few countries in the world with no public debt. Australia still has comparatively low government debt (about 42 per cent of GDP) even after the spending stimuli associated with the global economic slowdown. Low public debt is seen as important due to the fiscal impact of the retirement of ‘baby boomers’ from the workforce and the projected impact of the aging population on health budgets.

There are a number of secondary effects that might counteract the original intention of the surplus. Retiring debt, for example, means that bond holders are repaid the capital value of their bonds, giving them extra spending power. This has been called ‘crowding in’. Lower public debt may also raise a question about ‘intergenerational equity’ - the idea that the costs of infrastructure built today should be shared between today’s taxpayers and those who will also benefit from those facilities in the future. That is, future taxpayers are ‘free-riding’ on current taxpayers if public debt is relatively low.

Stabilising the economy

The aim of countercyclical policy is to ‘smooth’ the ups and downs of the business cycle. Fiscal policy has an important role to play in meeting this objective. Firstly, however, we need to understand that there are automatic mechanisms that play a role in smoothing the fluctuations associated with the cycle.

Automatic stabilisers

Even if the government makes no decisions about changing revenue or spending patterns, the budget balance will vary over the course of the business cycle. The principle of automatic stabilisers is illustrated in figure 12.2. When the economy enters the trough phase of the cycle (slower growth), tax revenue falls and welfare payments rise, so the budget balance moves towards deficit (or an increasing deficit). When the economy is stronger, tax revenue rises and welfare payments fall, so the budget balance becomes increasingly positive. As a result, income

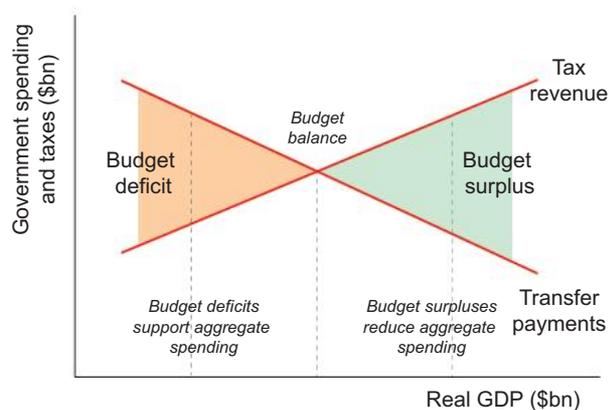
Welfare spending has considerable economic impact - its recipients spend their benefits on goods and services. The businesses that receive these dollars use them to pay their owners and employees, purchase additional business inputs, and pay the normal costs of doing business.

taxes and transfer payments act like an economic shock absorber! They reduce the level of aggregate spending in a boom, and increase it in a trough. They also impact upon the budget outcome - a budget deficit will automatically increase as the economy contracts, and automatically decrease as the economy expands.

Although automatic stabilisers come into play quickly when there is a change in the level of aggregate spending, they cannot prevent fluctuations in the business cycle and are not by themselves sufficient to completely counteract the peaks and troughs in economic activity.

Figure 12.2 Automatic stabilisers

Tax revenue rises as GDP rises, as shown by the positively sloped line. The transfer payments line is negatively sloped, because claims on welfare fall as economic activity rises. If we start at the Budget balance point and the economy slows, tax revenue falls and transfer payments rise pushing the budget into deficit and stabilising the economy to some extent. Alternatively, if we start at the Budget balance point and the economy expands, tax revenue rises and transfer payments fall - automatically pushing the budget towards surplus and slowing the economy by reducing aggregate spending power.



Generally, the action of automatic and discretionary stabilisers will be complementary, although not if discretionary policy decisions are poorly timed.

Discretionary fiscal policy

Discretionary fiscal policy refers to the changes to expenditure and revenue that the government makes in the budget to stabilise the economy. We will examine three possible fiscal stances - expansionary policy, contractionary policy, and a balanced budget.

An expansionary policy stance

In a period of low economic activity, it is appropriate to use an expansionary budget in order to stimulate spending. Ways to stimulate household and business spending include:

- reducing income tax to increase household purchasing power;
- cutting corporate tax to stimulate business spending on inputs, employment and investment; and/or
- increasing government spending on infrastructure, such as transport and communications projects.

An expansionary policy stance is usually associated with a deficit budget - where planned expenditure is higher than revenue. But the budget could be in surplus, and also be expansionary, if revenue falls and/or expenditure rises in comparison to the previous budget. To illustrate, assume the budget balance was a surplus of \$10 billion in Year 1, and a surplus of \$2 billion in year 2. Although the budget is still in surplus, it could be regarded as expansionary because the surplus has been reduced.

In other words, the outcome of the Budget really depends not on its absolute value (deficit or surplus) but on its value relative to the actual outcome in previous year/s.

We can analyse expansionary fiscal policy using the macroeconomic models developed in chapters 9 and 10. Figure 12.3 uses the Keynesian model. The economy is initially at Y_{def} - the Keynesian model uses the phrase 'deflationary gap' to describe the output gap that exists between the current level of income and that which could be achieved at full employment (Y_{fe}). To close the gap, the budget takes on an expansionary stance using a combination of the discretionary measures listed above. These policies stimulate household and business spending, so aggregate expenditure rises from AE_{def} to AE_{fe} .

The final effect is larger than the initial stimulus because of the multiplier - a small change in government spending (i.e. a small vertical movement in AE) produces a larger increase in the level of aggregate income.

In a trough, the government uses its budget to increase aggregate expenditure to counter the deflationary gap (the difference between Y_{def} and Y_{fe}). A deficit budget can be achieved by cutting taxes and / or increasing spending. Expansionary fiscal policy gives households more disposable income, which they spend on consumption. Company taxes could also be reduced to allow firms to retain profit. As a result, the level of economic activity should rise from Y_{def} to Y_{fe} - a return to full employment levels of expenditure, output and income.

Note that the government spending multiplier applies - the final impact of the budget deficit (\$50 billion) is greater than the initial stimulus (\$25 billion), implying the government spending multiplier was 2.

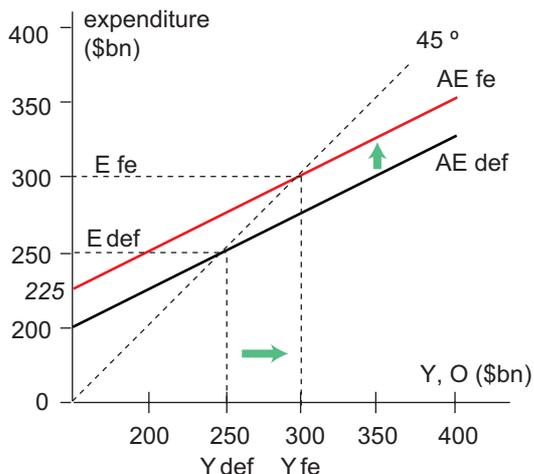
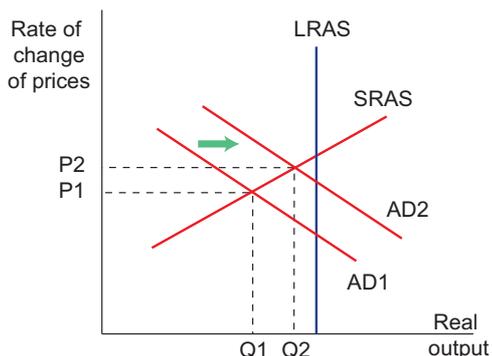


Figure 12.3 Expansionary fiscal policy

The AD/AS model can also be used to model the operation of expansionary fiscal policy and its effect on the level of output. As shown in figure 12.4, increased government expenditure, and/or decreased taxation will have an expansionary effect on aggregate demand, shifting the AD curve from its initial level AD1 to AD2. The level of real output (and thus incomes and expenditure) rises from Q_1 to Q_2 . Expansionary policy has brought the economy closer to its potential (indicated by the LRAS curve).

Expansionary fiscal policy should have minimal impact on inflation if the economy is in a trough. When economic output is below potential, increased aggregate demand will tend to soak up excess capacity and unemployed resources before putting much upward pressure on the price level.

Recent policy	The 2009-10 expansionary budget
	<p>Economic activity following the onset of the Global Financial Crisis was weak, illustrated by:</p> <ul style="list-style-type: none"> • low real growth: forecast to be -0.5%; • the inflation rate - at 2.3% is at the low end of the RBA target band; • apart from the resources sector, business investment is weak; • unemployment is rising - forecast to reach 8.5% by 2011; • tax revenue is expected to fall by \$20 bn; and • the global downturn resulted in considerable business uncertainty. <p>In response, the budget stance is expansionary - the 2009-10 Budget forecasts a planned cash deficit of \$47 Bn - 4.9% of GDP. This included \$22 bn in new infrastructure program spending.</p>



Expansionary policy in periods of low economic activity is designed to bring about an increase in aggregate demand from AD1 to AD2. As a result, levels of real output rise from Q1 to Q2. Note that expansionary policy has only a small effect on the price level if the economy has considerable excess capacity.

Figure 12.4 Expansionary fiscal policy - AD/AS model

A contractionary stance

In a period of stronger economic activity, it would be appropriate for the government to plan a budget surplus to reduce levels of spending in the economy. Ways to achieve this contractionary outcome might include:

- increasing personal income tax rates and company taxes;
- reducing or postponing spending on major projects; and/or
- increasing excise taxes such as those applied on sales of cars, tobacco and alcohol.

There are many components of government revenue and expenditure, so to 'reduce spending' means that a decision has to be made as to what component of expenditure will be reduced. It could be current or capital expenditure, and might be taken from defence, education, health or infrastructure. The actual way in which revenue is increased or expenditure is cut is usually influenced by political, as well

Fiscal policy and the multiplier

Will a change in government spending have the same multiplier effect as an equivalent change in taxes? For example, will an increase in government spending of \$10bn have the same effect as a tax cut of \$1bn?

The answer is no! The formula for the spending multiplier is $1/(1-mpc)$ or $1/mps$. But the formula for measuring the effect of a change in taxes is different - it is $mpc/(1-mpc)$ or mpc/mps . What is the reason for the difference? A change in tax must first change consumption through the mpc , but a change in government spending will directly affect GDP.

- *The spending multiplier = $1/(1-mpc)$ or $1/mps$
Thus if the $mpc = 0.6$, the spending multiplier = 2.5 If government spending is increased by \$10 bn, GDP will increase by \$25bn.*
- *The tax multiplier = $mpc/(1-mpc)$, or mpc/mps .
Thus if the $mpc = 0.6$, the tax multiplier = 1.5 If tax is cut by \$10bn, GDP will increase by \$15bn.*

In a boom, the government uses its budget to counter the inflationary gap (the difference between Y_{fe} and Y_{inf}). This can be achieved by raising taxes and / or reducing spending. Contractionary fiscal policy reduces households' disposable income, so they have less to spend on consumption. Company taxes could also be raised.

The level of economic activity should fall from Y_{inf} to Y_{fe} - a return towards full employment levels of expenditure, output and income. Note that the multiplier applies - the final reduction in AE (\$50 m) is greater than the initial reduction in government spending (\$25 billion).

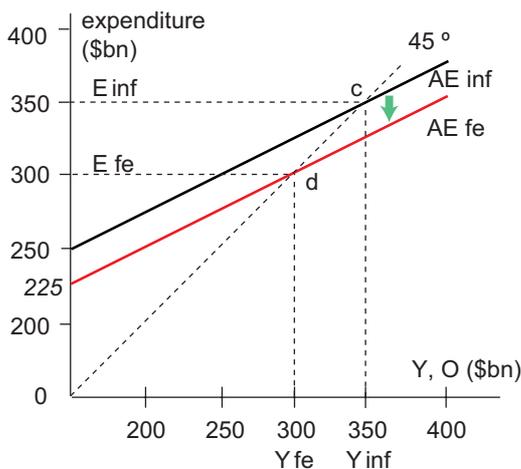


Figure 12.5 Fiscal policy in a boom

as economic judgements. As we have said previously, it is very difficult to make large cuts in government expenditure, because most of the expenditure in any department (approximately 70 per cent) is spent on wages and salaries. The size and scope of the public sector creates its own inertia which makes budget cuts hard to design and implement. Reductions tend to be made in small amounts over a period of time - pruning rather than slashing.

Contractionary fiscal policy can be analysed using the Keynesian and AD/AS models. In figure 12.5, the economy is initially in equilibrium at Y_{inf} - the Keynesian model uses the term 'inflationary gap' to describe the pressure on prices that occurs when levels of expenditure are close to the level of expenditure at which resources will be fully employed (Y_{fe}).

In the boom, the government could either increase taxation levels or cut its expenditure, reducing the spending power of households and businesses from AE_{inf} to AE_{fe} . The negative multiplier effect applies - reductions in spending or

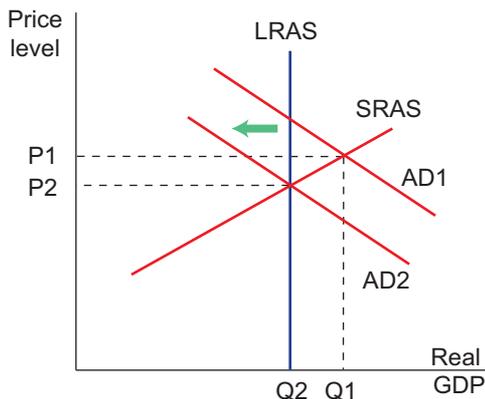
The 1989-90 contractionary budget

Recent policy

The late 1980s economy featured boom conditions, illustrated by:

- the 12th straight year of economic growth;
- the forecast real GDP growth rate for 1989-90 was 4%;
- inflation was running at 7% p.a., - well above the RBA target range;
- business investment up 15% year on year;
- the unemployment rate was 4.5% and the participation rate 64.8% (a near record high);
- there had been a 20% blowout in current account deficit; and
- interest rates stood at 17% p.a.

In response, the budget stance was contractionary - planning a Budget surplus 1% of GDP



The economy is beyond its potential. Contractionary fiscal policy increases taxation, or decreases government spending (or both) to reduce aggregate demand from AD1 to AD2. As a result, levels of real output fall from Q1 to Q2. This also tends to reduce the rate of change of the price level (inflation).

Figure 12.6 Fiscal policy in a boom - AD/AS model

increases in revenue (i.e. a small downward movement in AE) produce a larger decrease in aggregate income.

The AD/AS model can also be used to analyse the effect of contractionary fiscal policy on the level of output (see figure 12.6). Assume the level of aggregate demand was AD1. The associated level of output, Q1, is beyond the economy's full employment potential (the LRAS curve), placing upward pressure on prices (which have been rising at the rate P1). Reduced government spending and/or increased taxation will have a contractionary effect on aggregate demand, shifting the AD curve to the left (from AD1 to AD2). Real output will fall from Q1 to Q2, and the rate of change of prices (level of inflation) will also fall from P1 to P2.

In summary, when macroeconomic activity is below potential, the government will try to boost aggregate spending by increasing expenditure and/or reducing taxes. In boom conditions, the government will try to reduce spending power in the economy by cutting its own expenditure and/or increasing taxes.

A neutral budget stance

If the government thought economic conditions were close to the natural rate of employment with inflation in the 2-3 per cent range, it might adopt a neutral budget stance. In this case, there would be little difference between revenue and spending, and the budget outcome would move towards balance.

Budget balance and the budget stance

It is important to remember that the budget balance is determined by two factors - discretionary changes made by the government and automatic changes in response to the business cycle. The discretionary changes to government spending and taxation determine the structural balance while the effect of automatic stabilisers determines the cyclical balance:

The budget balance = structural balance + cyclical balance

The stance of fiscal policy is determined by the structural balance, not the overall balance - a structural deficit means that fiscal policy is expansionary, whereas a structural surplus implies that fiscal policy is contractionary. Ideally the structural balance should equal zero when the economy is at potential GDP (full employment).

Recent budget deficits have been falling (see figure 12.7). As noted earlier, the final budget outcome for 2017-18 was a cash deficit \$10.1 billion (or 0.6% of GDP), down from the \$29.4 billion deficit (1.4%) forecast in the May 2017 Budget. Does this imply that the that the government had adopted a contractionary stance because the budget balance was increasing? The answer is no, because the fall in the deficit was due to the operation of automatic stabilisers. Economic growth was up over the year, so government revenue grew and calls on welfare spending fell. That is, automatic stabilisers kicked in as expected and the budget balance increased because the cyclical deficit was moving towards surplus. The structural balance, however, was still in deficit because of discretionary policy announcements including reducing the tax burden for small businesses; funding transport infrastructure; amendments to education and health funding; changing income tax brackets (2017 Budget) and commitments to reduce company tax. These are classic examples of discretionary policy aimed at stimulating aggregate demand in order to increase economic activity.

Understanding whether the fiscal balance is driven by cyclical or structural factors is important in understanding the stance of fiscal policy. It is, however, difficult to separate the budget balance into its exact structural and cyclical parts, although the government does provide a range of estimates.

Strengths of fiscal policy

Several strengths of fiscal policy (in its traditional demand management role) can be identified.

Fiscal policy is direct. Revenue and spending measures announced in the Budget can be implemented immediately, if required. For example, the Treasurer might announce an increase in the excise tax on a commodity such as cigarettes or alcohol

Critical and creative thinking - the MYEFO

The Mid-Year Economic and Fiscal Outlook (MYEFO) is prepared each year in accordance with the Charter of Budget Honesty Act 1998. The Charter requires that the Government provide a mid-year budget report which provides updated information to allow the assessment of the Government's fiscal performance against its fiscal strategy. The MYEFO is released half way through the financial year. Access the latest MYEFO from the government's Budget web site and read the Economic Outlook section which sets out the government's view of economic conditions facing the country as it prepares its Budget. If you were the Treasurer, what policy stance would you expect your advisers to recommend in the next Budget?

from the day after the Budget, or a reduction in the marginal rates of taxation after a certain date. Consumers feel the impact of these decisions immediately.

Keynesian economists believe that a strength of fiscal policy is its effect on the economy in recession - the government can open a 'spending tap' to increase the level of aggregate demand in the community. In the Great Depression (1930s), government funds were used to build infrastructure and employ workers on government projects, providing an immediate boost to employment, spending power and consumption. In the Global Financial Crisis (GFC), many governments around the world adopted significant fiscal stimulus packages to try to avoid recession.

Finally, well-timed fiscal policy measures and automatic stabilisers (refer to figure 12.2) are complementary. In a boom, both discretionary and automatic stabilisers dampen spending and economic activity. In a downturn, discretionary and automatic stabilisers also act together to stimulate spending and economic activity.

Weaknesses of fiscal policy

Several weaknesses of fiscal policy can also be identified. As with all economic policy, time lags may have an impact (as discussed in chapter 11). The recognition lag occurs because economic indicators often lag the real trends, so policy making is based on out-of-date data. The decision lag refers to the time that passes whilst appropriate policy is formulated, especially when different views might need to be considered as part of the political process. The impact or effect lag is the time it takes for the policy to have an impact on the level of economic activity.

An alternative way to refer to time lags is either inside lags - the analysis of data and decision as to appropriate action within the government; or outside lags - the time taken for the policy to take effect. With fiscal policy, the inside lag is long because the budget is only handed down once per year. Conversely, the outside lag is comparatively short because of the potential direct impact of budget announcements on the economy.

Fiscal policy is relatively inflexible. In developing the budget, Treasury cannot really make large changes to the patterns of allocation and distribution established in past years. There are social, demographic and political constraints which impinge on the economic fabric of the budget - these cannot be ignored just to get the economy into shape. It would be impossible, for example, to reduce spending in a boom by cutting all defence spending, or slashing social security payments. Similarly, it is unlikely that social security benefits could ever be increased by more than a small amount at a time, because funding larger benefits would be hugely expensive and may even encourage people to stop work! Policy makers also have to consider possible costs of compliance due to policy changes - retailers, for example, would not react well to constant changes in excise tax rates on goods they sell.

Political constraints impact on the budgetary process, because governments seek re-election. In the first year of its term, governments tend to apply tough fiscal measures, but in the year preceding an election, budgetary measures may appear easier - perhaps to 'buy' votes from the electors. Political constraints may affect allocations for another reason - marginal seats have been known to benefit from government projects whereas 'safe' seats miss out.

An important effect of the budgetary process is its unintended impact on decisions taken in the private sector. The crowding out hypothesis referred to earlier suggests that a budget deficit can actually make it harder for the private sector to participate in recovery because the supply and cost of loanable funds becomes tighter. This could have a negative effect on firms in the private sector because the availability of loanable money falls, and its price (the interest rate) is higher. Hence business borrowing becomes a more risky proposition, and private firms may decide not to go ahead with plans to borrow. At the extreme, crowding out could become a 'zero-sum game' - increased government expenditure could be cancelled out by reduced private sector activity. In that case, expansionary fiscal policy would have no effect on the economy.

Fiscal policy should be part of the overall policy picture - it should not conflict with the direction taken by monetary policy. The Australian federal government cut taxes for five years in a row between 2003 and 2007, despite a booming economy that saw nine increases in official interest rates over the same period! Fiscal and monetary policy stances seemed at odds over this period, although this can be explained by the government's use of its budgeting powers to return some of the surplus to taxpayers and to focus on long term structural reforms to the economy.

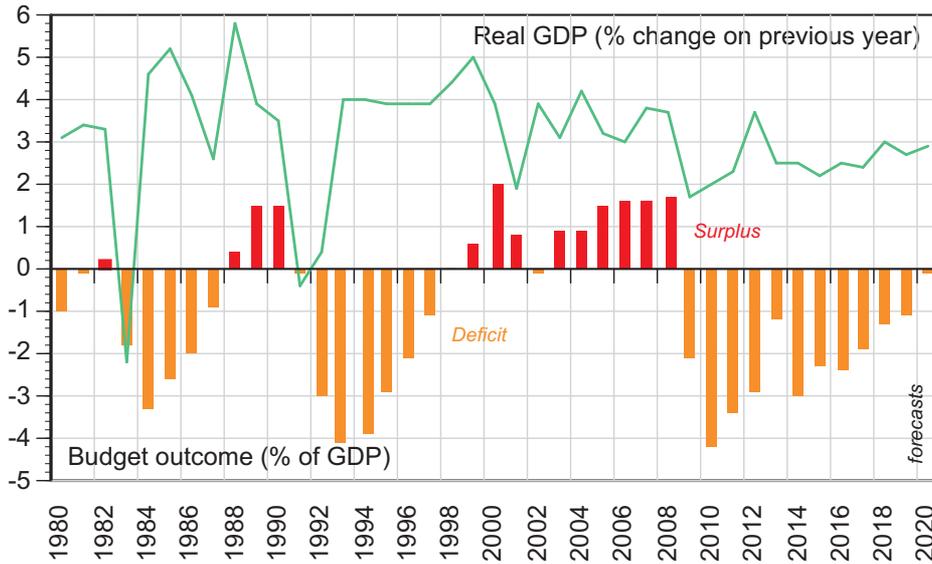
In the sections above, the phrase 'traditional fiscal policy' has been used deliberately. Discussion centred on how fiscal policy can be used as a demand management tool - how it can expand or contract the level of aggregate expenditure (aggregate demand) towards that associated with full employment or economic potential.

Note that whilst the focus of fiscal policy is often on shifting aggregate demand by changing government spending and taxation, fiscal policy can also affect the aggregate supply curve through

- spending on infrastructure, which adds to the capital stock, and
- the impact of income tax rates on the willingness of people to work (labour supply).

Recent fiscal policy in Australia

Figure 12.7 describes Australian Budget outcomes as a proportion of GDP since 1980. The line graph represents the rate of annual real GDP change (economic growth). The columns show whether the planned Budget outcome was in surplus (above the horizontal zero line) or deficit (below the line). The graph illustrates



Source: Budget Papers 2018

Figure 12.7 Budget outcomes since 1980

the cyclical nature of the budget outcome. Good economic conditions allow governments to build surpluses because revenue rises more than expenditure. Economic slowdowns, in contrast, see government spending rise faster than revenue. Over the course of one economic cycle, we would expect that the overall position of the budget would be balanced.

Over the last ten to fifteen years, however, there have been a number of changes in the economy which have had a significant impact on the ability of fiscal policy to achieve cyclical balance.

The first concerns the nature of unemployment. The official unemployment rate has been below 6 per cent since 2000, and most of this appears due frictional (perhaps 1.5 – 2 per cent) and structural (perhaps 3 per cent) causes. Hence the cyclical rate, at which traditional fiscal policy is targeted, has been close to zero for most of the last twenty years. Essentially, structural unemployment reflects supply-side problems in the economy that cannot be solved using traditional fiscal policy.

Secondly, Australia’s population, like many developed countries, is aging, driven by a decline in fertility, and increased longevity. By 2020, about 20 per cent of the population will be above 65, and still expecting to live another 20 years. Over that time, however, many will claim income support (pensions) from the government, and dependence on government-funded health

Australia - Government debt as a % of GDP	
Year	Net debt (% to GDP)
2006	0
2007	-2.2
2008	-3.4
2009	-0.9
2010	3.7
2011	6.4
2012	10.3
2013	10.4
2014	13.1
2015	15.2
2016	18.3
2017	18.3
2018	18.9

Source: : Trading Economics, 2018

and aging services will rise. This is one of the Budget items that will have to be funded from a smaller proportion of working age taxpayers.

A further issue is the on-going impact of the GFC (Global Financial Crisis). Australia was in excellent financial health in 2007, compared to many countries: debt-free, growing strongly, and running surplus budgets. Assisted by a favourable terms of trade, Australia survived the crisis in very good shape, although growth halved in the first year of the crisis. Australia's strong public finances allowed the government to "go early, go hard and go households" with fiscal stimulus in 2008 and 2009 – the original plan to wind back the stimulus gradually over a few years. Economic growth in most years since 2008 has been below 3 per cent, not generating enough revenue to win back the deficit, let alone pay back debt that has risen rapidly since the GFC (see sidebar). Indeed, in several countries, including Australia, trying to use the Budget to arrange a premature 'exit' from deficit spending risked pushing the economy into recession. The problem is that government revenue (chiefly derived from taxes) is only growing at 6 per cent per annum, not enough to support the expenditure plans that the government has been reluctant to cut.

Other long-term pressures on government revenue and expenditure have resulted from the fall in the terms of trade since 2010, and the end of the mining construction boom from about 2015.

The government perhaps contributed to the problem in the 2000s - despite establishing some significant initiatives (such as the Future Fund), a significant portion of the Budget surplus was given back to taxpayers in the form of tax cuts.

Government debt as a % of GDP - 2018	
Country	Net debt (% to GDP)
Japan	156
Italy	118
France	87
United States	78
United Kingdom	78
Netherlands	43
Germany	41
Canada	28
Switzerland	20
Australia	19
Sweden	5

Source: : Trading Economics, 2018

A combination of these events have put Australia on a path to a structural deficit - revenue is now about 25 per cent of GDP, whilst spending is 26 per cent. Some of the difference between revenue and expenditure is still due to lower-than-normal economic growth, but a good portion of it is the result of government spending commitments that exceed its revenue.

On the one hand, Australian government debt appears low by comparison with similar economies (see sidebar), in which case we may be able to afford to build debt and pay it off later. On the other hand, the structural headwinds mentioned above are likely to continue to bring low revenue growth.

In recent years, monetary policy has been the preferred tool for demand management – as explained in the next chapter, it has advantages over fiscal policy in some areas.

Worksheet

1. What are the three possible budget outcomes? Are the outcomes the same as 'stances'?
2. How are government bonds used to finance a deficit?
3. In what ways could a government use funds from a budget surplus?
4. Explain how government revenue and expenditure automatically change when the economy is in a boom?
5. Suggest three specific measures the government could use to 'increase government expenditure' or 'decrease taxation' to boost spending in a sluggish economy.
6. Suggest three specific ways the government could use to reduce aggregate spending in a booming economy.
7. Explain the meaning of the term 'cyclically balanced budget'.
8. Using either Keynesian (aggregate expenditure) or aggregate demand / aggregate supply models, illustrate the intended effect of the measures taken in 1989-90 Budget on the level of economic activity.
9. Using the alternative type of model to the one you used in question 8, explain the intended effect of the 2009-2010 Budget on the level of economic activity.
10. Distinguish between the structural and cyclical components of the budget.
11. The extent to which crowding out actually occurs has been the subject of much debate among economists for many years (and in any case it probably varies from time to time). What factors might determine the extent of any 'crowding out'?
12. Draw up a table which summarises the strengths and weaknesses of fiscal policy.
13. Recent Australian economic policy has moved away from using fiscal policy as a demand management tool, and changed the emphasis of the annual Budget. What is this new emphasis, and why has it been chosen?
14. Refer to figure 12.7. To what extent do budget outcomes over the period of the graph reflect the changing level of economic activity (business cycle) in the Australian economy?

Fiscal policy case study - 1991-92 Budget

The data in the table below shows a selection of Australian economic indicators for the period 1984-85 to 1992-93. Note all data refers to 'percentage change on previous year'.

Economic indicators: 1984-85 to 1992-93					
Year	a	b	c	d	e
1984-85	2.1	12.2	4.3	6.5	3.0
1985-86	3.4	4.5	8.4	2.0	4.3
1986-87	-0.3	-1.0	9.3	0.1	2.8
1987-88	2.8	14.5	7.3	8.8	3.0
1988-89	2.3	13.1	7.3	5.4	3.9
1989-90	2.8	-3.0	8.0	1.4	3.8
1990-91	-0.9	-11.5	5.3	-0.3	-0.6
1991-92	2.5	-6.3	1.9	-0.7	-1.9
1992-93	0.3	9.2	1.0	1.9	0.1

Key to columns: [a] = Retail trade (% change on previous year)
 [b] = Private gross fixed capital formation (% change on previous year)
 [c] = CPI (annual percentage change)
 [d] = Industrial production volume (% change on previous year)
 [e] = Employment (% change on previous year)

1. Graph each column a to e, using a line graph and a single set of axes.
2. Refer to columns a and b. Which of these indicators is more volatile (features greater fluctuation)? Suggest reasons for the volatility.

3. Is there any evidence in the table that employment is a lagging indicator?
4. The 1991-92 recession was described by the then Prime Minister, Paul Keating, as “the recession we had to have”. Select evidence from the data that there was an inflationary gap/boom in the late 1980s. Had you been the Treasurer in 1990-91, what budgetary stance would you have taken? Provide some examples of changes you could have made in the Budget which would have delivered your result. Model the budget stance using either a Keynesian or AD/AS framework.
5. The 1990-91 Budget forecast a small surplus. Over the course of the year, actual outlays rose by 6.8%, and revenue fell by 4.7% compared to the previous year. Use the data provided to suggest reasons for the difference between the forecast and actual figures.
6. The Treasurer at the time was John Dawkins (ALP). Dawkins announced a \$13.4 billion Budget deficit in 1992-93 - equivalent to 3.3 per cent of GDP (compared to the 1983-83 Budget deficit of 4.1 per cent of GDP (1983-84 being the previous recession). Why is it important to look at the size of the budget result as a percentage of GDP?
7. Using the data above, describe one ‘beneficial result’ that the recession of 1991-92 brought for the Australian economy.
8. The budget balance as a proportion of GDP was 0.4% in 1989-90; 1.8% in 1990-91; -2.4% in 1991-92 and -3.3% in 1992-93. To what extent does this indicate a structural deficit? (Hint: distinguish between the terms ‘cyclical deficit’ and ‘structural deficit’).

News extract - the structural deficit

The questions below refer to the news article below.

Australia’s structural deficit

In the growth slowdown that has followed the GFC, government revenue has fallen to 23% of GDP, while total expenditure is now around 26%. This means deficits and growing government debt. And the problem is likely to get worse. In general, budget balances are cyclical. Surpluses tend to occur during times of strong GDP growth when tax receipts are up and welfare spending is down. Deficits, on the other hand, tend to occur, and rise, during times of economic slowdown, because tax revenues fall, and welfare expenditure comes under more pressure. It follows that a cyclical deficit will normally improve with economic growth.

In the last few years, however, the revenue / expenditure imbalances have been partly caused by fundamental changes in the economy, and economic growth will not necessarily improve the deficit. An example is expenditure on health – this is mainly structural, driven by the ageing population, and growing irrespective of the state of the economy.

If the fiscal imbalances reflect normal and temporary changes to the state of the economy, then policy is better directed at smoothing deficits and surpluses. However, when imbalances reflect structural (permanent) changes in the economy, then policy has to be directed at altering the receipts and payments (ie changing taxes and expenditures). The former is more about stabilisation policies while the latter is more about growth policies.

1. Explain how the slow economic growth during and after the Global Financial Crisis (GFC) has impacted on the Commonwealth Budget.
2. Discuss how automatic stabilisers may be expected to work in periods of slower macroeconomic activity.
3. Why does the budget deficit increase in an economic slowdown? What normally happens to the deficit when the economy recovers?
4. What, according to the excerpt, is happening to expenditure on health, and how is it expected to impact on the budget outcome if it continues?

5. Can you think of others increases in government spending that would contribute to a growing structural deficit?

News extract - crowding out

The excerpt appeared in the Australian Financial Review on 12 June 2009. The author is Katja Buhner. The excerpt is reproduced by permission. Questions appear below.

Is crowding out a threat?

Surging government borrowing may have helped the government narrowly avoid a recession, but it hasn't prevented the government from becoming something of a punching bag. The Shadow Treasurer said last week that the government's deficit funding program was "crowding out" other borrowers. But how big a threat is the crowding out issue?

The public sector (Commonwealth and states) has its own funding requirements. So does the private sector – corporate Australia, banks and households.

Over the next 12 months, there will be an explosion of Commonwealth debt as the government spends its way out of the economic downturn. Government bond issues have gone from \$5 billion a month to \$5 billion a year. Private demand for credit however has fallen as companies and households trim spending to cope with the downturn. Hence, for the time being, the two cancel each other out. But crowding out could become a problem when the economy begins to expand - private sector demand for credit will rise to finance capital spending, but governments will still be borrowing. That's when crowding out could occur. The demand for borrowed funds will push yields higher, forcing up interest rates for both households and companies.

In the US, the Congressional Budget Office estimates that each dollar of additional government debt crowds out about 33 cents of private domestic capital.

1. Why does the government need to borrow funds during a period of recession?
2. What are 'government bonds'?
3. Explain why changes in government and private sector demand for borrowed funds 'cancelled each other out' in the early days of the economic downturn in 2009.
4. According to the author, when could crowding out occur?
5. Explain why government demand for borrowed funds can make it more difficult for the private sector to borrow.
6. If the Congressional Budget Office (US) estimate of the extent of crowding out is true, then how much private borrowing would be crowded out by one year of government bond issues in the economic downturn?

Multiple choice questions

Choose the best alternative in the following questions.

1. In an economy where the level of aggregate expenditure was falling, the following automatic stabiliser would come into operation:
 - a. taxation revenue would rise, cutting household spending.
 - b. welfare payments would rise, increasing household spending.
 - c. taxation revenue would fall, causing reduced government spending.
 - d. discretionary government spending would be expected to fall.
2. Budget outcomes are affected by cyclical and structural factors. Cyclical factors refer to:
 - a. the impact of cyclical movements in aggregate expenditure on government revenue and expenditure.
 - b. deliberate policy decisions which allocate funds to areas of government responsibility.
 - c. the need to redistribute income from rich to poor in periods of unemployment.
 - d. changes in the demand for labour in the economy.

3. Balanced budgets
 - a. are effective stabilising tools at all phases of the business cycle.
 - b. have a stabilising effect on economic activity because expenditure is always governed by revenue received.
 - c. may have a destabilising effect on the economy because they have no impact on aggregate expenditure.
 - d. may have a destabilising effect on the economy if they make booms higher and troughs deeper.

4. 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.

5. 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.

6. A contractionary Budget is
 - a. one in which revenue exceeds expenditure.
 - b. expected to reduce the level of aggregate expenditure in the private sector, as well as moving the government budget more towards surplus.
 - c. one in which the net surplus is smaller than that recorded for the previous year.
 - d. one in which more revenue is raised from taxation measures.

7. If a government budgets for a surplus and there is an unexpected increase in the level of economic activity, which of the following is likely to occur?
 - a. there will be an increase in tax revenues and a decrease in the budget surplus.
 - b. there will be a decrease in tax revenues and an increase in the budget surplus.
 - c. there will be an increase in tax revenues and an increase in the budget surplus.
 - d. there will be a decrease in tax revenues and a decrease in the budget surplus.

8. The forecast Budget deficit in Year 1 was \$10 million. Over the course of the year, economic activity improved. Actual revenue increased by \$10 million, and actual expenditure fell by \$2 million. The Budget for Year 2 forecasts a surplus of \$5 million. On this information, the Year B Budget is
 - a. in deficit.
 - b. expansionary.
 - c. contractionary.
 - d. balanced.

9. 'Crowding out' may occur when
 - a. the government borrows from overseas sources to finance its budget deficit, thus causing depreciation of the exchange rate.
 - b. the government is in surplus, so it is out of the market for private sector funds.
 - c. interest rates fall in line with a government deficit.
 - d. the government borrows to finance its budget deficit, thus increasing the competition for loanable funds throughout the economy .

10. If the actual budget surplus is greater than the forecast budget surplus, this would suggest
- the government has made policy changes to reduce spending since the budget.
 - the actual level of economic activity is lower than that forecast at budget time.
 - tax receipts have fallen during the year.
 - the actual level of economic activity is higher than that forecast at budget time.

Data interpretation

The table below shows economic indicators for a hypothetical economy .

Year	CPI	Unemployment rate	Interest rates (cash rate % p.a.)	Index of manufacturing activity
1	105.0	7.6	5.5	108
2	108.3	7.4	6.25	112
3	112.5	7.0	6.75	115
4	114.2	7.4	6.5	110

- Calculate the inflation rate, and the percentage change in manufacturing activity between Years 3 and 4. [2 marks]
- Use the information in the table to draw conclusions about the apparent level of economic activity in this economy over the four year period. [4 marks].
- Describe the fiscal policy measures that would be appropriate for Year 4. Explain how they will impact on the level of economic activity? [4 marks].

Budget extract

Read the excerpt below, and answer the questions that follow.

In 2017-18, the Australian Government general government sector recorded an underlying cash deficit of \$10.1 billion (0.6 per cent of gross domestic product (GDP)). Real GDP grew by 2.9 per cent in 2017-18, slightly stronger than the 2.75 per cent growth forecast in the 2017-18 Budget. Growth in consumption, non-mining business investment and public final demand was stronger than expected, while the detraction from mining investment was smaller than expected. These positive impacts were partly offset by dwelling investment and net exports which detracted from growth.

Labour market conditions were strong with almost 350,000 jobs created in 2017-18. Employment grew by 2.7 per cent through the year to the June quarter 2018, well above the 1.5 percent growth forecast in the 2017-18 Budget. The unemployment rate was 5.4 per cent in the June quarter 2018, lower than the 5.75 per cent forecast in the 2017-18 Budget. The Wage Price Index increased by 2.1 per cent through the year to the June quarter 2018, with growth in the final quarter slightly stronger at 0.6 per cent. The Wage Price Index growth forecast in the 2017-18 Budget was 2.5 per cent.

Source: Final Budget Outcome 2017-2018 (adapted)

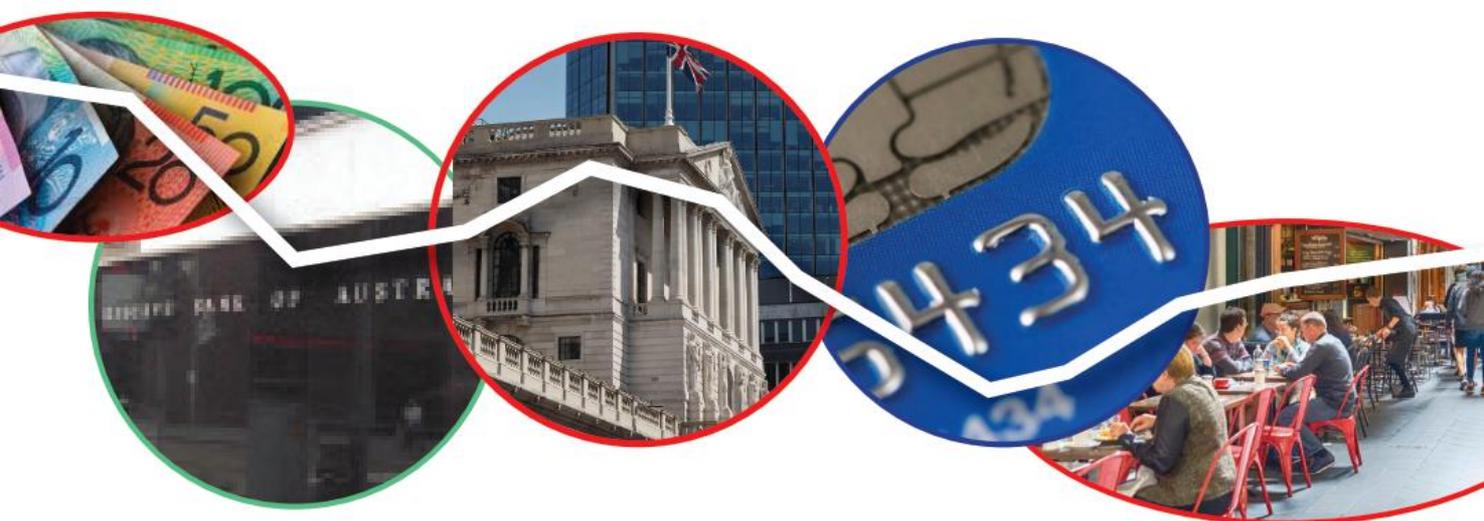
- What is meant by the phrase 'government budget deficit'? [2 marks]
- Explain how automatic stabilisers could have contributed to the improvement in the Budget position. [3 marks]
- Given the information in this release, comment on the stance the government might take in its 2019 Budget. [5 marks]

Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer. Some questions refer to concepts developed in other chapters and extended in chapter 12.

1.
 - a. Distinguish between automatic and discretionary stabilisers. [8 marks]
 - b. Explain, using examples, how automatic stabilisers operate in an economic upswing. [12 marks]
2. In an economic boom, the government would traditionally announce contractionary policy measures such as increased taxation and reduced government expenditure. Give a detailed account of the effect of such measures have on aggregate levels of consumption and investment. [20 marks]
3.
 - a. Identify reasons why the actual budget outcome at the end of the year could show a greater surplus than had been forecast. [10 marks]
 - b. Explain how a Budget deficit can increase the level of economic activity in a recession? Is it certain that the deficit will boost economic activity? [10 marks]
4.
 - a. Using a diagram, explain the meaning of 'inflationary gap'? [4 marks]
 - b. Outline the fiscal policy which would traditionally be introduced during a period of extended inflation. [6 marks]
 - c. Explain the disadvantages fiscal policy has in dealing with inflation and a booming economy? [5 marks]
5. Describe the characteristics of a trough in the business cycle. Explain the fiscal policy measures that would traditionally be applied to increase the level of economic activity when it is lower than anticipated. [20 marks]
6. Discuss the merits and weaknesses of the traditional fiscal policy measures which would be applied in the boom phase of the business cycle. [20 marks]
7. The final budget outcome for 2017-18 was a \$19.3 billion improvement compared with the underlying cash deficit estimated at the time of the 2017-18 Budget. Total receipts were \$13.4 billion higher than expected and total payments were \$6.9 billion lower than expected.
 - a. Discuss four reasons why the final outcome in June 2018 may have been a lower cash deficit than estimated in May 2017. [12 marks]
 - b. To what extent is it appropriate for a government to balance its budget? [8 marks].

Monetary Policy 13



Chapter concepts and skills

- *the concepts of monetary policy and the ‘cash rate’*
- *the circumstances under which the Reserve Bank of Australia (RBA) may change the cash rate*
- *how monetary policy affects the level of economic activity i.e. the ‘transmission mechanism’*
- *the meaning of expansionary, contractionary and neutral monetary policy stances, and the impact of the different policy stances on the level of economic activity*
- *the strengths and weaknesses of monetary policy*
- *contemporary monetary policy in Australia*
- *use economic models to convey economic theory and reasoning about Australia’s policy mix*

Monetary policy refers to the interest rate decisions taken by the Reserve Bank of Australia to affect monetary and financial conditions within the economy, with the aim of achieving low inflation (price stability) and sustainable economic growth. 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. When the Reserve Bank changes the cash rate, the change often flows through to other interest rates, which affect the level of spending in the economy. Changes in interest rates also influence the exchange rate, which affects net exports.

So monetary policy, through changes in interest rates, can have an important effect on the level of output, employment and prices.

The financial sector

To understand how monetary policy works we first investigate the role of financial markets and interest rates. Financial markets are an intermediary between savers and investors, or lenders and borrowers of funds. Most financial institutions - banks, building societies, finance companies, merchant banks and credit unions - serve this intermediary role. They borrow from individuals or firms with excess funds and lend to those who need funds. They are termed financial intermediaries because they 'come between' or 'mediate' between people who have surplus funds and those who want to borrow funds.

There are three main types of financial markets:

- loan markets - in which business firms borrow money to purchase assets and capital equipment, and households borrow to fund their housing mortgage, buy consumer durables and pay for holidays. Banks, finance companies and credit unions are part of the loan market;
- bond markets - in which firms and governments sell bonds to raise finance. A bond is also known as a fixed interest security, and is the main method by which governments fund a budget deficit; and
- share markets - in which firms can obtain finance by issuing new shares through the stock market.

A well-functioning financial sector is critical to the economy's health because of its role in providing finance. Money and credit facilitate 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;

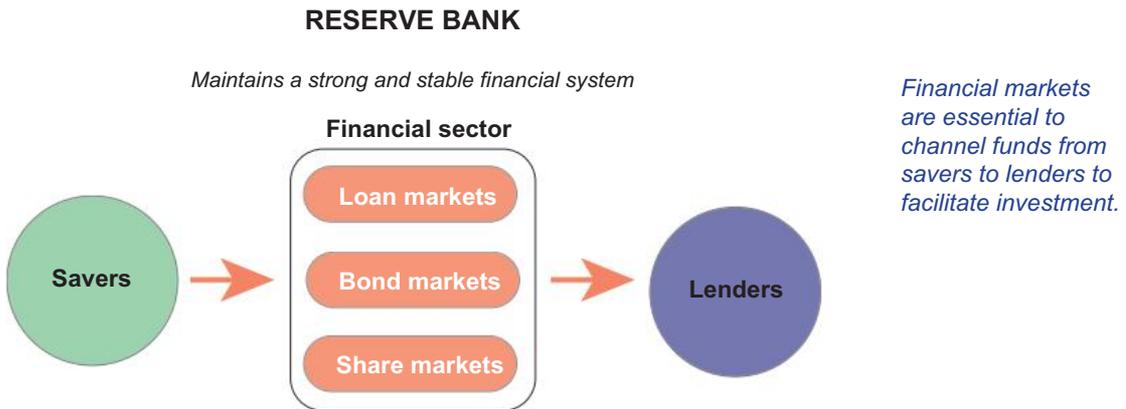


Figure 13.1 The financial sector

- a unit of measurement – money measures and compares prices, incomes and profit; and
- a store of value – money can be saved and used for future transactions.

The financial sector is important because it is linked to every sector of the economy. A stable financial system is a key ingredient in ensuring sustainable economic growth. A crisis such as the failure of financial institutions can quickly lead to a major economic recession. This is precisely what led to the global financial crisis of 2008-09.

An important role for the government is to ensure the stability of the financial system. In most countries this role was the basis for the creation of a central bank. In Australia, the central bank is the Reserve Bank of Australia (RBA). In the United States, the central bank is called the Federal Reserve Bank, and in the United Kingdom it is known as the Bank of England. In each of these countries, the central bank is responsible for administering monetary policy and the maintenance of overall financial stability.

Interest rates

Interest rates represent the price of credit – a payment from borrowers to lenders for the use of funds. Interest represents the cost of borrowing money over a period of time. In other words, interest rates are the opportunity cost or the price of money. A loan at 7 per cent means that \$7 in annual interest will be charged for every \$100 borrowed. Interest rates also represent the reward for saving – the return people get for not spending. Savers determine the supply of funds while borrowers determine the demand for funds. The interest rate in a particular market is the price that equates the demand and supply of funds. Because a large proportion of

Numeracy - locate and access data

Interest rates vary according to the amount of risk involved, and the length of time over which the risk is held. Generally, the greater the risk, the higher the interest rate, and the longer the term, the higher the rate. Find the current interest rates for the following forms of credit in Australian money markets and capital markets:

the RBA cash rate	180 day bank bills	your savings transaction account
3 year Treasury bonds	10 year Treasury bonds	a two year bank fixed deposit
housing loan (variable rate)	business overdraft (small business)	credit cards

Record the sources of your data. Chart the course of ONE of these interest rates over the last three years

transactions in our economy rely on credit and borrowing, changes in interest rates can have a significant effect on the level of spending and economic activity.

It is important to distinguish between nominal interest rates (rates that are not adjusted for the rate of inflation) and real interest rates. The real interest rate is the nominal rate minus the rate of inflation. For example, if the nominal interest rate is 7 per cent and the expected inflation rate is 2 per cent, then the real interest rate would be 5 per cent. The real rate of interest is an important influence in economic decisions involving borrowing and saving. The real rate of interest is a measure of how much borrowers actually pay and how much lenders receive in terms of purchasing power. As we would expect, borrowers prefer low real interest rates, while savers and lenders prefer high real interest rates. Nominal interest rates will tend to reflect changes in inflation. If inflation increases, then nominal interest rates will rise as well.

What is monetary policy?

Monetary policy refers to those actions taken by the Reserve Bank of Australia to affect monetary and financial conditions in the economy by affecting the price of money and credit. Monetary policy involves setting the interest rate on overnight loans in the money market (the cash rate). The objectives of monetary policy are defined in the Reserve Bank Act (1959):

- the stability of the currency (price stability or low inflation);
- the maintenance of full employment (low unemployment); and
- the economic prosperity and welfare of the people of Australia.

The most important objective, arguably, is price stability. Inflation reduces the value of money and undermines the confidence of households and firms. Inflation undermines economic growth because it increases uncertainty, redistributes income

and encourages investment in non-productive assets. Inflation can undermine the value of the currency and erode the value of people's savings. Inflation leads to higher interest rates which reduces private sector spending and lowers economic growth. If a country's inflation rate is higher than other countries, then its exports will be less competitive. Domestic producers will also find it difficult to compete with imported goods and services. For these reasons price stability is seen as a crucial objective in order to achieve sustainable (non-inflationary) economic growth. Cost inflation is often associated with a rise in unemployment and a stagnant economy - often referred to as stagflation.

Keeping inflation low also helps to achieve the second objective of 'the maintenance of full employment' because it promotes business confidence and encourages investment, which underpins employment growth. Full employment is synonymous with the 'natural rate' of unemployment. This is the rate that consists of just frictional and structural unemployment. At the natural rate, cyclical unemployment is zero. For Australia, the natural rate of unemployment is estimated to be around 5 per cent. However, this rate does gradually change over time due to changes in the labour market and changes in government policy. In the 1980s for example, the natural rate of unemployment was above 6 percent. It has declined over time, probably because the labour market became more flexible.

The Reserve Bank believes that by achieving the objectives of price stability and full employment it can achieve the third objective of economic prosperity. Prosperity refers to rising living standards over time, usually measured as an increase in real GDP per capita. Keeping the economy at full employment and maintaining low inflation will promote long term economic growth and rising living standards.

For over twenty-five years, most central banks have set an inflation target in order to promote financial stability and protect the value of money. In 1993, the Reserve Bank adopted a medium term strategy of keeping consumer price inflation between 2 and 3 per cent, on average, over the business cycle. This is referred to as inflation targeting.

The Reserve Bank of New Zealand pioneered inflation targeting in 1989. Most developed countries now set an explicit inflation target.

Inflation can be measured using the 'headline' or the 'underlying' rate. The headline rate is measured by the consumer price index (CPI) – the most commonly used measure of inflation. The Consumer Price Index measures quarterly changes in the price of a 'basket' of goods and services which account for a high proportion of expenditure by metropolitan households. Underlying or core inflation is the headline inflation rate minus volatile and seasonal elements. Economists prefer to focus on measures of underlying inflation because headline inflation numbers can be misleading due to certain volatile categories. What are the key volatile components of the Consumer Price Index? One is fruit and vegetable prices, which are subject to seasonal factors. Another is retail petrol prices, which reflect movements in the world oil price and changes in the exchange rate. Removing these

The Reserve Bank's inflation target is between 2 and 3% over the business cycle. Underlying measures of inflation provide a more accurate view of core inflation than the 'headline' CPI rate.

Year ended ...	Headline CPI	<i>excluding volatile items</i>	Weighted median	Trimmed mean
Jun 2015	1.5	2.0	2.2	2.2
Sep 2015	1.5	2.1	2.1	2.2
Dec 2015	1.7	2.1	1.9	2.2
Mar 2016	1.3	1.7	1.4	1.8
Jun 2016	1.0	1.6	1.3	1.7
Sep 2016	1.3	1.7	1.2	1.7
Dec 2016	1.5	1.3	1.3	1.6
Mar 2017	2.1	1.5	1.7	1.8
Jun 2017	1.9	1.5	2.0	1.8
Sep 2017	1.8	1.9	2.0	1.8
Dec 2017	1.9	1.9	2.0	1.8
Mar 2018	1.9	2.0	2.0	1.9
Jun 2018	2.1	1.8	1.7	1.8
Sep 2018	1.9	1.2	1.7	1.8

Source: RBA Statistical Tables G1 - Consumer Price Inflation

Figure 13.2 Measures of inflation

volatile components from the headline rate can have quite a dramatic effect on the core rate of inflation. The Reserve Bank calculates its own measure of underlying inflation using two statistical measures known as the 'weighted median' and the 'trimmed mean'. These are basically averaging techniques applied to eliminate the top and bottom of the CPI price series and provide an approximate estimate of the 'true' rate of inflation.

Figure 13.2 shows annual inflation data (calculated quarterly) for the Australian economy between 2015 and 2018. As described above, there are four measures - the headline CPI; the CPI excluding volatile items; the weighted median and the trimmed mean. The Reserve Bank averages the weighted median and the trimmed mean to derive its measure for underlying inflation. In the September quarter of 2018, Australia's headline rate of inflation was 1.9 per cent, with each of the underlying measures were below 2 per cent.

How is monetary policy implemented?

The Reserve Bank monitors domestic and international economic conditions to assess the state of the economy with respect to the business cycle. The Bank not only monitors changes in prices, but tracks domestic and international data on wages, the retail sector, the labour market, the housing sector, business investment, the exchange rate, the terms of trade, the balance of payments and the national accounts. RBA staff also talk to business people on a regular basis.

The nine-member RBA Board meets on the first Tuesday of each month to review these indicators. Bank staff brief the Board on current economic conditions, after which the Board deliberates on the target cash rate for the next month.

The Reserve Bank conducts monetary policy using the cash rate - the interest rate which banks pay to borrow funds from other banks in the money market on an overnight basis. It does this through its domestic or open market operations with financial institutions in the short term money market. The cash rate is determined by the demand for and supply of overnight funds between financial institutions and the Reserve Bank. These funds are referred to as exchange settlement funds. If the RBA wants to raise interest rates, it will enter the money market to create a shortage of cash which will increase the price of cash - the cash rate - and will cause other interest rates (for example, the 90 day bank-bill rate, the prime rate, personal loans and mortgage rates) to rise. The flow on occurs as holders of financial assets and debt need to adjust the rates they offer or charge, on both deposits and loans, to account for changing levels of liquidity and risk, and to be competitive with other institutions.

Figure 13.3 illustrates recent movements in the cash rate, and describes various monetary policy stances. Monetary policy is forward-looking, reflecting the RBA's expectations about the future. In current economic conditions, a cash rate above 4 per cent tends to imply a contractionary stance, while a cash rate below 4 per cent would imply an expansionary stance. The Reserve Bank may also adopt a neutral stance. This means setting interest rates at a level that is neither expansionary nor

Figure 13.3 Recent monetary policy changes

Date	Change in cash rate	New cash rate target	Underlying Inflation	Monetary policy stance
2 Nov 2011	-0.25	4.50	2.5	Contractionary
7 Dec 2011	-0.25	4.25	2.5	Neutral
2 May 2012	-0.50	3.75	2.2	Expansionary
6 June 2012	-0.25	3.50	2.2	Expansionary
3 Oct 2012	-0.25	3.25	2.2	Expansionary
5 Dec 2012	-0.25	3.00	2.3	Expansionary
8 May 2013	-0.25	2.75	2.4	Expansionary
7 Aug 2013	-0.25	2.50	2.5	Expansionary
4 Feb 2015	-0.25	2.25	2.2	Expansionary
6 May 2015	-0.25	2.00	2.3	Expansionary
4 May 2016	-0.25	1.75	1.5	Expansionary
3 Aug 2016	-0.25	1.50	1.5	Expansionary

The Reserve Bank increases the cash rate when the economy expands too fast and inflation rises above the target range of 2-3%.

The Reserve Bank decreases the cash rate when the economy contracts, unemployment increases and inflation falls.

Source: RBA

contractionary. At the time of writing, a neutral stance is consistent with the cash rate being around 3.5 to 4 per cent, consistent with the economy is operating at close to potential GDP.

The transmission mechanism

There are a number of ways in which changes in interest rates affect the level of economic activity (see figure 13.4). The possible paths are referred to as the ‘monetary policy transmission mechanism’.

The first thing to consider is why a change in the cash rate would cause other interest rates to move. Movements in the cash rate quickly pass through to ‘professional’ markets such as the short term money market and the market for bonds, and then pass more slowly to retail rates for businesses and consumer loans. This occurs because people adjust the types of financial assets they hold to account for risk and their need for liquidity (the ability to convert assets to cash).

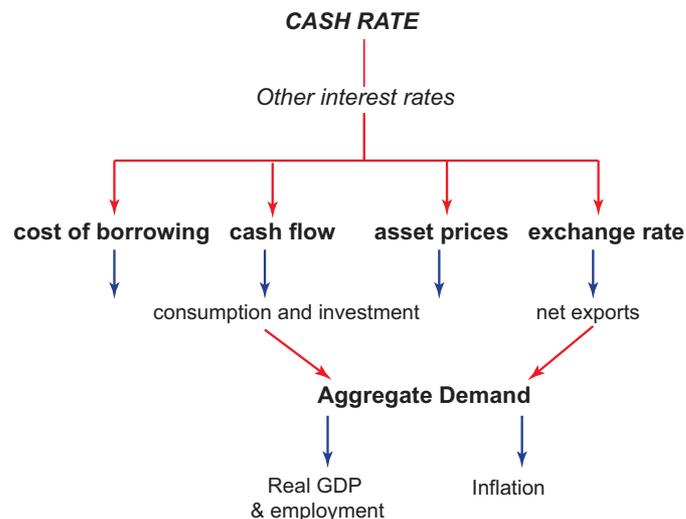
Changes in interest rates then lead to other changes that affect output, employment and prices, including:

- the return on saving and the cost of borrowing;
- the cash flow of households and firms;
- wealth and asset prices; and
- the exchange rate.

We will follow these transmission channels, assuming in each that the cash rate has been increased (so policy has a contractionary bias). Firstly, changes in interest rates have important effects on households’ decisions to save and firms’ decisions

Figure 13.4 The transmission mechanism

Changes in interest rates affect the spending decisions of both households and business firms (i.e. consumption and investment). Interest rates also affect the exchange rate, which affects net exports. In this way a change in interest rates can affect economic growth and inflation.



to invest. A rise in interest rates will increase the incentive to save because it will increase the return on deposits with financial institutions and increase the opportunity cost of spending household funds on consumption. A rate rise also increases the cost of borrowing and will thus reduce demand by households borrowing to fund housing and durable goods. 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 investment projects. Hence, a rise in interest rates will decrease both consumption and investment.

Interest rates also affect the cash flow position of households and firms. A rise in housing mortgage rates, for example, will reduce the amount of income households have available to spend on other goods and services. Most firms are net borrowers, which means that interest payments on their overdraft and loan accounts represent a significant cost of operation. If interest rates rise then firms will have less free cash to pay expenses and are thus less likely to expand production or increase employment. On the other hand, rising rates will increase the amount of income that households and businesses get from surplus funds held in interest-bearing deposits.

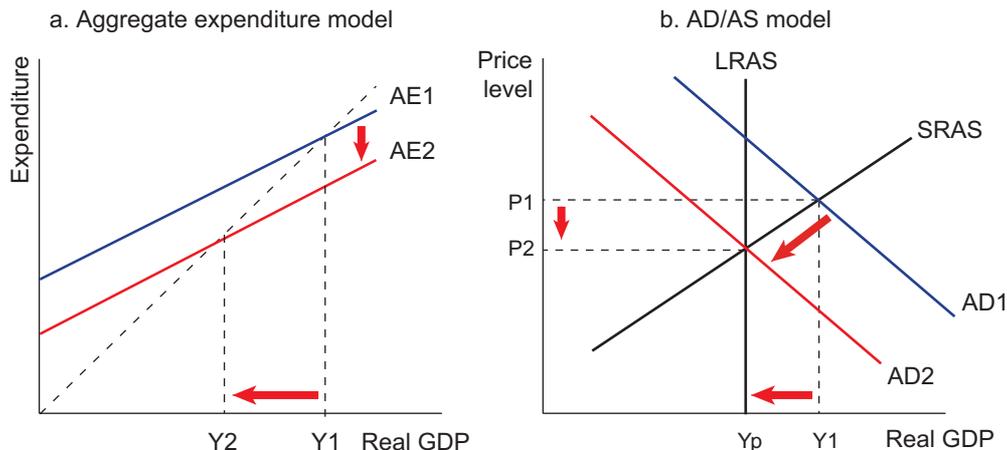
Interest rates can have important effects on wealth and asset prices, particularly shares and property. A rise in interest rates makes shares less attractive compared to interest-bearing deposits. When share prices decline, so does the wealth of households with share portfolios. This may lead to a decrease in consumption spending, and also reduces the equity households can offer when seeking to borrow funds. A rise in interest rates will also tend to have a negative effect on property prices, leading to similar results.

Interest rates also influence the exchange rate. As explained in chapter 6, lower interest rates reduce capital inflow, which will reduce demand for the currency and lead to currency depreciation. Rising interest rates, on the other hand, increase expected returns on interest bearing securities, which will increase demand for the currency and lead to a currency appreciation. Other things being equal, a higher AUD will reduce exports (and thus activity in exporting sectors) and make imports more competitive.

These types of transmission explain why we would expect any tightening of monetary policy to reduce aggregate demand and the pressure on prices.

Contractionary monetary policy

The Reserve Bank will adopt a contractionary stance when economic indicators suggest the economy is growing too fast, causing inflationary pressures to rise. Even small rises in the cash rate have a dampening effect on private spending, especially durable consumption and investment spending. As explained above, household and business spending is negatively related to interest rates. Higher interest rates



The Reserve Bank will use contractionary monetary policy (raising the cash rate) when

- inflation is above the target range ($> 3\%$);
- the economy is growing too fast ($> 4\%$);
- actual GDP is above potential GDP; and
- unemployment is below the natural rate ($< 5\%$);

Figure 13.5 Contractionary monetary policy

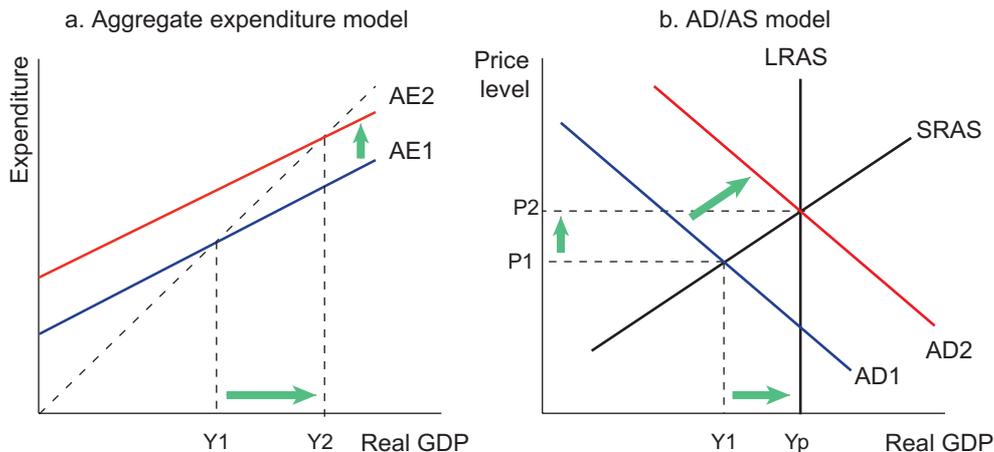
will also attract capital inflow – increasing the demand for the Australian dollar, leading to currency appreciation and reducing net exports.

As illustrated in figure 13.5, aggregate expenditure will fall because consumption, investment and net exports will fall. Panel (a) uses the aggregate expenditure model to show the impact of the decrease in aggregate expenditure on the level of output via the multiplier process. Real GDP and economic activity contract from Y1 to Y2. Panel (b) uses the AD/AS model to show the impact of higher interest rates. The AD curve shifts to the left, so growth in real GDP, and prices, is slower.

Expansionary monetary policy

The Reserve Bank will adopt an expansionary stance when economic activity slows, as indicated by low rates of growth, rising unemployment and lower inflation. The Reserve Bank will decrease the cash rate in order to stimulate the economy and keep inflation from falling below the target threshold of 2 per cent.

Lower interest rates tend to increase household cash flow and reduce the opportunity cost of spending, and should encourage both households and firms to increase borrowing. Lower interest rates will also cause the Australian dollar to depreciate because there will be a decrease in capital inflow, and/or an increase in capital outflow as domestic holders of surplus funds seek higher rates of interest overseas. A lower AUD will stimulate net exports.



The Reserve Bank will use expansionary monetary policy (lowering the cash rate) when

- inflation is below the target range (< 2%);
- the economy is growing below the long run average rate of growth (< 3%)
- actual GDP is below potential GDP
- unemployment is above the natural rate (> 5%); and / or
- the economy is hit by a negative aggregate demand shock

Figure 13.6 Expansionary monetary policy

The impact of expansionary policy on aggregate spending is shown in figure 13.6. Panel (a) uses the Keynesian aggregate expenditure model to show the impact of the increase in AE on the level of output via the multiplier process. The AE line will shift up because a decrease in interest rates will increase consumption, investment and net exports. Real GDP and economic activity will expand. Panel (b) uses the AD/AS model - the AD curve will shift to the right, causing both real GDP and the price level to rise.

Inflation targeting

The RBA adopted an inflation-targeting focus in 1993, after previous approaches to monetary policy had failed to deliver acceptable price stability and macroeconomic outcomes. The target was to achieve an inflation rate between 2-3 per cent, on average, over the course of a business cycle. By keeping inflation low, it was argued, it would be possible to keep the economy growing for an extended period. Changes in the inflation rate serve as a useful leading indicator of economic activity. If prices begin to rise it tends to indicate that the economy is starting to accelerate so the Reserve Bank will consider raising the cash rate in order to curb inflationary pressures. When inflation falls, it is usually a sign that demand and cost pressures are low, perhaps due to rising unemployment.

Period	Real GDP growth	Unemployment rate	CPI inflation	Underlying inflation
1973 - 1993	2.8	6.9	8.8	8.4
1993 - 2017	3.2	6.3	2.5	2.6
2007 -2017	2.5	5.4	2.3	2.5

Source: DeBelle, G., (2018) *Twenty Five Years of Inflation Targeting In Australia*. RBA.

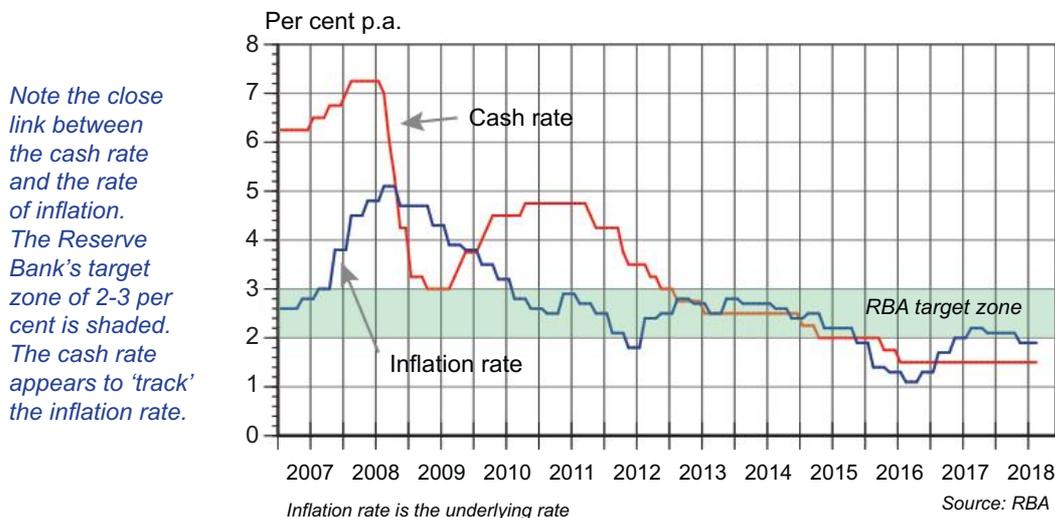
Figure 13.7 Inflation under inflation targeting

Without inflation targeting, it was argued, economic expansions end when the economy peaks, prices rise and high interest rates push the economy into a contraction. If inflation is kept low while the economy is growing, then economic expansions can be sustained and boom-bust cycles can be avoided.

As figures 13.7 and 13.8 illustrate, inflation targeting appears to have worked over time. Importantly, the growth and employment objectives have also been achieved (although growth has been slightly lower over the decade since the GFC), and there has been less variability (i.e. no periods of inflation breakout or large downturns). This is despite a number of significant economic challenges over that time - such as the Asian Crisis in 1997; the introduction of a GST in 2000; and the GFC of 2008.

The close link between the cash rate and inflation is shown in figure 13.8. The Reserve Bank’s target zone of 2-3 per cent is shaded on the graph. The cash rate ‘tracks’ the inflation rate. The cash rate was quickly raised in 2007-08 as inflation increased due to the mining boom. The global financial crisis of 2008-09 saw inflation tumble and interest rates followed suit. The cash rate was again raised

Figure 13.8 Inflation and the cash rate



during 2010 as the economy recovered and inflation closed on 3 per cent in mid-2011. The mining construction boom ended in 2012 and economic activity and inflation began to fall. The Reserve Bank reacted by adopting an expansionary stance, reducing the cash rate to a record low of 1.5 per cent, where it remains at the time of writing (late 2018).

The RBA has also changed the way it communicates monetary policy settings over this period. The importance of announcing an inflation target and being seen to pursue that target is vital in terms of influencing the expectations of firms and households. Policy decisions each month are now explained in both a media release and Board Minutes, together with a quarterly Statement on Monetary Policy.

Australia is not the only country to have adopted inflation targeting as the guiding objective for monetary policy. Other countries such as New Zealand, Canada, the United Kingdom, and Sweden have also adopted inflation targets. The results have been very encouraging. Since the adoption of inflation targets, inflation in the group of inflation targeting countries has fallen. The importance of announcing an inflation target and being seen to pursue that target is vital in terms of influencing the expectations of firms and households. The economic growth and inflation data also show that the inflation targeting approach to monetary policy has been successful for the Australian economy in keeping inflation low and in promoting a satisfactory rate of economic growth.

But it is important to question whether the framework remains the right one for current conditions, and whether there are enhancements that could be made to it.

Strengths of monetary policy

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. The Reserve Bank Board meets every month to assess the state of the economy, so the decision and implementation time lags for monetary policy are relatively short compared with fiscal policy. Interest rate decisions can be made without authorisation by Parliament, which also adds to its flexibility.

The Reserve Bank is an independent authority and monetary policy is independent of the political process. Decisions made by the Reserve Bank are free of political bias. 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'.

It is recognised that monetary policy is more effective in the control of high levels of aggregate demand and inflation than during the contraction or recession phase of the business cycle. Tighter money policy tends to have a greater impact than easy money policy because higher interest rates have more direct effect on economic

decisions than do lower rates. When interest rates are high, they assume a very important role in the decisions of consumers who have to borrow, or investors comparing likely rates of return.

Another strength relates to the important link between interest rates and the exchange rate. Changes in interest rates affect the interest rate differential with other countries, which affects movements in financial capital. A cut in interest rates, for example, will lead to a fall in capital inflow (foreign investment). This will reduce the demand for the currency and lead to a depreciation. Net exports will be stimulated as export prices fall and import prices rise. Thus an expansionary monetary policy (reducing interest rates) will not only increase consumption and investment, but also increase net exports. The effect of monetary policy on net exports, via the exchange rate, is an important part of the transmission mechanism.

Weaknesses of monetary policy

Both fiscal and monetary policy suffer from time lags. Time 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 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; and
- the action or implementation lag: the time taken to implement the policy decision.

The inside lag for monetary policy is relatively short. This is an advantage compared with fiscal policy where the inside lag is very long.

The outside lag refers to the time it takes for the policy to actually affect the level of economic activity – the effect lag. The effect lag for monetary policy is longer than for fiscal policy, because monetary policy works indirectly through interest rates to affect the level of aggregate demand. For example, after the global financial crisis of 2008-09, interest rates were lowered to very low levels but it took time before the private sector began to borrow and invest. Fiscal policy works more directly as it changes either government spending or taxation which affect aggregate demand more quickly.

Monetary policy is more effective in a period where economic activity is high than when the economy is in contraction. Low interest rates may not be sufficient to stimulate private spending when economic conditions are pessimistic. At the time of writing, the cash rate has been at a record low for over two years, yet business investment has been subdued for most of that period. If firms are pessimistic about economic conditions in the future, then they may not wish to borrow funds and invest even though the cost of borrowed money is relatively low. The old adage that ‘you can lead a horse to water, but you can’t make him drink’ is

an appropriate description of this weakness of monetary policy. Some economists liken expansionary monetary policy to ‘pushing on a piece of string’.

An excellent example of the ineffectiveness of monetary policy during a recession was the United States economy during the GFC of 2008–09. The cash rate in the U.S. (known as the Federal Funds rate) was reduced from 3.5 per cent to just 0.25 per cent, but its impact on the economy was negligible. This situation is referred to as a ‘liquidity trap’. If consumer and business confidence is very weak then low interest rates may not help to stimulate consumption and/or investment. Direct government spending and taxation cuts may be required to lift the economy out of its slump.

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 everyone. For example, the Reserve Bank cannot put interest rates up in Western Australia, yet leave them unchanged in the rest of Australia. Similarly, the Reserve Bank cannot exclude a particular industry such as the car industry from a rise in interest rates. Monetary policy is a ‘one size fits all’ type of policy.

Contemporary monetary policy

Rates of economic growth slowed after 2012 as demand for iron ore fell, the terms of trade fell from their highs, and the mining construction boom slowed. As figure 13.9 shows, income growth, measured by the percentage change in Real Gross Domestic Income (real GDI), was lower than the GDP growth rate due to the fall in the terms of trade. In the March and June quarters of 2015, the economy experienced an income recession where the growth in real GDI was actually negative. The fall in the terms of trade caused the economy to contract. The unemployment rate had risen since the end of the mining construction boom

Figure 13.9 Recent monetary policy

Year ending	Real GDP % change	Real GDI % change	Inflation rate %	Unemployment rate %	Terms of trade index	Cash rate %
June 2012	3.9	4.0	1.2	5.2	142.6	3.50
June 2013	2.6	0.5	2.4	5.7	129.0	2.75
June 2014	2.6	1.8	3.0	6.0	124.1	2.50
June 2015	2.4	0.0	1.5	6.1	111.2	2.00
June 2016	2.8	0.7	1.0	5.7	100.0	1.75
June 2017	2.1	5.0	1.9	5.6	114.5	1.50
June 2018	2.9	3.4	2.1	5.4	116.7	1.50

% change on previous period

Sources: ABS 5206.0 Table 34; 6401.0; 6202.0; , RBA

RBA Media Release, September 4 2018.

At its meeting today, the Board decided to leave the cash rate unchanged at 1.50 per cent.

The global economic expansion is continuing. A number of advanced economies are growing at an above-trend rate and unemployment rates are low. Growth in China has slowed a little, with the authorities easing policy while continuing to pay close attention to the risks in the financial sector. Globally, inflation remains low, although it has increased in some economies and further increases are expected given the tight labour markets.

Financial conditions remain expansionary, although they are gradually becoming less so in some countries. There has been a broad-based appreciation of the US dollar this year. In Australia, money-market interest rates are higher than they were at the start of the year, although they have declined somewhat since the end of June. Some lenders have increased mortgage rates by small amounts, although the average mortgage rate paid is lower than a year ago.

The Bank's central forecast is for growth of the Australian economy to average a bit above 3 per cent in 2018 and 2019. In the first half of 2018, the economy is estimated to have grown at an above-trend rate. Business conditions are positive and non-mining business investment is expected to increase. Higher levels of public infrastructure investment are also supporting the economy, as is growth in resource exports. One continuing source of uncertainty is the outlook for household consumption. Household income has been growing slowly and debt levels are high. The drought has led to difficult conditions in parts of the farm sector.

Source: RBA Media Release, 4 September, 2018

in 2012. For much of the period shown in the table it was around 6 per cent, falling between 2016 and 2018 as the growth rate in real GDP began to rise. Given the reduction in economic activity and higher unemployment, the inflation rate fell to very low levels. It is important to note that the reductions in the cash rate in this period were mainly due to falls in the inflation rate. This was to prevent the real cash rate (the nominal cash rate less the rate of inflation) from rising.

The stance of monetary policy over the past three years (2016–2018) has been expansionary because the cash rate (at a record low of 1.5 per cent through most of that period) is below what is regarded as the neutral rate. Economic conditions improved globally, with higher growth rates, small rises in inflation and increased industrial production. Yet official interest rates in Australia have not risen! One reason is that underlying inflation remains below 3 per cent. Whilst real growth is now just above 3 per cent p.a., the RBA has commented that it will not be confident that the economy is strengthening until there is some improvement in wage growth, after two years in which wage rises were the lowest for decades. This appears due to considerable labour force underutilisation (unemployment and underemployment) although the official unemployment figure has remained low, as indicated in the sidebar. Excess capacity in the labour market means that firms are able to find the workers they need, and that people in jobs are less likely to bargain for wage rises that they otherwise would be. When spare capacity is fully absorbed, wage growth and inflation should increase.

In recent years, a couple of issues have arisen which may create challenges for RBA policy. Firstly, the level of household debt is high. Low interest rates have enabled easy borrowing, but slow wage growth has meant it has been difficult for households to pay down their debt, complicated by slower housing markets in some parts of the country. The availability of credit may also tighten if the Royal Commission into the Banking, Superannuation and Financial Services Industry recommends greater prudence in bank lending practices. Secondly, there is some prospect of 'trade wars' which would likely cut demand for Australian exports and have a downward impact on the exchange rate - raising the prospect of higher cost inflation.

Whilst it is likely that the next movement in official interest rates will be upwards, the extent and timing of that movement is not yet clear.

Labour force underutilisation			
	1	2	3
May 2016	5.7	8.4	14.1
Nov 2016	5.7	8.5	14.2
May 2017	5.6	8.7	14.3
Nov 2017	5.5	8.4	13.9
May 2018	5.4	8.3	13.7
Nov 2018	5.1	8.2	13.3

Source: ABS 6202.0 Table 22

Column 1 - unemployment rate (%)

Column 2 - underemployment rate (%)

Column 3 - underutilisation rate (%)

Worksheet

Read the chapter to answer the following questions.

- Outline the role of the financial sector.
- What are the three types of financial markets?
- Outline the three functions of money.
- Explain why a stable financial system is important to the economy.
- What do interest rates represent?
- Distinguish between nominal and real interest rates. Which is more important for economic decisions?
- List the three objectives of monetary policy.
- Outline three key benefits of low inflation?
- Distinguish between the headline and the underlying rate of inflation.
- How does the Reserve Bank influence interest rates in the economy?
- Briefly describe the four channels in the monetary transmission mechanism.
- Explain the influence that changing interest rates have on the exchange rate.
- When would the Reserve Bank want to 'tighten' monetary policy?
- Outline the meaning of inflation targeting.
- Explain the key strengths of monetary policy.
- Explain the key weaknesses of monetary policy.
- Why is monetary policy considered ineffective during a recession?

Multiple choice

Choose the best alternative in the following questions.

1. The most important monetary policy tool of the Reserve Bank is
 - a. the Budget deficit.
 - b. the exchange rate.
 - c. the cash rate.
 - d. the 90 day bank bill rate.

2. If the rate of interest on bank loans is 10% and the expected rate of inflation is 3% and the economic growth rate is 4%, then the real rate of interest on bank loans is
 - a. 13%.
 - b. 7%
 - c. 6%
 - d. 3%

3. 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.

4. According to the Reserve Bank Act, what are the Reserve Bank of Australia's main objectives in implementing monetary policy?
 - 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

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 the economy is producing at a level that 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. The economy is experiencing inflation and the Reserve Bank decides to pursue a tighter monetary policy. Which set of actions would be most consistent with this policy?
 - a. creating a shortage of funds in the cash market to lower the cash rate.
 - b. creating a shortage of funds in the cash market to raise the cash rate.
 - c. creating a surplus of funds in the cash market to lower the cash rate.
 - d. creating a surplus of funds in the cash market to raise the cash rate.

8. 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.

9. A significant problem with monetary policy is that
 - a. Reserve Bank of Australia decisions can be influenced by the Treasurer.
 - b. interest rates can only be changed by 0.25%.
 - c. consumers do not react to interest rate increases during a boom.
 - d. it may not be effective during a recession.

10. Suppose the Reserve Bank lowers the cash rate. Put the following changes in order in which they occur:
 - i. Short-term interest rates fall.
 - ii. Unemployment rate falls.
 - iii. Inflation rate increases.
 - iv. Aggregate demand increases.
 - a. i – ii – iii – iv
 - b. iv – iii – ii – i
 - c. i – iii – iv – ii
 - d. i – iv – iii – ii

11. Which of the following pairs of policy lags is typically shorter with monetary policy than with fiscal policy?
 - a. the decision-making lag and the implementation lag.
 - b. the recognition lag and the effectiveness lag.
 - c. the effectiveness lag and the decision-making lag.
 - d. the recognition lag and the implementation lag.

12. In the short run, a decrease in the cash rate
 - a. lowers the real interest rate, decreases investment, and shifts the AD curve rightward.
 - b. lowers the real interest rate, increases investment, and shifts the AD curve leftward.
 - c. raises the real interest rate, decreases investment, and shifts the AD curve rightward.
 - d. none of the above answers is correct.

13. 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.

14. 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.

15. Which of the following economic policy time lags is typically longer for monetary policy than for fiscal policy?
 - a. impact lag
 - b. recognition lag
 - c. decision-making lag
 - d. implementation lag

Data interpretation

Refer to the table below, which shows economic indicators for a hypothetical economy over a three year period. Q1 refers to the first quarter of a year.

Year	Real GDP % change Y on Y	Real GDI % change Y on Y	Inflation rate %	Unemploy ment rate %	Index of industrial activity	Terms of trade index	Cash rate %
Q1, Year 1	3.0	2.3	3.3	5.7	112	100.9	3.25
Q2, Year 1	2.8	1.2	3.0	6.0	106	96.0	3.25
Q3, Year 1	2.6	0.8	2.6	6.2	100	92.9	3.00
Q4, Year 1	2.3	0.4	1.8	6.2	95	91.5	3.00
Q1, Year 2	2.3	0.2	1.5	6.2	92	89.1	2.25
Q2, Year 2	2.0	-0.2	1.5	6.3	90	85.1	2.00
Q3, Year 2	2.6	0.2	1.3	6.8	85	83.0	2.00
Q4, Year 2	2.8	0.2	1.7	6.7	91	80.3	1.75
Q1, Year 3	3.0	0.4	1.3	6.4	94	78.6	
Q2, Year 3	3.1	1.9	1.0	6.1	96	80.5	
Q3, Year 3	3.3	2.1	1.9	5.9	104	83.7	
Q4, Year 3	3.5	3.6	2.9	5.6	109	88.0	

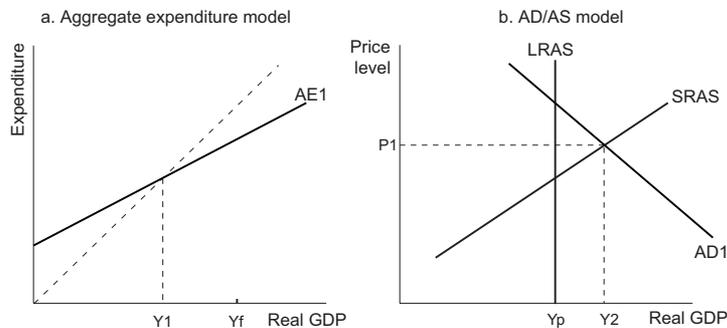
1. Prepare a graph which compares and contrasts the cash rate, economic growth rate, unemployment rate and inflation rate for the 12-quarter period shown. Choose the scale and type of graph carefully. Suggest reasons for any relationships you note between the rates graphed. Describe the general 'state of the economy' over the three-year period.
2. The cash rate column has not been completed for the last year of the period. Suggest the monetary policy stance that should have been adopted by the central bank of this hypothetical country (assume it follows an inflation-targeting regime for setting policy).
3. Prepare a media release which explains the policy stance the bank has undertaken in either the first quarter of Year 2, or the final quarter of Year 3. For your chosen quarter, explain how the monetary policy stance would be expected to impact on levels of economic activity, prices and employment in subsequent periods.

Monetary policy

Refer to the diagram below. In panel A (aggregate expenditure model) the economy is initially located at income level Y_1 , the full employment level is Y_f . In Panel B (AD/AS model) the economy is in short run equilibrium at income Y_2 , potential GDP is given by Y_p .

1. In panel a, if the economy is at income level Y_1 , what problem is the economy experiencing? What type of monetary policy should the Reserve Bank employ: tight or easy? What would be the impact of this policy on the aggregate expenditure curve? Explain the effect on real GDP and employment.
2. In Panel b describe the position of the economy at income level Y_2 . Is the economy in a deflationary or inflationary gap? Would inflation or unemployment be a bigger problem in this economy? What type of monetary policy should the Reserve Bank employ: tight or easy? What will the Reserve Bank do to the cash rate?

- Use the diagram in panel b to explain the effect of the Reserve Bank's policy. Which curve will shift and in which direction?
- Describe the transmission mechanism of monetary policy when the Reserve Bank increases the cash rate.
- Is monetary policy more powerful when the economy is in a boom or in a trough of the business cycle. Why?



Media release extracts

Refer to the extracts from two monetary policy media releases below.

- Use evidence from the media releases to contrast the economic conditions in mid 2007 and 2016. How do the media releases to explain the RBA monetary policy decision in each case?
- In 2007, "the Board recognised that stronger economic conditions were likely to put upward pressure on inflation, notwithstanding some dampening influence from the higher exchange

Monetary policy decision August 2007

At its meeting yesterday, the Board decided to increase the cash rate by 25 basis points to 6.5 per cent. Domestic economic data in recent months have signalled a pick-up in the pace of growth in demand and activity. Capacity utilisation is high after a lengthy period of expansion, and unemployment over recent months has continued to decline. Business and household confidence are strong. The demand for finance has strengthened, even apart from the temporary surge in June, particularly in the business sector. These conditions have been accompanied recently by higher-than-expected underlying inflation.

In assessing the outlook, the Board gave careful consideration to recent developments in the global economy and financial markets. Credit markets in the US have experienced some turbulence in recent weeks, which may pose downside risks to the US economy. While this will need to be kept under review, developments to date do not appear to have changed significantly the broader global outlook. Even with the US slowing down, forecasts of global growth have recently been revised upward. High world commodity prices remain an important source of stimulus to Australia's national income and spending.

For some months, the Board has recognised that stronger economic conditions were likely to put upward pressure on inflation, notwithstanding some dampening influence from the higher exchange rate. As a result, the Board has been of the view that further monetary policy tightening could be required. The main factors that had allowed time for further consideration were that, prior to this month, the two most recent inflation results had been unexpectedly subdued, and wages growth had remained moderate. However, the high CPI outcome for the June quarter indicated a less favourable near-term outlook, with the implication that any further increases in inflation would take place from a higher starting point than previously envisaged.

Based on these considerations, the Board judged that a somewhat more restrictive monetary policy setting was required in order to keep inflation consistent with the target in the medium term.

Source: RBA Media Release 8 August 2007

Monetary policy decision August 2016

At its meeting today, the Board decided to lower the cash rate by 25 basis points to 1.50 per cent, effective 3 August 2016. The global economy is continuing to grow, at a lower than average pace. Several advanced economies have recorded improved conditions over the past year, but conditions have become more difficult for a number of emerging market economies.

Commodity prices are above recent lows, but this follows very substantial declines over the past couple of years. Australia's terms of trade remain much lower than they had been in recent years. In Australia, recent data suggest that overall growth is continuing at a moderate pace, despite a very large decline in business investment. Other areas of domestic demand, as well as exports, have been expanding at a pace at or above trend. Labour market indicators continue to be somewhat mixed, but are consistent with a modest pace of expansion in employment in the near term.

Recent data confirm that inflation remains quite low. Given very subdued growth in labour costs and very low cost pressures elsewhere in the world, this is expected to remain the case for some time. Low interest rates have been supporting domestic demand and the lower exchange rate since 2013 is helping the traded sector.

Source: RBA Media Release 2 August 2016 (edited for space)

- rate". Explain (a) why strong economic conditions are inflationary, and (b) how a higher exchange rate can dampen that pressure.
3. In 2016, the terms of trade were lower than in previous years. What would cause this, and how would low commodity prices impact on economic activity.
 4. For either period, based on the evidence in the article, write a short newspaper article to summarise the RBA decision.
 5. For either period, use an AD/AS model to show how the policy announced in the media release can be expected to impact on economic activity, prices and labour market. Make sure your 'starting point' (which you might label as Y1) reflects economic conditions at the time.

Extended responses

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

1. a. Define monetary policy and discuss its three economic objectives. [8 marks]
 b. Explain the monetary transmission mechanism and discuss how the Reserve Bank uses monetary policy to stabilise the economy. Use an appropriate model to assist your explanation. [12 marks]
2. Discuss why the Reserve Bank would want to increase interest rates. Using the AD/AS model, explain the effects this would have on the economy. [20 marks]
3. a. Distinguish between expansionary, contractionary and neutral monetary policy stances. [10 marks]
 b. Outline the strengths and weaknesses of monetary policy. [10 marks]
4. a. Explain in detail why price stability is regarded as a key objective of many central banks around the world. [10 marks]
 b. What policy decision would be expected from central banks if inflation were to fall below the target range, and how would that decision be transmitted through the real economy to influence aggregate spending? [10 marks]

Structural Change and Productivity

14



Chapter concepts and skills

- *the nature, causes and effects of structural change*
- *the relationship between economic growth and structural change*
- *the concept and measurement of productivity*
- *the distinction between labour productivity and multifactor productivity*
- *the relationship between productivity and economic growth*
- *how recent government policies have promoted productivity and economic growth*
- *the impact of productivity on the achievement of macroeconomic objectives*
- *select appropriate print and electronic media sources of economic information and data on Australia's economic policy and management*
- *apply economic reasoning to Australia's economic position and policy mix*

Structural change

Patterns of production and consumption in developed countries change continuously over time. Consider the following examples:

- autonomous (driverless) vehicles may transport most people and goods within twenty years;
- renewable power sources accounted for 15 per cent of Australian energy in 2016, forecast to rise to 29% in 2020 and 50% in 2025.
- Australians are changing their housing preferences from stand-alone houses to apartments; and
- many household electronic goods can now connect to the ‘internet of things’.

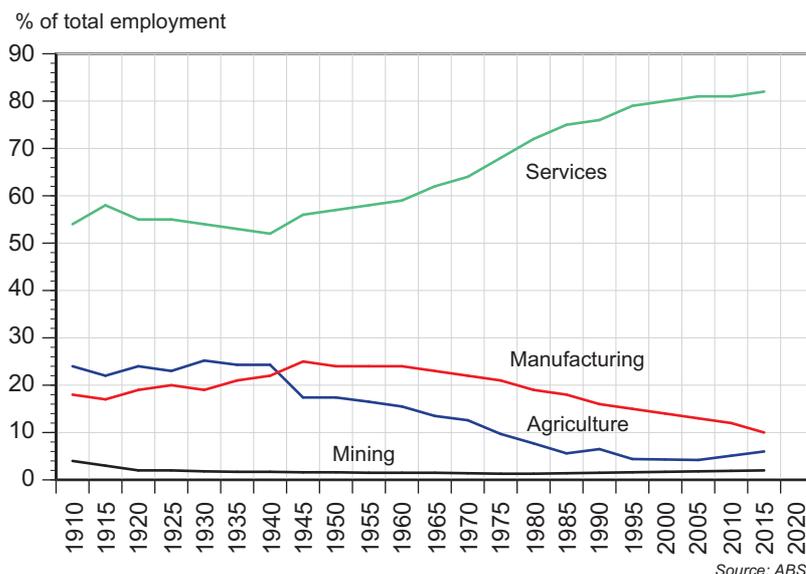
Each of these reflects a change in the preferences of buyers and/or the production decisions of firms. These continuous changes in demand and supply conditions predict the growth and decline of products, firms, and even whole industries.

Structural change is the change in the distribution of output, income and employment in the economy over time.

There seems to be a general pattern of structural change over the long term in many countries. Agricultural activities dominate economic activity and employ most people during a country’s pre-industrial phase. The initial change from an agricultural to an industrial economy is based on its ability to produce surplus food, meaning resources can then be used for non-food production. As nations industrialise, they also urbanise, and manufacturing industry develops to meet the needs of people living in cities. Urban economies generally feature more complex supply chains, leading to growth in the business services sector (e.g. finance, marketing, transport). As economies become wealthier and incomes rise, consumers typically spend a greater share of their income on services (often associated with leisure and travel) compared to goods.

Australia has followed this pattern over the long term. Over the period illustrated in figure 14.1, the proportion of the workforce employed in agriculture declined markedly, especially after 1940. Mining employment has always been small due to the capital-intensive nature of the sector. Manufacturing’s share of employment peaked in the 1950s. The services sector, always the major employer, now employs 80 per cent of all workers.

Output shares describe a similar picture to the employment data. At its highest, manufacturing accounted for nearly 25 per cent of output, yet is just ten percent today. Just after the end of World War II, agriculture accounted for 35 percent of total output by value. It now accounts for 5 per cent of output. Services now account for 77 per cent of output, up from 50 per cent in 1950. Mining’s share of output has increased as mineral deposits were developed in Western Australia and Queensland, but it is becoming more capital-intensive.



The employment share of the agricultural sector has been in decline since 1940; manufacturing since the late 1950s. Mining employment has risen through the 1990s and 2000s. The biggest change however, is the growth in the employment share of the services sector (up nearly 30 per cent over the whole period).

Figure 14.1 Sectoral employment share: 1910 - 2015

The causes of structural change

Many factors drive changes in the structure of the economy. When change arises as part of the normal pattern of economic activity, it is regarded as endogenous - change from within. As part of their day-to-day activities, business firms react to the needs of their customers; strive to create new products and services; invest in new equipment; train employees; develop networks with other firms, and perhaps even conduct research and development. Their objective is to make a profit and develop a competitive advantage over their rivals. Likewise, buyer preferences change, often in response to technological change and price signals. For example, car buyers want improved fuel economy because the real price of fuel has increased. Many households have installed solar energy, incentivised by the possibility they can sell power back to the grid. Seeking higher returns from knowledge-based careers, young people want places in tertiary institutions.

When change arises from sources outside the normal pattern of economic activity, it is described as exogenous change. Exogenous forces are often unforeseen, and may be quite disruptive, as illustrated by:

- the post World War II baby boom caused rapid population increase in the late 1940s and 1950s. Few people predicted that the birth rate would drop dramatically over the 1960s, 1970 and 1980s, and that medical and lifestyle changes would have a significant positive impact on life expectancy. As a result, many developed economies now face rapid structural change to adjust to an aging population and a lower proportion of productive workers;

- rapid economic growth in Australia's neighbouring countries has driven structural change. The first sectors to feel an impact were Australia's traditional commodity exports. In the longer term, the increasing numbers of people in the middle class in Asia will generate rising demand for a wide range of Australian goods and services such as tourism, and educational, financial and other professional services;
- disruptive innovation creates a new market or source of economic value, changing an existing market and often displacing older technology. An example is information and communications technology (ICT), which has brought about a revolution in the way people and businesses access and process information, and communicate with each other;
- concerns about the environment, sustainability and climate change have had significant effects on consumer preferences and production processes; and
- a wave of globalisation has seen economic activities expand across national boundaries, and markets and economic institutions have become more open, integrated and interdependent.

In a number of countries, including Australia, government has also played a significant role in driving structural change. Since the 1980s, governments have sought to make the Australian economy more competitive - deregulating markets, privatising public utilities, and introducing competition policy.

The impact of structural change

Examining any type of economic change involves consideration of positive and negative impacts – change is rarely uniformly good (or bad). We also need to evaluate the results of change over time. Many changes take years to work their way through the economy. Change can also have different impacts on sectors of the economy, areas of the country, and on groups of people within the economy.

Whilst technologies, demographics, regulations, incomes and tastes can all change, the laws of economics do not. One way to understand the impact of structural change is to apply one of the key models of economics – demand and supply, as in the following examples:

- structural change impacts on business products and processes. Changing patterns of demand and supply bring challenges along with opportunities, such as finding new inputs and employing and training skilled workers.
- at present, expanding sectors include wind and electricity generation; recreation facilities; dairy cattle farming; and oil and gas extraction. Industries expected to decline include motor vehicle manufacturing; outdoor vegetable growing; sugar manufacturing; intellectual property services and concreting services (*Ibisworld, 2018*).

- in fabrication industries, the changes in technology and policy associated with globalisation have led to ‘vertical disintegration’ of production - breaking processes in the production chain into separate companies, sometimes located in different countries, each performing a subset of the activities required to create the finished product. Consequently, trade in intermediate goods has grown rapidly, leading to greater interdependence among national production systems and higher exposure to external shocks; and
- structural change is accompanied by changes in the occupational landscape. In general, it results in increased demand for skilled workers although that depends on the sector, and the types of skills in demand. Professionals, managers and associate professionals now account for a third of all jobs in Australia, compared to a quarter in 2000. On the other hand, the demand for manufacturing workers has declined - 50,000 skilled workers in the motor vehicle industry lost their jobs when Ford, Holden and Toyota ceased Australian production. Limited demand for their skills close to home has forced many to relocate or retrain. The reason those companies chose to close their operations was structural – Australia’s high exchange rate over the last decade has left the industry uncompetitive, forcing the car manufacturers to relocate into lower wage countries and to build ‘world cars’. Many commentators bemoaned the ‘loss of Australian manufacturing’, but this is offset to some extent by the growth of knowledge-based

Figure 14.2 Jobs winners and losers 2012-2017

Australia's new and lost jobs 2012-2017			
New jobs (1,154,700)		Lost jobs (184,200)	
Industry	% of total gain	Industry	% of total loss
Health and social assistance	24.8	Mining	30.4
Construction	18.4	Manufacturing	29.0
Hospitality	10.7	Wholesaling	18.3
Education	10.2	Information, media and telecommunications	12.7
Professional and technical services	8.4	Utilities	8.8
Transport and postal	7.3	Other	0.8
Public administration and safety	5.8		
Retail trade	5.4		
Other	9.0		

Source: IBISWorld 2018

970,500 jobs were ‘created’ in the five year period 2012-2017.

manufacturing - software and application development; green energy products, precision medical instruments and bionics. Such companies operate at smaller scale than a car plant, but they are also much more adaptable and market-driven. That said, just 2.5 per cent of the goods exported from Australia can be classified as 'high-tech', compared to 6 per cent in Canada, 15 per cent in the United Kingdom and 20 per cent in the United States (*ABS, 2012*).

Globalisation can be defined as the increasing economic and financial integration of economies around the world.

Structural change also has an impact on the way the land resource is used. Competitive forces have changed Australian agriculture, with the proportion of small firms concentrating on supplying local markets declining, and large scale enterprises focusing on international markets increasing. Global diets are increasingly based on western foods, so the demand for protein, dairy and wheat products is forecast to rise in developing countries, to the advantage of Australia's traditional export commodities.

Structural change and economic growth

Structural change is an inherent part of a country's economic development as it transitions from an agricultural, to an industrial, then a service economy. The transition delivers higher levels of output and income - economic growth.

Structural change and economic growth are co-related. The same endogenous forces that drive structural change are also drivers of growth. As explained above, endogenous changes come from within the economy as economic agents such as producers, consumers and businesses seek better ways of using scarce resources. Economic growth also drives the process of structural change as higher per capita incomes lead to changing preferences. Australians spend less of their income on food than they did twenty years ago, and more on education, leisure and travel.

Some of the adjustments implicit in structural change might have an adverse impact on growth in some sectors of the economy. There have been several instances where rapid development in one sector (such as mining) attracts labour and capital resources and rewards them with higher incomes. Increased demand from the growth sector for the products of the sectors that aren't booming raises their prices, and they become less competitive.

Workers in declining sectors of the economy are at risk of structural unemployment, often associated with long periods of joblessness as some skills are no longer in demand in the changing economy.

It is important to note, however, that the benefits of structural change (including economic growth) outweigh the adjustment costs that come with change. Few people would prefer to give up the gains in their living standards that result from living in a dynamic economy.

Productivity

The second part of the chapter addresses an important issue for the Australian economy - productivity. Productivity refers to the efficiency with which people or firms convert productive resources into outputs of goods and services. In the long term, productivity growth is a key source of economic and income growth in developed countries such as Australia.

The most common measure of productivity is labour productivity (LP), which refers to the output produced per unit of labour input. At firm level, labour productivity is the value of output, divided by total hours worked. At economy level, LP is the aggregate value of output (value added) divided by aggregate hours worked.

But labour is only one input in the production process. Tradespeople such as electricians, plumbers and painters apply skills developed during their apprenticeship and subsequent on-the-job experience. People in primary production harvest the land resource and increasingly apply techniques to manage it sustainably so production can continue in the future. Doctors and dentists use highly specialised equipment to diagnose and treat disease, and maintain their knowledge and skills by reading journals and attending training events. Logistics workers use computers and telecommunications equipment to determine the best schedule for the day's pick-ups and deliveries. In other words, the value of output produced during any 'eight hour day' isn't only the result of the hours worked, but also the equipment, knowledge, skills and processes applied by workers.

Increases in labour productivity also reflect:

- increases in the quantity of inputs used by labour in production, especially capital equipment (growth in the ratio of capital to labour is referred to as capital deepening), and
- improvements in the quality of productive inputs, or the efficiency with which they are combined.

The second point is referred to as multi-factor productivity (MFP), which is 'the efficiency with which combined labour and capital inputs are transformed into outputs,' (ABS 2012).

MFP growth reflects changes in output occurring for reasons other than increases in the quantity of labour and capital, such as:

- increases in human capital (the health, education and skills of the workforce);
- investment in research and development (R&D) to drive advances in technology;
- improvements in firm management practices (for example, inventory management);

Productivity concepts	
GDP growth potential	= Labour force growth + Labour productivity growth
Labour productivity	= Capital deepening + Multi-factor productivity
Multi-factor productivity	= Improvement in the 'quality' of productive factors

- competition in the economy, which promotes the entry of new innovative businesses or the exit of 'unproductive' ones; and
- innovation in products and productive processes.

In other words, MFP reflects improvement in the 'quality' of productive factors not directly associated with the quantity of labour or capital. While labour productivity is about units of output per hour worked, multi-factor productivity attempts to measure the ability of labour to make use of capital to produce that output.

Australian productivity performance

Figure 14.3 illustrates the increase in productivity in Australia over several 'productivity cycles' over the last forty years. Over the whole period, productivity has more than doubled, with the average annual increase in labour productivity being 2.2 per cent, and multi-factor productivity 1.7 per cent. Over the period, about two-thirds of LP growth is attributable to capital deepening, and the rest to MFP growth (Productivity Commission, 2017).

The 1990s is regarded as a significant period of improvement in productivity performance, with labour productivity increasing at 3.1 per cent p.a. Reasons suggested for the productivity boom include the opening of the domestic economy to the discipline of international markets after protection was dismantled; the cost savings that information and communications technology (ICT) brought to finance, transport, wholesaling and communications sectors; and the dividend from the government's pro-competition policies in the 1980s (see below).

Labour productivity improvements slowed in the 2000s, explained by:

- the 'terms of trade' boom led to exchange rate appreciation, lowering the cost of imported goods and boosting the purchasing power of Australian incomes, yet not increasing domestic output. Witness the decline of some sectors of Australian manufacturing under pressure from the stronger currency;
- the impact of the mining construction boom was significant. Investment in large projects is however 'lumpy' - new projects can take several years before new output comes on-stream;

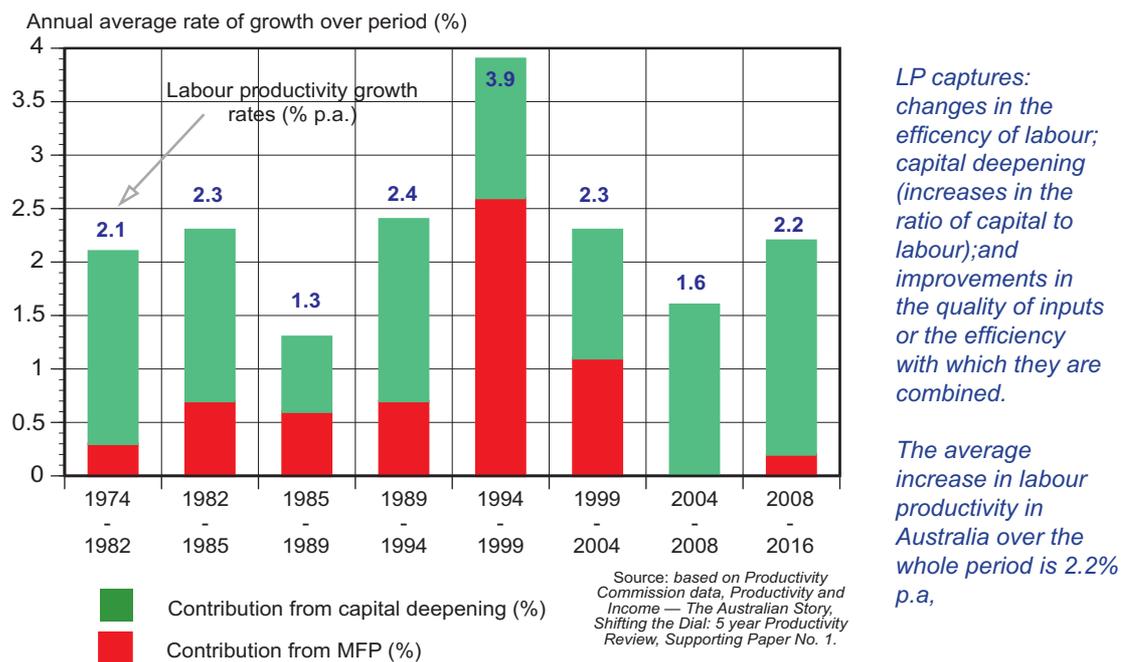


Figure 14.3 Contributions to productivity increases

- the global financial crisis slowed world economic growth and ushered in significant behavioural changes around household saving and borrowing;
- the declining influence on information and communications technology (ICT) on productivity. ICT innovations have been less disruptive in the last ten years - the big innovations such as personal productivity software, databases and the Internet are now mature technologies which have slower rates of usage growth;
- falls in agricultural output due to drought;
- higher commodity prices attracted capital and labour resources to marginal (low-grade) mining projects that may not have been developed under 'normal' prices; and
- the inability of industrial relations laws and workplace regulations to support market forces in the labour market;

Productivity performance seems to have improved in the last few years. In part, this could be due to the payoff from years of capital deepening in the mining sector, and the growth in the mining services sector which supports it. The financial services and construction sectors have also grown in response to lower interest rates.

Labour productivity varies across sectors, as illustrated in figure 14.4. The value of output per hour in mining was the highest of all sectors of the economy, and six times that of labour in the retail sector (2015-16 prices). The difference is

Labour productivity per hour worked (2015)			
Sector	\$ per hour	Sector	\$ per hour
Agriculture, Forestry and Fishing	42	Information, Media and Telecommunications	122
Mining	220	Financial and Insurance Services	185
Manufacturing	54	Rental, Hiring and Real Estate Services	127
Electricity, Gas, Water and Waste Services	145	Professional, Scientific and Technical Services	54
Construction	61	Administrative and Support Services	69
Wholesale Trade	87	Public Administration and Safety	71
Retail Trade	37	Education and Training	48
Accommodation and Food Services	34	Health care and social assistance	47
Transport, Postal and Warehousing	61	Arts and Recreation Services	40

Source: Eslake, S. (2016) *Five Potential Impediments to Improving Australia's Productivity Performance*.

Figure 14.4 Labour productivity by industry sector

attributable to capital intensity (the equipment at a worker's disposal); scale effects (larger operations sharing fixed costs); more specialised labour; and perhaps the fly-in fly-out nature of mining employment. Interestingly, the mining construction boom raised productivity Australia-wide. This because the boom attracted workers to move from lower-paid sectors into mining, and because the total hours worked in mining rose during the boom. Workers in mining worked longer hours at higher rates of pay, increasing the average 'productivity' across all sectors.

The impact of rising productivity on employment is uncertain. At firm level, a business able to produce the same output with fewer workers after buying more capital equipment might have less demand for labour (capital for labour substitution). If, however, the firm gained a competitive advantage over its rivals, it may need to hire more workers! Perhaps new capital equipment would mean that more highly-skilled staff are employed? As with structural change, however, some workers may be displaced in the short term.

Rising productivity should deliver improved international competitiveness if exports have a price and quality advantage; and if local goods and services are able to better compete against imported products.

According to the Bank of England (Haldane, 2017), GDP per capita in the United Kingdom has risen 20 times since 1850. If there had been no increase in productivity, living standards would only have only doubled.

Why do we care about productivity? With the decline in Australia's terms of trade and drop in commodity prices (see chapter 5), there is consensus that improving Australia's productivity is critical.

American economist Paul Krugman emphasised the importance of productivity thus:

“Productivity isn’t everything, but in the long run it is almost everything. A country’s ability to raise its standard of living over time depends almost entirely on its ability to raise its output per worker”
Krugman, P. (1992) *Age of Diminished Expectations*

Productivity, just like innovation and competitiveness, is a means to an end – the way for advanced western economies to achieve a higher standard of living and prosperity. Over time and across countries, higher productivity is reliably associated with higher wages, higher consumption levels and improved health indicators.

The drivers of productivity

So how is productivity growth achieved? In general terms, there are a number of drivers that underpin long-term productivity performance:

- investment in physical capital and infrastructure - machinery, equipment, buildings, communication and transport. If workers have more capital equipment at their disposal, they are generally able to produce more output per hour;
- investment in human capital through education and training is a key driver of productivity because it develops workers’ skills - their ability to use capital equipment, to be creative, and to implement innovations;
- innovation - the exploitation of new ideas. There are three ‘types’ of innovation: product, process and organisational, referring respectively to innovations in the nature of products and services; innovations in productive methods and processes; and the implementation of new methods in a firm’s business practices, workplace organisation or relations with other firms in the supply chain;
- enterprise (management and entrepreneurship) combines other factors of production and is a crucial determinant of a firm’s ability to improve efficiency, recognise opportunities and adapt to market changes; and
- competition creates incentives to innovate and ensures that resources are allocated to the most efficient firms.

We should remember that the private sector dominates the economy - it is responsible for about three-quarters of the goods and services produced in Australia. For private firms, both small and large, the profit motive and the forces of competition are the main drivers of the innovations and investment that will lead to higher productivity. Firms strive to deliver better products to buyers at

Critical and creative thinking - Productivity drivers

Access Supporting Paper No. 1 of Productivity and Income — The Australian Story, Shifting the Dial: 5 year Productivity Review (Productivity Commission, 2017). See especially page 6.

What does the Commission believe are the key drivers of productivity in the Australian economy in the most recent period? Prepare a news release to explain how ONE of the factor mentioned has impacted on multi-factor productivity.

lower cost. Achieving this delivers the owners of capital (owners and shareholders) higher profits. Firms that cannot continue to improve productivity will eventually become less competitive and exit the market, freeing resources for more productive use.

There are basically two reasons why investment in capital equipment can drive productivity. Capital equipment can be thought of as productive hardware used by labour to produce goods and services. One source of productivity over many years has been capital-for-labour substitution, or an increase in the stock of capital per worker (capital deepening). There are also improvements in capital quality, which refers to increasing the productive efficiency of capital items through specialisation and better technology. The term technology applies as much to ideas and methods as it does to physical equipment. When technological change is incorporated in some tangible way (i.e we can see the change) it is known as embodied technological change. But technological change is often less tangible - an innovative production process or marketing plan, for example. This is disembodied technological change.

A significant factor influencing productivity at firm level is better management. This can include responding to changes in the market; developing the firm's work force; better use of ICT; attracting and retaining high quality people; and even promoting employee participation in decision making. The firm's 'corporate culture' is a significant driver of productivity - a pattern of behaving, feeling, thinking, and believing that ties all the individual elements together. Productivity and happiness tend to co-exist!

All of the above focus on delivering economic value - the ability of the goods and services to satisfy consumer wants. Firms share in that value because it delivers higher profits. Achieving this goal is not easy, however. Only about 40 per cent of Australian businesses make an attempt to measure their productivity - perhaps because it is a complex thing to measure, or because it has the potential for unpleasant and disruptive changes to improve it!

Promoting productivity - the government's role

In developed economies, governments are responsible for about a quarter of all output, including roads, schools, hospitals, railways, ports, water supply, education, health, and law and order. Governments exert influence on capital deepening when the stock of infrastructure grows relative to population (an example of which is the National Broadband Network (NBN)).

They also influence MFP through, for example, the regulatory environment, redistribution of income and wealth, social and environmental policy and providing opportunities for people (recent examples of which are the National Disability Insurance Scheme (NDIS) and national standards in pre-school education. Governments also influence productivity growth through policies and regulations

that affect investment in human and physical capital and the functioning of markets.

The key point is that government policy can help raise Australia's productivity performance if it:

- increases the incentives for the owners or managers of enterprises to make productivity-enhancing changes to the products they produce, or the way in which they are produced;
- reduces the barriers to implementing productivity-enhancing change; or,
- facilitates the movement of factors of production from existing uses to ones in which they can be combined in more productive ways.

These are examples of what has been called 'supply-side' economic policy.

The labour market and workplace relations

In theory, a decentralised labour market rewards skilled, productive employees through better pay and conditions. For most of its history, however, Australia's labour market has been highly regulated, with pay rates and conditions determined governed by industrial 'awards' (minimum pay regulations). In the mid 1990s, the government of the day introduced measures to encourage workers to bargain with their employers to set conditions beneficial to both parties. Pay rises were linked to productivity improvements and trade-offs in conditions. In 2005, further reforms were introduced under the umbrella of 'Workchoices' legislation. Key aspects of the legislation included changing unfair dismissal laws, making it more difficult for workers to take strike action and reducing the influence of trade unions (by, for example, making it more difficult for union officials to enter work sites). The Workchoices system was highly controversial, with business and government highlighting the economic potential of a freer labour market, and trade unions arguing that it damaged working conditions and social equity.

The incoming Labor government stopped workplace bargaining and returned to more centralised determination of wages and conditions. It established Fair Work Australia to act as a central umpire on dispute resolution and wage setting. Although a Liberal government was returned in 2013 and 2016, it has to date been quiet on labour market change, although it continues to be the subject of hot debate in the community. Interestingly, labour productivity rose more slowly in the Workchoices period than it has under the Fair Work Act!

One 'side' of the political spectrum speaks of deregulating the labour market to allow wages and conditions to change as market circumstances change. But this is unrealistic because labour is not a homogenous good and both buyers and sellers have imperfect knowledge of the market. There are many rigidities in the labour market - workers and their families are often geographically and occupationally

immobile. There are monopoly elements on both the demand and supply sides of the market, so wages and conditions tend to be 'sticky'. The other side of politics regards a free labour market as potentially damaging for worker conditions and fair treatment. This perspective can also be unrealistic if it does not take into account the competitive pressures on business.

It is a fact that labour's share of gross national income (GNI) has fallen since 2004 (estimates ranging between four and six per cent). Wages have not risen at the same rate as productivity. Whilst this is good for business competitiveness and employment, the fall in income share would normally raise questions about labour market fairness.

Rather than trying to reform 'macro' aspects of the national workplace relations system, it may be better to focus on policies that encourage innovation and high performance in Australian workplaces. Innovative and progressive workplaces that focus on their people, through skill development, motivation and participative approaches to work and decision making, tend to be more productive and profitable. Workers who have the opportunity to use their skills, and who are motivated to do so, perform at a higher level than those who do not.

The Productivity Commission has identified a gap in the performance of Australian managers, especially small to medium enterprises. (Productivity Commission, 2016).

But there are barriers to achieving this kind of workplace innovation in Australia. Many Australian managers lack the specialist training and competencies to implement innovative management practices. There is a lack of entrepreneurial resources, particularly in small and medium sized enterprises. There is also a lack of knowledge on the part of managers and workers of the benefits which can accrue to them from such approaches.

Taxation reform

From a productivity perspective, the tax system needs to be fair and equitable for all - capable of raising enough revenue to fund community needs in a way that does not dampen incentives to productive activity.

A number of important taxation reforms have occurred since the mid-1980s. The tax base was broadened with the introduction of a Capital Gains Tax on real (i.e. after inflation) gains made on the sale of assets (e.g. shares, investment property, business goodwill etc); and the Goods and Services Tax (GST), a consumption tax introduced in 2000. The tax system was simplified with the introduction of the PAYG (Pay As You Go) system and taxpayer self-assessment. Changes to tax brackets improved vertical equity (fairness across income levels) and addressed bracket creep (average taxpayers gradually being pushed into higher tax brackets as their income increased).

There are still 'distortions' that could be addressed. The current system makes it very difficult for state governments to fund their priorities, as they have limited

revenue-raising powers. There are a number of loopholes which appear inequitable. For example, there are more family trusts in Australia than in any other country (on a per capita basis), often used for the purpose of minimising tax through income splitting. Superannuation earnings are tax free for retired people, yet this is difficult to justify economically. Negative gearing is unknown overseas, yet many Australians are able to claim a tax deduction on interest charges on borrowed funds for personal assets such as shares and property.

A 2008 review into the tax system (“Australia’s Future Tax System”, often called the Henry Review after its chairman) based its recommendations on a number of themes:

- concentrating revenue raising on four efficient tax bases: personal income; business income; private consumption; and economic rents from natural resources and land, with other taxes to be abolished unless they had a specific purpose (e.g. tax on tobacco);
- configuring taxes and transfers to support productivity, participation and growth;
- establishing an equitable, transparent and simplified personal income tax featuring a much higher tax-free threshold (around \$25,000), only two tax brackets, and a simplification of superannuation, deductions and offsets;
- efficient land and resource taxation; and
- a more open, understandable and responsive tax system.

The review led to some immediate reform of resource, company and small business taxation, as well as superannuation. But both Labor and Liberal governments have done little to implement the key recommendations of the Henry Review. Achieving tax reform is difficult - it is politically hard and the purpose and the possible means of reform are not well understood by households. The need for reform is pressing - the government budget will be in deficit for some time, yet tax revenue is declining due to demographic change.

A tax causes distortion if it causes the choices made by market agents to be motivated by the tax and not by real economic costs and benefits. For example, if a company built a factory in Tasmania because the tax rate was less than in Victoria, even though production in Tasmania was more costly, then the tax has caused distortion and scarce resources have been wasted.

Literacy and critical thinking - perspectives on an economic policy issue

The following web sites describe the activities and opinions of the three major groups in the labour market - the Fair Work Commission, the Australian Council of Trade Unions (ACTU) and the Business Council of Australia.

BCA - <http://www.bca.com.au/policy-agenda/labour-market-skills-and-education>

ACTU - <http://www.actu.org.au/Issues/ModernAwards/default.aspx>

FWA - <https://www.fwc.gov.au/creating-fair-workplaces/the-national-workplace-relations-system>

Look at each of the sites critically to identify differences in their perspectives and recommendations.

Trade liberalisation

A significant driver of productivity in a small economy such as Australia is its degree of openness to the outside world - the willingness to trade goods, services and ideas with other countries (refer to chapter three). An increasingly open economy is likely to become more productive because trade gives access to markets and spurs competition, innovation, and specialisation.

Australia's openness to trade (the sum of exports and imports as a percentage of GDP) was 41% in 2015.

For many years, Australia used artificial protection methods such as subsidies, tariffs and quotas to protect domestic producers from overseas competition. As we saw in chapter two, protection transfers welfare from consumers to producers, limiting consumer choice and reinforcing inefficient operations. Australia is now one of the least protectionist countries in the world. Businesses have been forced to become more efficient to compete with imports, and to become more export-focused. Australia has gradually increased its trade focus (the proportion of GDP accounted for by exports and imports) and has become a stronger competitor in world markets by developing new sources of competitive advantage (e.g. the export of education services).

Infrastructure policy

According to the Bureau of Infrastructure, Transport and Regional Economics (BITRE), Australia has over 900,000 Km of roads; 780,000 Km of above ground power transmission lines, and 162,000 Km of water mains.

The term infrastructure generally refers to the underlying structures that support society and the economy. Some of these are 'hard infrastructure' - roads, water supply; electrical grids; ports; telecommunications. Others are institutional or 'soft' infrastructure - the education and health systems being good examples. Infrastructure is the basis of a productive economy. Effective transport systems, for example, enable people to get to work! Electricity powers the machines they use when they get there.

As with other things, there isn't an endless supply of government funds to pay for infrastructure. In recent times, there has been considerable discussion about infrastructure funding and pricing. The 2013 National Infrastructure Plan suggested seven reforms that could lead to increased capital productivity. Other recent policy initiatives included:

- the establishment of a Nation Building Fund (2008);
- the establishment of the National Broadband Network (NBN) - claimed to deliver higher speed internet connections to households and businesses; and
- the increasing use of public private partnerships (PPP) to inject private sector capital and risk management techniques to large transport projects.

The potential impact on productivity is not just linked to the quantity of infrastructure, but also the way it is funded and priced. As the sidebar indicates, the stock of basic infrastructure is staggering, and requires significant maintenance over its economic life. The private sector is increasingly involved in infrastructure construction and provision, but needs to earn a commercial rate of return on its funds. This has put more focus on infrastructure pricing, which is moving towards user-pays principles.

Education and training policy

The knowledge, skills, competencies and attributes embodied in human beings are described as human capital. There is a strong association between the stock of human capital and productivity for individuals, their workplaces and the economy as a whole. Human capital is developed by formal learning (attached to a certificate or qualification); informal learning (on-the-job training, work experiences, mentoring); skills development in association with new technology; and the presence of management and leadership skills.

Evidence on formal learning and productivity suggests that additional years of education increase earnings (up to a point) and that returns are higher for more specific skills. For younger students, education develops foundation skills (reading, writing, mathematics, and communication). In later years, knowledge and skills become more job-specific. Importantly, an individual's record of participation in education and training also acts as a 'signal' to employers that the holder of a qualification is likely to be more productive at work!

There is also a relationship between formal training and firm performance. Economic theory suggests that firms will only train employees if the return on their investment was higher than the costs of doing so. Training is likely to bring positive externalities for the firm, such as the ability of the firm to absorb new technology and expertise. At the macro level, evidence suggests that productivity is enhanced by the quality, but not the quantity, of education received. Learning also has additional economy-wide benefits relating to health, lower crime rates, better parenting and social participation.

Examples of recent government policies relating to education and training are:

- the Australian Qualifications Framework (AQF) was established to specify standards applying to educational qualifications at each of ten levels for Certificate I to Doctoral qualifications ;
- recognising the growing importance of vocational training, Australian Qualification Training Framework (AQTF) national training packages apply competencies and assessment criteria to all training organisations;
- the Tertiary Education Quality and Standards Agency (TEQSA) was established to oversee standards in tertiary education; and

- a 2014 Productivity Commission report into early childhood learning investigated the market for childcare and the factors that enhance a child's learning and development, estimated that these reforms could lift workforce participation and GDP in the long term.

The value of these initiatives, from the productivity perspective, is that they establish standards benchmarks across the education and training sector. To maximise their value, however, the challenge is to ensure that the measures are incentives to improve quality, not generators of red tape and bureaucracy.

Research and innovation

Research and development (R&D) and innovation are regarded as important levers in creating a more competitive economy. The direct benefits of R&D and innovation include new or improved products and services, increased sales revenue, reduction in the costs of production, gaining an advantage over competitors, and improved customer service. There are also considerable indirect benefits (spillovers or externalities), including a greater stock of human capital, creativity and sustainability. It is thus appropriate for the government to support research and innovative activity

Economists identify three categories of research:

- basic research (also called pure research or fundamental research) which aims to increase our understanding of fundamental aspects of different fields of knowledge without specific applications or products in mind;
- applied research, which looks at the practical applications of knowledge and is useful both for government in undertaking its own functions (for example defence, biosecurity issues) and to the private sector in developing new products and processes; and
- experimental development, which describes research into new products and services for the market.

The economic benefits of pure research are unlikely to be captured by the innovator, so this type of research is more likely to be undertaken by universities or the public sector, funded from the public purse. Government research agencies such as CSIRO and ANSTO receive direct funds to conduct work on specific projects. University research covers a very wide spectrum of activities, mainly funded by grants that fund the research and pay for students undertaking postgraduate degrees. Researchers can also apply for competitive grants funded by the Australian Research Council (ARC), but a strong research record is often necessary to win one of these grants.

A number of indices are compiled to compare the extent of research and development (R&D) and innovative activity around the world. These include The Global Innovation Index and The Global Competitiveness Report, which report indicators such as innovation capacity and activity, entrepreneurship, human capital, information technology and infrastructure.

Overall, about one in eight Australian workers is involved in R&D - mainly in universities or the public sector (e.g. CSIRO). Given that the government does not have an unlimited budget for research and development, it is important to be strategic about where Australia's research dollars are spent. Since 2012, government has set research priorities in the following areas of knowledge: the environment; human wellbeing; managing food and water assets; security; and productivity and economic growth. The government has also promoted collaboration and consolidation in research activity.

Typically, Australia is at or slightly below the mean for developed economies. Government expenditure on R&D (GERD) made up just over 2.1 per cent of GDP in 2012 (Department of Industry), against an OECD average of 2.3 per cent. Business expenditure on research and development in Australia (BERD) is about 1.2 per cent of GDP (2012), compared with an OECD average of about 1.6 per cent

Innovation is the “implementation of a new or significantly improved product (good or service), process, new marketing method or a new organisational method in business practices, workplace organisation or external relations” (Department of Industry). 48 per cent of business firms classified themselves as ‘innovation active’ in 2015. Historically, Australian firms are more likely to modify or adapt products or processes that already exist, although the sidebar suggests that Australians have been responsible for a number of significant inventions (note that invention and innovation are not the same thing!). Innovation is often incremental in nature, but a series of small improvements often leads to significant change over time.

Innovation used to be regarded as something internal to companies, but is now recognised as a more open activity where businesses take deliberate steps to learn from their customers and their competitors. Nearly one quarter of innovation active businesses collaborated conducted such ‘open innovation’. The majority of firms that focus on innovation report improved productivity.

Clearly, governments cannot mandate innovation, but there are ways that government agencies have successfully encouraged innovative practices such as funding for experimental projects, education programs and the promotion of benchmarking standards to encourage improvements in management competency and in work practices.

*Some famous Australian inventions:
Zinc Cream (1940);
the Hills Hoist (1945);
Racecam (1979); the
Winged Keel (1983) and
spray-on-skin (1992).*

Deregulation and competition policy

An interesting story relating to structural change and productivity in recent years has been Australia's transition from a ‘protected’ economy to a more competitive one. Until the early 1990s, the Australian economy was characterised by:

- a narrow economic base with high levels of dependence on primary products and simply transformed manufactures (STMs);
- high levels of protection (using tariffs, quotas and subsidies);

- government business enterprises (GBEs) were monopoly sellers of key services such as telecommunications, power, gas and water, and were not subject to market discipline;
- high levels of market regulation such as price controls and regulatory barriers to entry; and
- a centralised wage setting and industrial relations system that effectively acted as protection for labour.

Many of these characteristics had been part of Australia's economic 'culture' over a long period of time. Beginning in the late 1970s, governments introduced a range of measures, collectively known as microeconomic reform (MER) to reduce institutional and regulatory impediments to a more productive and efficient economy. MER targeted improved efficiency - promoting competition, encouraging change and removing barriers to a market-based allocation of resources. Reforms included financial deregulation; tariff reductions; privatisation of government owned assets; greater commercial focus in the provision of economic infrastructure; increased flexibility in labour markets; increased internationalisation of the economy; greater fiscal responsibility; and more extensive education and training of the workforce.

Over a twenty year period, the protection that characterised many Australian markets has been replaced by a range of pro-competitive reforms. Markets now dominate the policy agenda at state and federal level. Australian governments committed to a program of economic reforms in 1995, following the Hilmer Report. The National Competition Policy (1995-2006) focussed on removing unnecessary regulatory barriers and establishing competitive access to public infrastructure - essentially extending the competition provisions of the Trade Practices Act (1974) to apply to both private and public enterprises.

The National Reform Agenda succeeded the National Competition Policy. Launched in 2006, the Agenda is based on agreement among governments, selecting priority areas for reform - human capital, competition and regulatory reform. The human capital stream focused on reforms to health, education and training that support the

Literacy and critical thinking - policy reports

Through the Productivity Commission, the Australian Government now conducts five-yearly inquiries into productivity. The first Review, published in August 2017, made recommendations in five broad categories which they believed offered achievable and significant potential to enhance productivity:

- Healthier Australians;
- Future skills and work;
- Better functioning towns and cities;
- Improving the efficiency of markets; and
- More effective governments.

Access the report (titled 'Shifting the Dial' from the Productivity Commission web site.

Choose one of the above areas. Briefly summarise the problems in that area, some solutions that could be effective, and the likely benefits that might result from the suggested actions.

work force. In particular, reforms were planned to address skills shortages through vocational education and training. The competition stream was focused on reforms in energy, transport and infrastructure. The regulatory reform stream focussed on reducing the burden imposed on business and consumers by the three levels of government, and identified a number of ‘hot-spots’ where there are overlapping or inconsistent regulations in different states.

The Harper Review (2014) was tasked with examining whether Australia’s competition policies, laws and institutions remain fit for purpose in light of major forces influencing the Australian economy - the industrialisation of Asia and the growing Asian middle class; the aging of the Australian population and falling workforce participation; and diffusion of digital technologies (with their potential to disrupt established patterns of economic activity). The term ‘fit for purpose’ essentially means a policy in accord with a number of competition principles:

- that markets should work in the long-term interests of consumers;
- to foster diversity, choice and responsiveness in government services;
- to encourage innovation, entrepreneurship and the entry of new players;
- to promote efficient investment in and use of infrastructure and natural resources; and
- to establish clear, predictable, and reliable competition laws.

The Harper Report made over 50 recommendations, essentially surrounding the need to reinvigorate competition policy by applying competition policies to all areas of government; to enhance the effectiveness of competition laws; and to establish a new national competition reform body.

Productivity and macroeconomic objectives

Most of us would like to see higher living standards and prosperity over time - improved value for money in the goods we buy; better access to services such as health care and education; more time for leisure; better environmental outcomes; more welfare support for disadvantaged people; and so on. Figure 14.5 models the impact of improved productivity on economic growth, using the aggregate demand / aggregate supply framework. Rising productivity increases the capacity of the economy to produce goods and services, and /or lowers business costs. The model represents these as rightward shifts in both the short and long run aggregate supply curves, so the potential real output of the economy increases from Q_1 to Q_2 . Rising productivity provides more rewards for labour (higher wages) business (profits) and government (taxes), so the AD curve would be expected to shift to the right as well. The model suggests that a rightward shift of the aggregate supply curves will contribute to lower inflation, but this depends on how much the aggregate demand curve shifts as a result of the higher output and incomes that rising productivity delivered (that is, the slope of the AD curve).

The initial state of the economy is at full employment equilibrium, and Q_1 is the level of output. Productivity helps to increase economic efficiency, and drives both the long run (LRAS) and short run aggregate supply curves (SRAS) to the right. The potential real output of the economy rises from Q_1 to Q_2 . Note that increased efficiency reduces costs, so there is less upward pressure on the price level. Other things being equal, rising productivity constrains inflation. Productivity growth may, however, contribute to structural unemployment, depending on whether the impact of productivity growth on economic growth and rising incomes is greater than any displacement of labour resulting from firms needing to use less labour in production.

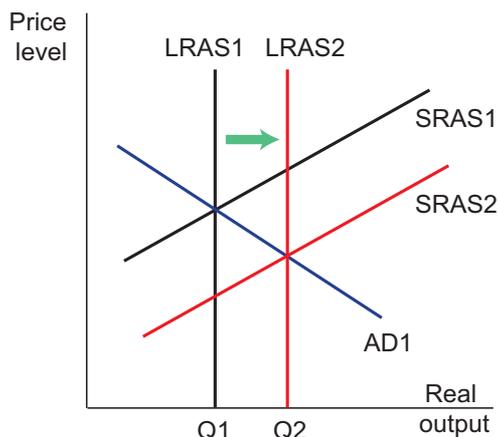


Figure 14.5 Productivity and macroeconomic objectives

The contribution of productivity growth to economic growth is illustrated in figure 14.6. The black line joins the average rate of per capita income in each decade; the bars represent the contributors to that growth. In all decades but the 2000s (when the terms of trade increased markedly), productivity accounted for the majority of economic growth.

As we know, growth results from increases in the size a country's resource base, or from more efficient use of the resources currently available. In developed countries, most growth results from more efficient use of available resources (productivity growth) is likely to be an important determinant of the real per capita income growth.

The concepts of productivity and efficiency are linked. Productivity growth is a measure of productive or technical efficiency - the ability to produce more output from a given unit of input. Alternatively, technical efficiency can be measured by the cost-effectiveness of an input.

Productivity is also related to improvements in allocative efficiency. The most efficient allocation of resources from society's point of view occurs when resources are allocated to their 'most valued uses' - those having the least opportunity cost. If all resources were allocated to their 'best use', output would be maximised. Interestingly, this suggests one way to increase productivity in Australia would be to shift labour out of low productivity sectors into mining!

A third interpretation of efficiency is dynamic efficiency - the ability of the economy to adapt to change over time, to innovate, to conduct research and development and to take advantage of new opportunities as they arise. Dynamic efficiency and economic growth are clearly related.

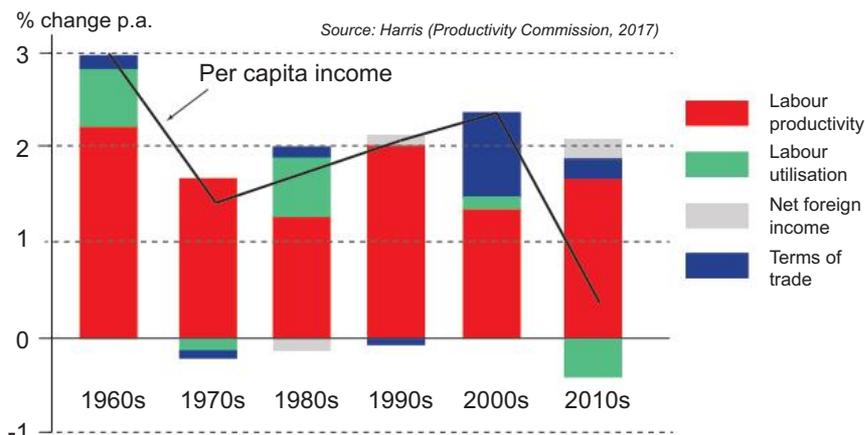


Figure 14.6 Contributions to economic growth

The notion of efficiency applies to firms, industries and the economy as a whole. A government white paper, “Australia in the Asian Century” (2012), suggested that Australia’s real income per person could rise to about \$73,000 by 2025 if productivity performance between now and then is about 0.5 percentage points higher than the ‘business as usual’ case. This would place Australia’s GDP per person in the world’s top 10, up from 13th out of 180 countries in 2011.

Worksheet - structural change

1. Define structural change.
2. Give three examples of major changes you can see around you which constitute structural change.
3. Outline the general pattern of structural change that occurs as a country develops.
4. Provide one reason why the manufacturing sector accounts for less output as economic development proceeds.
5. Referring to appropriate examples, distinguish between endogenous and exogenous causes of structural change.
6. Give two examples of ‘price signals’ and explain how they could cause changes in patterns of demand or supply.
7. Provide one example each of positive and negative impacts of structural change.
8. Outline the impact of structural change on economic growth.

Worksheet - productivity

1. Define the term productivity.
2. Define labour productivity. Convert your definition into an ‘equation’, with a numerator and denominator.
3. Explain the meaning of multifactor productivity.
4. Which are the three most productive sectors in the Australian economy (in terms of labour productivity). Suggest why they have such high hourly output per unit of labour.
5. What factors explain the higher than average rate of increase in productivity in Australia in the 1990s?
6. Give three reasons to explain slower productivity growth in the period 2004-2010.

7. Suggest how one of the following could reduce productivity: low capacity utilisation; drought; government 'red tape'; transport congestion; lack of R&D.
8. What are the key drivers of productivity?
9. How important are day-to-day business activities in developing a more productive economy?
10. Distinguish between embodied and disembodied technological change?
11. Explain the role of management in improving productivity.
12. Use an AD/AS model to explain the impact of improved productivity on the Australian economy.

Types of productivity

Bob is a painter employed by a decorating company. The firm invests in a new type of paint roller which it is claimed will hold more paint, helping the painter to finish work more quickly. The roller costs \$200. Tests show Bob can get 20% faster at painting ceilings, for which the firm charges \$120 per hour. Using the roller requires some new skills, so Bob attends a half day training course which teaches him the appropriate skills. Bob's employer promotes its service heavily to prospective users, increasing its market share.

1. Define the term productivity.
2. Explain how capital deepening has contributed to higher productivity at firm level in this example.
3. Describe the 'residual' (or quality) factors that would have contributed to higher productivity at firm level.
4. Explain which type of productivity measure - labour or multifactor - would be easiest to calculate in measuring the improvements in productivity that arise as part of these changes.
5. Describe the role of management in the promotion of labour productivity.

Structural change and employment

Refer to the data table and answer the questions that follow.

Changes in sectoral shares in employment, 1958 to 2012					
	Share of total employment (%)			Change in share (%)	
	1958	2002	2012	1958-2002	2002-2012
Agriculture	12.2	4.8	2.9	-7.4	-1.9
Mining	1.4	0.9	2.2	-0.5	1.3
Manufacturing	26.2	11.4	8.4	-14.8	-3.0
Construction	27.5	23.7	22.4	-3.9	-1.3
Distribution services	8.2	7.8	8.9	-0.6	1.4
Business services	5.5	15.5	15.9	10.0	1.3
Social services	10.9	22.9	25.8	12.0	2.9
Personal services	8.0	13.2	12.5	5.2	-0.7

Source: Productivity Commission

1. In terms of employment share, which were the three largest sectors of the Australian economy in 1958?
2. Which sectors exhibit growth, in terms of employment share? Which exhibit decline?
3. To what extent does the pattern shown in this data concur with the three 'stylised structural

- change facts' discussed in the section on structural change?
4. The volume and value of agricultural output actually rose by many times over during this period. Explain how output could have risen when employment shares fell.
 5. Explain how this information could impact on the following economic decisions:
 - a. The educational choices of young people
 - b. Policy about the protection of local manufacturers
 - c. The provision of public infrastructure
 - d. Individuals going into business.

Data - research and development

Refer to the table below to answer the questions that follow.

Type of research	University	Public sector	Private sector
Basic	48	26	5
Applied	42	62	35
Implementation	10	12	60

Figures in percentages

1. Distinguish between basic research and research associated with the implementation of a new product or service.
2. Explain why the private sector would generally be reluctant to fund basic research.
3. Discuss the extent and type of spillovers associated with basic research. Are spillovers associated with applied or implementation research activities?
4. Suggest why university research is generally funded by competitive grants.
5. Suggest how research activity is associated with productivity and structural change.

Research

Uber is a recent entrant into the 'taxi' market in Australia. Using a telephone 'app', people wanting a taxi can call a private operator affiliated to Uber, which claims to use better vehicles and to deliver a better service. The 2014 Harper review recommended that services such as Uber should be allowed to compete in the taxi market. Access the Uber web site (uber.com) to research the following questions.

1. What features of the Uber service might attract customers?
2. What impact would the Uber service have on the traditional taxi market?
3. From the point of view of a customer, suggest two benefits and two costs of Uber's entry into the market. Do the same for the point of view of a taxi operator in the traditional market who has a taxi industry licence to operate a taxi vehicle.
4. Under what circumstances might Uber drivers breach the 'public interest test' sufficiently to have the service closed down or banned?
5. The Harper review also suggested that all roads should be paid for by users; that pharmacies could be owned by non-pharmacists; and that retail trading hours be deregulated in most places. How do these measures relate to the competition principles outlined in the review, and how might these initiatives impact on productivity and efficiency?

Multiple choice questions

Choose the best alternative answer to each of the following questions.

1. Structural change is an on-going process in the economy. It is explained by
 - a. patterns of demand changing over time as new products emerge to replace old ones.
 - b. invention and innovation bringing new technologies to productive methods.
 - c. management seeking more efficient ways of producing good and services.
 - d. all of the above.

2. Which of the following is NOT an indicator of structural change over time?
 - a. changes in occupational patterns in the workforce.
 - b. changes in expenditure patterns on consumer items.
 - c. changes in the contribution to GDP by sectors of the economy.
 - d. changes in private investment on infrastructure.

3. Which of the following best describes the general pattern of structural change of economies as they develop?
 - a. the growth in urban population increases the demand for food, so the proportion of employment in the agricultural sector rises.
 - b. manufacturing dominates agriculture, then services dominate manufacturing.
 - c. manufacturing industry declines when a country is able to produce surplus food.
 - d. the service sector overtakes the manufacturing sector as the dominant sector in the economy.

4. Structural changes driven by factors having to do with day-to-day changes in producer and consumer markets are called
 - a. endogenous changes.
 - b. technical changes.
 - c. exogenous changes.
 - d. dynamic changes.

5. Which of the following is a result of structural change in the economy?
 - a. lower employment in the services sector of the economy.
 - b. lower demand for workers with technical skills.
 - c. more labour intensive agricultural and mining sectors.
 - d. more automation in the manufacturing industries.

6. 'Technical efficiency' is best defined as
 - a. producing at the minimum average cost level of output.
 - b. employing current technology to improve productivity.
 - c. allocating resources according to consumer preferences.
 - d. minimising the opportunity cost of resource use.

7. The formula that best describes labour productivity is
 - a. labour productivity = Output volume / input volume
 - b. labour productivity = Cost of inputs / labour hours
 - c. labour productivity = Output volume / labour hours
 - d. labour productivity = Output increase / labour hours increase

8. Multifactor productivity is best described as:
 - a. the contribution to production of capital deepening.
 - b. the amount of output produced per hour worked.
 - c. the contribution to output growth made by factors unrelated to the quantity of labour and capital equipment.
 - d. the contribution to output growth made by investments in human and physical capital.

9. 'Lumpy' investment in large infrastructure projects such as mines, electricity generation or water desalination plants will, in the short term:
- result in a fall in labour productivity because no output is yet being produced.
 - result in a fall in labour productivity because there is no infrastructure available.
 - result in a rise in labour productivity because the amount of capital equipment per worker increases.
 - result in a rise in labour productivity because very few workers are required to run capital-intensive plants.
10. Which of the following best describes the Australian economy prior to the 1990s?
- market conditions determined the prices paid for labour.
 - the economic base was broad, with growing production of tradeable manufactured goods.
 - protection shielded domestic producers from overseas competition in many markets.
 - the industrial relations system was decentralised.

Data interpretation

The table at right shows the growth in productivity in Australia over a four year period.

Year	Labour productivity	Multifactor productivity
1	0.3	-2.0
2	3.0	0.4
3	2.2	1.0
4	1.9	0.1

- In which years were total productivity growth slowest and fastest? [2 marks].
- What is multifactor productivity and why might it rise over time? [3 marks].
- Calculate the capital deepening contribution to productivity for each year. Explain why capital deepening is important for productivity growth. [5 marks]

Extended responses

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

- Using a number of indicators, discuss the major structural changes that have occurred in the Australian economy over time. In general, what factors have brought about these changes? [20 marks]
- Explain the importance of productivity in lifting a nation's standard of living. [5 marks].
 - Labour productivity is easy to calculate, but difficult to explain. Discuss. [10 marks]
- Using the aggregate demand /aggregate supply framework, show how rising productivity and government-sponsored competition policy can both increase the rate of economic growth and reduce the level of inflation. [20 marks]
- Explain the role that THREE of the following might play in increasing the level of efficiency and competitiveness of the Australian economy:
 - tax reform;
 - reducing road congestion;
 - trade liberalisation; or
 - improved management education. [5+5+5 marks]

Answers to multiple choice questions

Ch	Page	Answers
1	21	1d; 2d; 3d; 4d; 5b; 6c; 7c; 8d; 9c; 10c; 11b; 12b; 13a; 14b; 15b; 16a; 17a; 18c; 19b; 20d
2	48	1c; 2c; 3d; 4d; 5d; 6b; 7b; 8a; 9c; 10c; 11d; 12a.
	51	1b; 2a; 3c; 4c; 5a; 6d; 7b; 8a; 9c.
3	63	1a; 2d; 3b; 4a; 5b; 6a; 7c; 8c; 9c; 10a; 11a; 12a; 13b; 14d.
4	85	1d; 2a; 3a; 4a; 5; 6d; 7d; 8c; 9d; 10d; 11d; 12a; 13d.
	88	1b; 2a; 3a; 4c; 5a; 6c; 7c; 8a; 9c; 10b; 11a; 12c; 13b.
5	99	1d; 2b; 3b; 4b; 5d; 6c; 7c; 8d; 9b; 10b; 11b; 12d; 13a; 14a; 15d; 16 c
6	118	1c; 2b; 3c; 4b; 5b; 6d; 7b; 8b; 9d; 10b; 11d; 12d; 13a; 14c; 15d; 16 d; 17 d.
7	138	1b; 2b; 3b; 4c; 5d; 6c; 7c; 8d; 9c; 10b; 11c; 12a; 13d.
	143	1a; 2c; 3b; 4d; 5b; 6c; 7b; 8a; 9c; 10a; 11b.
8	157	1c; 2b; 3d; 4d; 5c.
9	185	1c; 2b; 3d; 4c; 5d; 6b; 7b; 8c; 9a; 10b; 11b; 12c; 13b; 14a; 15c.
10	203	1b; 2a; 3c; 4c; 5c; 6b; 7d; 8a; 9a; 10b; 11d; 12c; 13c; 14d; 15c.
11	220	1a; 2c; 3d; 4c; 5b; 6b; 7c; 8b; 9a; 10b.
12	243	1b; 2a; 3d; 4a; 5c; 6b; 7c; 8c; 9d; 10d.
13	264	1c; 2b; 3d; 4a; 5a; 6c; 7b; 8c; 9d; 10d; 11a; 12d; 13a; 14d; 15a.
14	294	1d; 2d; 3b; 4a; 5d; 6a; 7c; 8c; 9a; 10c

Index

A

- absolute advantage 29, 30
- AD/AS model and the business cycle 199
- aggregate demand 190
- aggregate demand (AD) curve 191
- aggregate demand / aggregate supply model 190
- Aggregate Demand and Supply 189–206**
- aggregate demand management 217
- aggregate expenditure
 - changes in 169
 - components of 160
 - definition 160
 - determinants of 163, 169
 - equation 160
 - full model 175
 - GDP proportions 162
 - Keynesian model 163
 - role of expectations 164
 - role of net exports 168
- aggregate expenditure model 175
 - and the multiplier 179
- aggregate supply 192
 - alternative model 195
- aggregate supply curve 192
 - movements and shifts 193
- anti-dumping argument
 - for protection 42
- appreciation
 - and aggregate demand 115
 - and businesses 115
 - effects of 115
- arguments for protection 40
- arguments for trade liberalisation 44, 46
- Association of South East Asian Nations (ASEAN) 47
- AUD 168
 - appreciation costs and benefits 115
 - appreciation 109, 112
 - demand and supply 109
 - demand for 107
 - depreciation 109
 - depreciation - causes and effects 116
 - depreciation cost and benefits 115
 - factors affecting value 113
 - floating exchange rate 109
 - recent trends 111
 - supply of 107
 - volatility 112
- AUD (Australian dollar)
 - depreciation 106
- AUD movements
 - elasticity 110
- Australia
 - actual vs potential GDP 200
 - aging population 239
 - changing exports 59
 - changing jobs (2012–2017) 273
 - competition policy 288
 - composition of trade 58
 - current account 71
 - direction of trade 60
 - economic policy institutions 217
 - employment share 270
 - free trade agreements 47
 - globally significant industries 4
 - government debt 239
 - importance of foreign investment 124
 - importance of international trade 56
 - international competitiveness 79
 - macroeconomic record (1980–2018) 211
 - net foreign debt position 128
 - productivity performance 276
 - protected economy 287
 - recent fiscal policy 238
 - small open economy 26
 - stock of foreign investment 124, 134
 - tariff cuts 45
 - trade balance 79
 - trade by region 62
 - trade intensity 57
- Australian Bureau of Statistics (ABS) 68, 154
- Australia's composition of trade
 - exports % share 59
 - imports % share 59
- Australia's free trade agreements 47
- Australia's links with the global economy 3
- Australia's main exports and imports 61
- Australia's Pattern of Trade 55–66**
- Australia's terms of trade 94, 98
- Australia's trade by region 2017 62
- Australia's trade intensity 57
- automatic stabilisers 230
- average propensity to consume (APC) 173
- average propensity to save (APS) 173

B

balanced budget 227
 balance of payments
 account structure 69
 and a free exchange rate 109
 and terms of trade 97
 and the exchange rate 106
 capital and financial account 74
 credits 68
 current account deficit 79
 debits 68
 definition 68
 primary income 72, 77
 secondary income 73, 77
 structure of accounts 70
 two broad accounts 68
 balance on current account 73, 77
 base year (index) 93
 'Big Mac' index 12
 boom 149, 150
 budget
 and economic management 170
 budget (1989-90) 234
 budget (2009-10) 232
 budget 2018-19 226
 budget balance
 structural and cyclical 236
 budget balance and the budget stance 235
 budget deficit financing 228
 budget outcomes 227, 239
 budget result
 planned vs actual 227
 budgets and government finance 228
 budget surplus 229, 233
 business confidence
 and inflation 212
 business cycle
 and aggregate expenditure 181
 and economic indicators 152
 and household spending 163
 and the AD/AS model 199
 exogenous factors 152
 phases of 149
 role of investment 152
 business cycle. 230
 business cycle model 150
 business cycles
 in developed countries 152
 business perceptions 167

C

capital account 68
 capital and financial account 74, 75
 capital deepening 280
 capital good 161
 cash rate
 and consumption 164
 and inflation 258
 definition 253
 central banks 249
 ceteris paribus 217
 changes in the exchange rate
 demand and supply model 105
 cheap foreign labour argument
 for protection 42
 China-Australia FTA 47
 coincident indicators
 of economic activity 154
 Commonwealth Treasury 217
 comparative advantage 31
 gains from specialisation 32
 sources of 36
 using a demand/supply model 34
 competition and industry policy 217
 competitiveness
 country rankings 10
 composition of trade 58
 consumer and producer surplus 34
 Consumer Price Index 251
 consumption
 and aggregate expenditure 160
 and government policy 164
 and household wealth 164
 and interest rates 163
 components of 160
 factors affecting 163
 role of expectations 164
 consumption function 170
 and MPC, MPS 172
 contemporary monetary policy 261
 contractionary gap 197
 contractionary monetary policy 255
 contraction in business cycle 149, 150
 cost inflation 200
 costs and benefits
 of appreciation 115
 of depreciation 115
 costs and benefits of foreign investment 135
 costs of high inflation 212
 countercyclical policy 230

CPI
 headline 252
 measures of 252
 trimmed mean 252
 weighted median 252
 crowding in 229
 crowding out 229, 238
 currency
 supply and demand 107
 currency appreciation
 costs and benefits 115
 currency depreciation
 costs and benefits 115
 current account 68, 75
 and national accounts 81
 foreign liability income flows 127
 trends 76
 current account balance
 and a free exchange rate 110
 interpretation of 80
 current account deficit 78, 124
 causes of 79
 factors influencing 83
 significance of 82
 structural and cyclical causes 79
 cyclical unemployment 214, 251

D

decision lag 218, 260
 deficit budget 227, 231
 deflationary gap 231
 demand-deficient unemployment 214
 demand for a currency
 determinants 107
 depreciation 213
 and competitive advantage 115
 and inflation 115
 causes and effects 116
 effects of 79, 111, 115
 depreciation - causes and effects 116
 determinants of aggregate expenditure 163
 direct investment 74
 dirty float
 and the exchange rate 109
 discretionary fiscal policy 231
 discretionary spending 164
 disposable income 163, 171, 177
 dissaving 172
 diversification argument
 for protection 41

drivers of competitiveness (IMD) 9
 drivers of productivity 279
 dumping
 in trade 42
 duration of unemployment 214
 'Dutch disease' 98

E

economic growth 148, 210
 and Australian trade 77
 and structural change 274
 economic indicators
 and time lags 218
 balance of payments 75
 coincident 153
 countercyclical 155
 examples of 153
 lagging 153
 leading 153
 procyclical 155
 economic objectives : conflict and
 compatibility 215
 economic policy institutions
 in Australia 217
 economic policy objectives
 compatible 215
 conflicting 215
Economic policy objectives 207–224
 economic roles of government 208
 economic transactions
 types of 68
 economic value 280
 economic welfare
 and exports 35
 and imports 35
 effect of a subsidy 40
 effects of a tariff 38
 efficient resource allocation 215
 elaborately transformed manufactured
 exports (ETMs) 60
 elasticity
 and interest rates 166
 and the exchange rate 110
 equilibrium 176
 definition 171
 equitable distribution of income 215
 European Union (EU) 47
 exchange rates
 and external shocks 110
 and hedging 111

- and net exports 168
 - and the mining boom 110
 - definition 104
 - dirty float 109
 - effects of movements in 115
 - factors affecting 113
 - fixed or floating 106, 108
 - Exchange Rates 103–122**
 - expansion 149, 151
 - expansionary fiscal policy 232
 - expansionary gap 197, 198
 - expansionary monetary policy 256
 - expectations
 - and consumption 164
 - and investment 166
 - export price index (XPI) 93
- F**
- Fair Work Act 281
 - favourable balance of trade argument
 - for protection 43
 - financial account 68
 - transactions 74
 - financial account surplus 124
 - factors influencing 83
 - financial sector 248
 - fiscal policy 164, 217
 - and aggregate supply 238
 - and time lags 237
 - contractionary stance 233
 - expansionary stance 231
 - inflexibility 237
 - since 1980 239
 - strengths and weaknesses 236
 - structural deficit 236
 - structural surplus 236
 - Fiscal Policy 225–246**
 - fiscal policy and the multiplier 233
 - fiscal policy in a boom 234
 - fiscal policy in a trough 232
 - floating exchange rate 108
 - foreign assets 124
 - foreign borrowing
 - and interest payments 130
 - foreign debt
 - a problem? 130
 - as a stock variable 130
 - definition 128
 - gross vs net 128
 - potential benefits 132
 - potential costs 131
 - public vs private 129
 - foreign direct investment 18, 133, 135
 - foreign equity 133
 - definition 128
 - foreign exchange
 - forward 111
 - futures 111
 - foreign exchange hedging 111
 - foreign exchange market 104, 107
 - spot market 111
 - Foreign Investment 123 - 144**
 - foreign investment 3, 132
 - and living standards 136
 - and the balance of payments 127
 - as borrowing 132
 - as equity 132
 - costs and benefits 135
 - definition 132
 - direct and portfolio 132
 - forms of 74, 125
 - influences on 134
 - types 132
 - foreign liabilities 124
 - and the current account 127
 - free exchange rates
 - disadvantage 111
 - free trade 18
 - case for 40
 - winners and losers 19
 - free trade agreement 44
 - Free trade and protection 25–54**
 - frictional unemployment 214
 - full employment 213
- G**
- G20 (Group of 20) 18
 - gains from specialisation 33
 - gains from specialisation and trade 27
 - GDI 96
 - GDP 5, 11, 26, 75, 96, 153, 155, 162, 163, 176, 210, 226
 - actual and potential 198, 201
 - and aggregate expenditure 170
 - growth in potential 201
 - growth over time 148
 - potential level 193
 - General Agreement on Tariffs and Trade (GATT) 16, 44

- Global Financial Crisis (GFC) 148, 214, 237, 240
- Global Interdependence 1–24**
- globalisation 2, 9, 14, 272
- and business cycles 152
 - causes of 16
 - effects of 18
 - indicators of 15
 - waves of 16
- global trade
- patterns and trends 5
- global value chains 8
- government bonds 228
- government budget 217
- government debt 229
- government economic objectives 208
- government expenditure
- and aggregate expenditure 162
 - and infrastructure 167
 - current and capital types 162, 167
 - factors influencing 167
- government revenue
- and inflation 213
- government revenue and expenditure 226
- Great Depression 237
- gross domestic income (GDI) 96
- H**
- Harper Review 289
- household income
- and inflation 211
- human capital 279, 285
- I**
- impact lag 219
- implementation lag 260
- import price index (MPI) 93
- imports
- and the business cycle 168
- income or wealth effect
- on aggregate demand 190
- independence of the RBA 209
- index numbers
- export price index 93
- infant industry argument
- for protection 41
- inflation
- and exchange rates 113
 - and the cash rate 258
 - economic costs 211
 - headline and underlying rates 212, 251
 - weighted and trimmed measures 252
- inflation targeting 251, 257
- evaluating success 259
- innovation 272, 279
- innovation active firms 287
- interest burden
- on foreign debt 130
- interest rate differential
- and exchange rates 114
- interest rate effect
- on aggregate demand 190
- interest rates 249
- and assets prices 255
 - and capital flows 260
 - and cash flow positions 255
 - and exchange rates 255, 260
 - and inflation 211
 - and investment 165
 - impact on spending decisions 254
 - nominal and real 166, 250
 - opportunity cost of consumption 164
- international capital flows
- and exchange rates 113
- international competitiveness 9, 83
- and inflation 212
 - measures of 12
- International Institute for Management Development (IMD) 9
- International Monetary Fund (IMF) 5, 16
- inventories 162, 174, 175
- investment
- and aggregate expenditure 161
 - and expectations 167
 - and GDP 165
 - and government policy 167
 - and interest rates 165
 - and taxation 167
 - and the business cycle 166
 - categories of 161
 - definition 165
 - factors affecting 165
 - in aggregate expenditure 173
 - private sector 161
 - the role of risk 165
- investment demand curve 165
- investment income credits 73
- investment income debits 73
- investment multiplier 178
- investment savings (I - S) gap 124, 127, 136

J

- 'J-Curve' effect 110
- joblessness
 - true extent of 214

K

- Keynesian aggregate expenditure model
 - 163, 170, 173
- Keynesian model 175
- Keynesian policy 170, 227

L

- labour force
 - and potential GDP 193
- labour productivity 275
 - across sectors 277
 - and potential GDP 193
 - influences on 276
- lagging indicators 154
- leading indicators 154
- less developed countries (LDCs) 4
- long run aggregate supply curve (LRAS) 192
- LRAS curve 193

M

- macroeconomic environment
 - stability 167
- macroeconomic equilibrium 196
 - long run 196
 - short run 197
- macroeconomic equilibrium. 176
- macroeconomic objectives 167
- macroeconomics 160
 - definition 146
 - relevance of 146
- macroeconomic trends and cycles 148
- marginal propensity to consume 177
- marginal propensity to consume (MPC) 172
- marginal propensity to import 175
- marginal propensity to save (MPS) 172
- measures of inflation 252
- microeconomic reform (MER) 288
- microeconomics 146
- Mid-Year Economic and Fiscal Outlook (MYEFO) 236
- mining boom

- and the AUD 110
- monetary policy 164, 217, 250
 - 2016-2018 262
 - and the business cycle 260
 - and the exchange rate 109
 - contractionary stance 253
 - exchange settlement funds 253
 - expansionary stance 253
 - implementation 252
 - liquidity trap 261
 - neutral stance 253
 - open market operations 253
 - RBA objectives 250
 - strengths 259
 - weaknesses 260
- Monetary Policy 247–268**
- monetary policy stances 253
- monetary policy transmission mechanism 254
- money
 - functions of 248
- multi-factor productivity (MFP), 275
 - reasons for growth 275
- multinational corporations 2
- multinational corporations (MNCs) 17
- multiplier 177, 219, 231
 - and aggregate expenditure model 179
 - and fiscal policy 233
 - and government policy 181
 - calculation of 178
 - examples of economic impact 180
 - if investment falls 180
 - size of 180

N

- National Competition Policy 288
- national savings
 - and the current account 83
- national security argument
 - for protection 42
- natural rate of unemployment 214
- natural rate of unemployment 196, 200, 251
- net exports
 - and aggregate expenditure 162
 - and the exchange rate 168
 - factors affecting 168
- net foreign debt
 - Australian trends 129
 - public and private 128
- neutral budget stance 235
- nominal interest rates 250

nominal rate of interest 166
North American Free Trade
Agreement (NAFTA) 47

O

open economy effect
on aggregate demand 190
open market operations 253
opportunity cost 28, 31, 34, 164
in international trade 28

P

patterns and trends in global trade 5
phases of a business cycle 150
planned investment 162
portfolio investment 74, 133
speculative 137
potential GDP 193, 194
determinants 210
potential level of income (Y_p) 193
and productivity 194
price stability 210
as an RBA objective 250
principle of absolute advantage 29
principle of comparative advantage 31
production possibilities frontiers
and comparative advantage 31
productivity 210, 275
and capital deepening 280
and education and training 285
and efficiency 290
and ICT 277
and infrastructure 284
and macroeconomic objectives 289
and management 280
and research and innovation 286
and tax reform 282
and trade liberalisation 284
contribution to economic growth 291
deregulation and competition policy 287
drivers 279
importance of 279
influence of government 281
labour market and workplace relations 281
Productivity Commission 218
profitability
and investment activity 166
protection 37
arguments for 40

costs of 37
three main types 37
Purchasing Power Parity (PPP) 12

Q

quotas 37

R

rate of interest
and investment 165
real gross domestic product (RGDP) 148
real interest rates 250
real rate of interest 166
real unit labour costs 11
recession or downturn? 151
recognition lag 218, 260
regional trade agreements 46
regulatory framework 167
research and development (R&D) 286
three categories 286
Reserve Bank of Australia (RBA) 217, 248,
249, 253
and consumption 164
and the exchange rate 109
Charter 209
policy objectives 209
independence 259
statement on Monetary Policy 259
roles of the budget 226

S

self-sufficiency 28
shifts of the SRAS curve 194
short run aggregate supply curve (SRAS) 192
significance of international trade 26
simply transformed manufactured
exports (STMs) 60
size of the multiplier 180
specialisation 5
SRAS curve 193
stabilising the economy 230
stagflation 199, 211
stock-flow lag 218
structural change 270
and economic growth 274
causes of 271
impact of 272
Structural change and productivity 269–308
structural changes in the economy

- and inflation 213
- structural unemployment 214, 274
- subsidies 37, 39
 - costs of 40
- supply of a currency
 - determinants 108
- supply shock 194, 199
- supply-side 281
- surplus budget 227

T

- tariff
 - adverse effects 39
 - deadweight loss 39
- tariffs 37
- temporary protection 41
- terms of trade 112, 276
 - and current account 83
 - and exchange rates 113
 - and net exports 168
 - and the trade balance 97
 - favourable 97
 - unfavourable 97
- terms of trade index 92
 - calculation 92
 - construction 93
- The aggregate expenditure model 159–188**
- The balance of payments 67–90**
- the business cycle 149
- The business cycle 145–158**
- the current account 73
- the gains from exports 34
- the gains from imports 35
- the importance of price stability 212
- theory of free trade 36
- The terms of trade 91–102**
- time lags 260
 - nature and impact 218
- tourism 4
- trade balance
 - and world business cycle 79
 - proportion of GDP 79
- trade barriers
 - reduction of 19
- trade blocs 46
- trade intensity 57
 - determinants of 57
- trade liberalisation 44
 - and Australian economy 45
- trade-to-GDP ratio 56

- trade transactions types
 - goods 72
 - investment income 72
 - primary income 72
 - secondary incomes 72
 - services 72
- trade war 43
- trade weighted index (TWI) 112
- trade-weighted index (TWI) 11, 104
- traditional fiscal policy 238
- trends in the current account 76
- trough 149, 151
- twelve pillars of competitiveness 9
- types of financial markets 248
 - loans, bonds, shares 248

U

- underemployment 214
- underutilisation rate 214
- unemployment
 - cyclical 214
 - duration of 214
 - economic cost of 214
 - frictional 214
 - natural rate 196, 214
 - structural 214
 - types of 214
 - youth 214

V

- value of AUD
 - 2017-2018 changes 104
- Vernon Report (1965) 208

W

- welfare effects of a tariff 38
- World Bank 5, 16
- World Economic Forum (WEF) 9
- world GDP 5
- world income and trade 5
- world merchandise exports 6
- world tariff rates 16
- World Trade Organisation (WTO) 2, 5, 42, 44, 46



Investigating Macroeconomics 5e
ISBN 978-1-875313-53-2
(digital edition)