

5th Edition



Economics

for the **Real World**



Natalie Berndt
Doug Cave
Tony De Luca
Ron Hanmer

 Nelson

units
1+2

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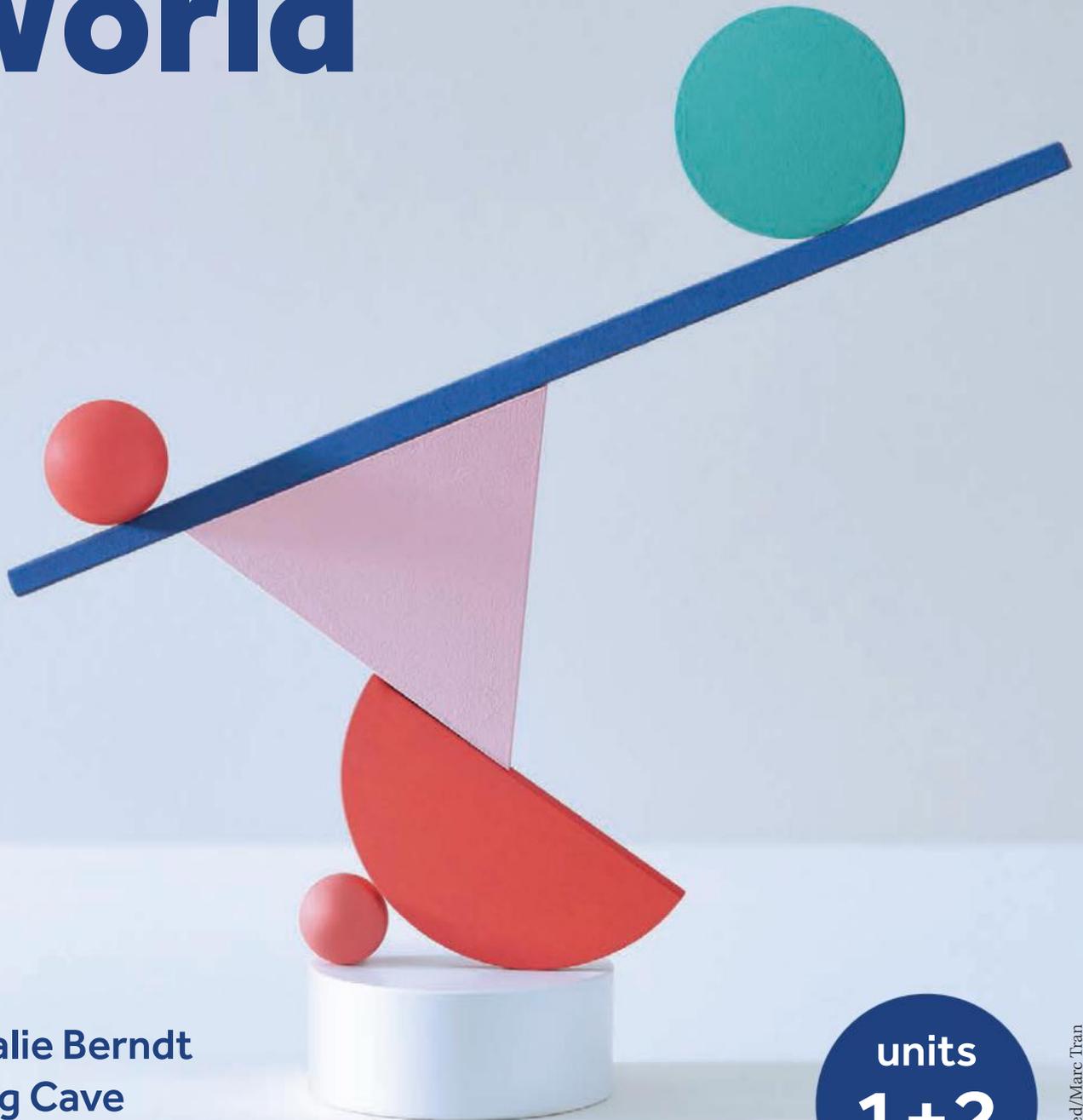
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Economics for the Real World Units 1&2

5th Edition

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About this series

This new edition of *Economics for the Real World* has been fully updated for the 2025 QCAA Economics General Senior Syllabus implemented at Units 1 & 2 in 2015 and Units 3 & 4 in 2026. It comprehensively covers the syllabus and unit objectives using the inquiry approach valued in the syllabus, with integration of the underpinning factors throughout.

Focus questions and inquiries

Thought-provoking questions allow students to reflect on prior learning. The content examined in the chapter links to the QCAA syllabus subject matter.

Focus questions and inquiries

- Why and how do some markets change and modify over time?
- Can and should some markets be modified to correct market failures or reduce their social costs?
- Why is increased competition the key to a successful market economy?
- Can positive and negative externalities be managed through the modification of markets?
- How does the government seek to modify and regulate markets? Why is this necessary?

This chapter will examine:

- the modification of markets to correct market failure
- government measures and strategies
- industry factors that modify markets
- limitations and unintended consequences of attempts to correct market failure.

Concepts

Clear definitions of key terms throughout each chapter and in a complete glossary at the conclusion of the book.

6.1 Why the need to modify markets?

CONCEPTS

Deregulation: a process of removing a set of government laws and rules imposed on a market

Externalities: indirect costs and benefits associated with the production and consumption of certain goods and services that the market fails to take into account

Full employment: situation where everyone who wants a job, has a job; there will always be some level of unemployment

Market failure: the inability of the market to determine the use and allocation of resources in the way society most desires, because certain conditions are lacking; for example, market power, externalities and public goods

Market sharing: where the market is divided between firms that agree not to compete in each other's areas

Monopoly: the market situation in which one seller sells a product for which there is no close substitute, allowing it to be the price setter

Private goods: goods or services provided by the business sector for use and consumption by individual consumers, usually for personal benefit and utility

Public goods: goods or services provided by the government sector for societal use and benefits, usually in response to a market unable to supply those goods or services at a reasonable cost

Regulation: a process of imposing a set of government laws and rules on a market

Resale price maintenance: where a supplier specifies a minimum price to a reseller, below which goods and services cannot be resold or advertised

Key idea

Bite-sized content to signal important ideas in context.

KEY IDEA

The government may seek to reduce the likelihood of market failure and achieve socially desirable outcomes for society by either regulating or deregulating a market.

Theory summaries

Summaries help students to focus on important theory and assist with notetaking.

FIGURE 6.1 A summary of the differences between private goods and public goods

Private goods	Public goods
Rivalrous Meaning the good or service provides satisfaction to one person only	Non-rivalrous Meaning the good or service provides satisfaction to all
Excludable Meaning the person can exclude someone from its use (e.g. you can exclude another person from using your phone)	Non-excludable Meaning any person can use the good or service
Provided by the private sector (generally), e.g. cars, computers or phones	Provided by the government (generally), e.g. hospitals, universities or infrastructure

Check for understanding

Short-response questions incorporating cognitive verbs provide students with the opportunity to check their understanding as they make their way through the chapter. Solutions are available as a teacher/student resource.

CHECK FOR UNDERSTANDING 6.1

- 1 Using real-life examples, **distinguish** between 'positive externalities' and 'negative externalities'.
- 2 **Explain** the role of government intervention in modifying markets to achieve socially desirable outcomes.
- 3 **Distinguish** between 'public goods' and 'private goods' by providing examples of each.
- 4 Contrast the effects of market concentration with the effects of a competitive market environment on consumer choice and market efficiency.

Economics in action

Media articles with associated questions assist students to relate the theory being learned to real-life scenarios.



FIGURE 6.5 This is a 2023 cartoon from Sydney Morning Herald cartoonist Alan Mair.

ECONOMICS CHALLENGE

The tragedy of the commons

In 1968, an American ecologist, Garrett Hardin, published an article entitled 'The tragedy of the commons'. In the article, he noted that when resources are held commonly, it is in an individual or firm's own self-interest to use as much of the resource as possible to maximise their utility (in the case of an individual) or their profit (in the case of a firm).

This economics challenge invites you to find out more about the tragedy of the commons as it relates to the world's oceans and the problem of overfishing. Visit the websites suggested on the following page to establish an understanding of the problem of overfishing of a particular species of fish; for example, the bluefin tuna. Use the following questions to guide your research to compare and contrast the various approaches that nations are using to protect precious fish stocks.

- Analyse** how the supply of fish has changed over the last 10 years.
- Explore how world demand and prices for fish stocks have changed over the last 10 years.
- How has technology influenced the finding and catching of fish?
- How has fish farming affected fish stocks over the last 10 years?
- How has an increase in recreational fishing affected fish stocks?
- What impact has ocean pollution had on fish stocks over the last 10, 20 and 30 years?
- What measures have developed nations put in place to protect fish stocks?
- What measures have developing nations put in place to protect fish stocks?

Economics challenge

In-depth inquiries of real-life scenarios encourage students to find current data.

A comprehensive revision guide at the end of each chapter

The ultimate student revision package which includes:

- terminology which could be turned into flash cards for recall of key terms,
- multiple-choice questions updated in this series to align with QCE practices,
- short-response questions utilising cognitive verbs and
- inquiry topics which could be used as practice, or to develop internal assessment.

R 5.1 Terminology

Select the correct term from the list below that describes each statement.

- | | |
|------------------------------|-----------------------------------|
| A marginal cost | F merit goods |
| B optimal outcome | G public goods |
| C physical market | H demerit goods |
| D perfect competition | I oligopoly |
| E efficiency | J monopolistic competition |

- using the least amount of resources to produce the goods and services that people value the most
- a place where buyers and sellers actually meet to exchange goods and services
- the best or most favourable outcome under a particular set of circumstances
- the addition to total cost that occurs when one more unit of output is produced and sold
- a theoretical market structure in which many buyers and sellers trade a homogenous product, there are no barriers to entering the market and all producers are price takers

R 5.2 Multiple-choice questions

Select the correct response to each of the following:

- Markets operating efficiently will produce:
 - the most efficient solutions to the economic problem.
 - efficiency in the production sector.
 - efficiency in the financial sector.
 - products that provide consumer sovereignty.
- 'When the allocation of resources is optimal; one person cannot be made better off without making another person worse off' is a definition of:
 - productive efficiency.
 - pareto efficiency.
 - specialisation.
 - efficiency.

R 5.3 Short response questions

- Recall** five advantages for consumers of buying a product online in a virtual market, rather than from a physical shop. State which advantage is the most important to you and briefly **explain** why.
- Using an example such as the market for smartphones, laptop computers or cars, contrast the nature and operation of markets for final consumer goods and intermediate goods.
- After reviewing Figures 5.6 and 5.7, **explain** why the consumer and producer surplus cannot be increased by producing more in a market that is allocating resources efficiently.
- Explain** what product differentiation is and why it is used by firms in markets that have limited competition.
- Explain** why firms in competitive markets are price takers rather than price setters. Contrast this with the situation in a monopoly.

R 5.4 Inquiry topics

- How can market failure create opportunities for innovation and business?
- Source a current breakdown of the market share of the Australian grocery industry. **Analyse** the data and **evaluate** the market structure of the industry. Hint: base your decision on the degree of market concentration and the nature of competition between the leading firms in the industry.
- Select a market-leading company in a major global market for consumer goods, such as mobile phones, sporting footwear, household appliances or electronic games. To what extent are the new products offered by this company in recent years an example of product differentiation, rather than dynamic efficiency?

Introduction

Studying economics

Economics is a study of how to use scarce resources in the best way possible. Thus, economics can help individuals, households, businesses and governments, faced with the economic problem of limited resources, to make good decisions and choices among alternative uses for these resources. The Reserve Bank of Australia posits that those who are economically literate make more informed economic choices, better understand the world around them and can influence public discourse and the actions of government. Extensive coverage of economic issues, problems and events in the media further highlights the need for economic literacy, understanding and skills.

This text aims to help you gain the skills and competencies necessary to participate effectively in, and to contribute to, economic decision making in every aspect of the real world, from personal finances and career choices to the responsibilities of citizenship.

The skills and competencies you will need to become economically literate are gained through inquiry and other activities aimed at developing:

- a knowledge and understanding of economic concepts, ideas, data and principles
- an ability to analyse, select, record and organise economic data and information
- an ability to draw on a variety of ideas and information to evaluate economic issues or problems
- communication skills used to report data and information effectively in inquiries
- a continuing interest in economics and an ability to clarify responsible and ethical attitudes and values related to economic issues.

As you work with your teacher, your textbook and other sources of information, you will gradually develop these necessary skills, competencies and attitudes over your course of study.

Economic inquiry

Inquiry learning takes many forms but essentially it involves asking questions about issues or problems and finding answers. The model in Figure 1 illustrates this:

- A question is asked or formed; an inquiry is framed.
- Relevant information is gathered and analysed, shared and discussed with others by finding sources, locating and gathering accurate, current and reliable data, information and sources, and reflecting on the usefulness of such data, information and sources.
- A reasoned and justified response is created by analysing, (dissecting data and information into component parts) comparing and interpreting relationships, patterns and trends within the data you have gathered which draw meaning. At this stage, reflection should occur, including questions such as, 'Have I found sufficient relevant information? Can my interpretations be justified by the data, information and sources I have used? Do I need to find additional information to aid my analysis (i.e. the findings and the process are reflected on)?'
- A discussion or an evaluation shows the synthesised economic ideas, decisions and judgements made and the conclusions arrived at using economic criteria. Can these findings be justified by the evidence gathered? Do they reflect on the accuracy of decisions and examine if those decisions need further evidence to support them?

The response is communicated to an audience, and perhaps another inquiry is established, following the process again. By doing this, we learn more about economics and our world.

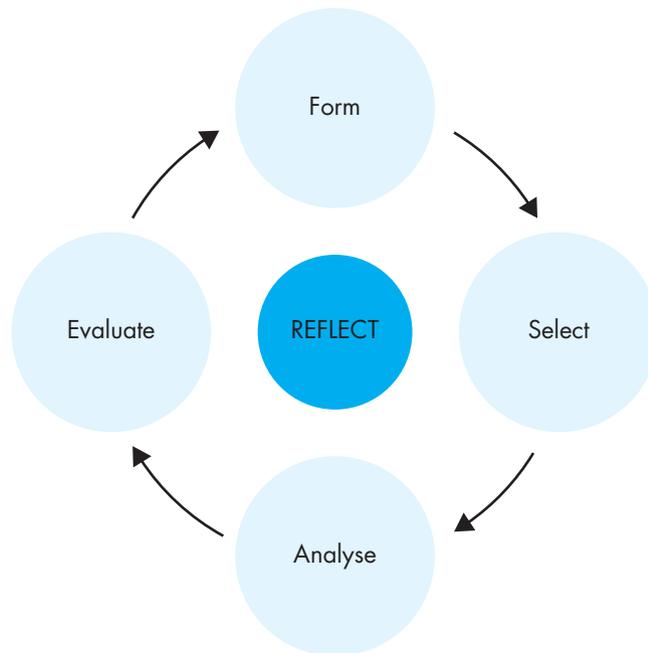


FIGURE 1 An economic inquiry model

Research and inquiry can be carried out individually or in small groups. There is a range of inquiry models for different purposes.

A method of problem solving that involves inquiry

- 1 Define the problem or issue.
 - What is the problem or issue? What do I want to know? Clearly define it.
 - Whose problem or issue is it? How are various parties affected?
 - Where can I get reliable, accurate and current data or evidence about the problem or issue?
 - What primary and secondary sources can I use?
 - How do I know the information is valid and reliable?
- 2 Identify the economic aspects of the problem or issue.
 - Are there technical and financial aspects as well as economic aspects?
 - What are the causes of the problem or issue?
 - What are the effects of the problem or issue in terms of costs and benefits?
 - What economic concepts and theories might help us understand the situation?
- 3 Identify alternative possible solutions to the problem or issue.
 - What are the various proposals to resolve the problem or issue?
 - What are the likely consequences of each alternative in terms of costs and benefits?
 - What evidence is there to support or argue against each proposed solution?
- 4 Identify the best solution according to the goals, costs and benefits.
 - What are the goals or objectives regarding the problem or issue?
 - What criteria should be used to evaluate alternatives? Costs and benefits? Efficiency, effectiveness, equity?
 - Is there any other evidence to help decide the best solution?

5 Reflect on the process of inquiry and the solution or outcome of the inquiry.

- Has a solution been found?
- How does it connect to the central question or hypothesis?
- Do I need to rephrase the central question or hypothesis?
- What have I learnt that can help me in future inquiries?

Such an analysis will help to choose the best decision or course of action when faced with an economic problem or issue. By ensuring that all aspects of the problem are examined and by ensuring that our goals and criteria are clearly established and alternatives compared on the basis of their costs and benefits, a good solution is most likely to emerge.

This approach can be used by businesses and governments when making major decisions on such things as spending or investment, or when trying to solve problems such as inflation or unemployment. However, it is equally applicable to individuals and households as a tool for making financial decisions, such as whether to rent or purchase, what car to buy, or whether to take a part-time job while studying.

Useful economics websites

There are a variety of websites that you will constantly use as you explore ways to incorporate economic news and data into your learning of economics.

The websites of the organisations listed below can be found on Nelso MindTap.

Australian economy

- Australian Bureau of Statistics
- Reserve Bank of Australia
- Commonwealth Bank of Australia
- Westpac Bank
- National Australia Bank
- ANZ Bank
- Australian Securities Exchange
- Australian Securities and Investments Commission
- The Treasury of Australia
- Australian Competition and Consumer Commission
- Business Council of Australia
- Australian Industry Group



Media

- ABC News
- *Financial Review*
- *The Economist*

International statistics

- United Nations
- The World Bank
- International Monetary Fund
- Organisation for Economic Co-operation and Development
- World Trade Organization

Evaluating a website

Because almost anyone (including you) can publish on the Internet, it is important to discriminate between reliable, useful sites and those that may be wasting your time. The criteria listed below will help you make a judgement regarding the sites you use.

- 1 **Accuracy:** Is the information accurate and error-free? It is not always easy to tell, but you may find through cross-checking that there are inconsistencies between a site and other sources of information. How accurate is the text's spelling and grammar? How reliable are the links on the site; are they relevant and comprehensive?
- 2 **Authority:** Who has written and published the site? What are their qualifications? Government department sites and those of large organisations can usually be relied upon to provide authoritative information. Look at the URL for a personal name following a % sign or for domain labels such as .gov for government, .org for a non-profit organisation, .edu for an educational institution.
- 3 **Objectivity:** How much bias is there on the site? Is the site's information fact or opinion? Do any words or statements on the site suggest bias? Is the language emotive or factual? Who is the audience for the site and what is the site's purpose?
- 4 **Currency:** How up to date is the site? Check when the site was produced and how recently it has been updated.
- 5 **Coverage:** What topics are dealt with and what is the depth of treatment of the topics? How comprehensive is the information?
- 6 **Structure:** How easy is it to navigate through the site to find information and ideas? Can a user find what is wanted within about three clicks?

This list is not exhaustive and you may wish to add to it as you conduct your research. You could do some independent research to find what others say about the evaluation of websites. Your school librarian or teacher will know suitable sites for you to visit to evaluate a website.

Answering questions

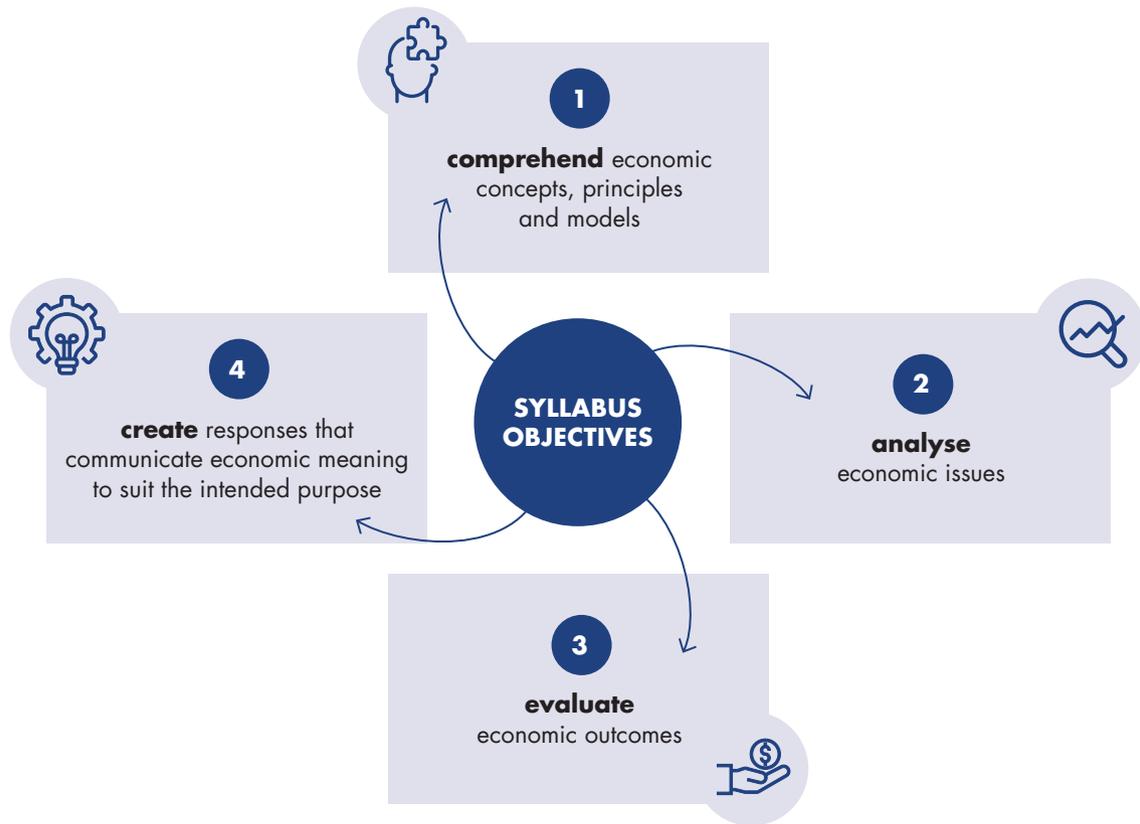
The questions that you encounter throughout the text and in the review sections at the end of each chapter will help you to prepare for assessments. Familiarise yourself with each type of question; the tips listed below will help you to learn how best to tackle them.

Answering multiple-choice questions

- 1 Always read the instructions carefully.
- 2 Work out the time you can afford to spend on each question. Do not spend more than that time on any one question. If you are having difficulty, leave the question and return to it later.
- 3 Some questions will contain responses that are clearly not applicable. Eliminate these, reread the question and then eliminate the next most unlikely response until you arrive at the most feasible alternative.
- 4 Have confidence in your answer. Do not waste time trying to prove that it is correct; that may cause doubt and undermine your confidence.
- 5 Answer every question and, if in doubt, do not hesitate to make an educated guess.

Cognitions

In Economics, you will develop a deep understanding of the subject matter using a range of cognitive processes. These cognitions are defined in the syllabus objectives, which allow you to demonstrate skills in retrieval of knowledge, analysis and synthesis of information, evaluation and decision-making based on criteria and creation of responses to communicate ideas to suit the intended purpose.



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UNIT 1

Markets and models

DEMA



1

The economic problem

This chapter examines economics, the economic problem and opportunity cost, and factors of production.

Focus questions and inquiries

- What is economics?
- What do economists do?
- Why do we never seem to have everything we want?
- How does the Australian economy function? How is it different from other economies?

This chapter will examine:

- the basic economic problem
- scarcity and how it affects economic decision making
- opportunity cost
- the production possibility frontier
- the factors of production
- the three basic economic questions
- the distinction between efficiency and equity.

1.1 The nature of economics: the study of scarcity

CONCEPTS



Cost–benefit analysis: a process through which decisions are analysed to decide which decisions to make and which to forego

Economic system: the organisational and institutional pattern through which choices are made about which wants to satisfy, and how to allocate resources to do this

Economics: the study of the ways in which a society decides to use its scarce resources to satisfy unlimited wants

Relative scarcity: where we do not have enough resources to satisfy all our wants and needs

Scarcity: insufficiency relative to wants; this is a universal problem because the resources available for the satisfaction of human wants are limited while wants are unlimited

Value judgement: a decision based not just on facts, but on personal opinions or values

Economics is concerned with the study of **scarcity** and how we use the world's *limited* resources in an attempt to satisfy what appear to be *unlimited* human wants – technology, clothing, holidays, entertainment, food, education, defence spending and so on. Although the production of goods and services has increased greatly, there is still a big difference between our wants and their satisfaction. The problem of **relative scarcity** is a universal one. Relative scarcity means that we do not have enough resources to satisfy all our wants and needs. All societies must decide how to use their limited resources to satisfy people's wants, and throughout history this has led to the development of a variety of **economic systems**. Economic systems provide a structure to help us understand how to effectively allocate scarce resources to meet people's needs and wants.



FIGURE 1.1 The basic economic problem

Economists use a **cost–benefit analysis** approach to help resolve problems. They study the way people make decisions about how to allocate scarce resources to provide themselves with goods and services, and the problems that arise in this allocation. They analyse the relationship between the supply of and demand for goods and services, and the ways in which goods are produced, distributed and consumed within an economic system.

- Some economists deal with practical problems, such as the control of inflation (the overall price levels in an economy), the prevention of recessions (slowdowns in the economy), and the development of trade or tax policies. They might ask a question such as: ‘Should Australia reform its taxation system?’
- Others try to develop theories that explain the causes of unemployment, or the ways in which international trade influences world economic conditions. They might ask, for example: ‘Should importers of luxury motor vehicles pay higher tariffs?’ (A tariff is a tax applied to the import or export of goods.)
- Still others collect and interpret data on widely varying economic problems in fields such as agriculture, business or finance. They are inclined to ask questions such as: ‘Should banks be able to charge whatever interest rate they wish?’

They all work within the field of study that we call economics.

The economist’s primary role is to figure out the ramifications of alternative courses of action, given a particular set of values and/or goals.

1.1.1 Thinking like an economist

When you try to think as an economist, you should attempt to separate your own biases and beliefs from your analytical thinking about economic problems.

By a process of *inductive* and *deductive* reasoning, economists have been able to develop a comprehensive understanding of economic behaviour and activity.

- Inductive reasoning involves the use of specific facts to generate a general law (e.g. we may note that, as people want more of something that is in short supply, the price is likely to rise – the law of supply and demand).
- Deductive reasoning involves drawing conclusions about events according to a particular law that is already established (e.g. if we notice that umbrellas are in high demand because of an extended period of rain, we may deduce that the price of an umbrella will rise until the supply of umbrellas is increased).

Who do economists help?

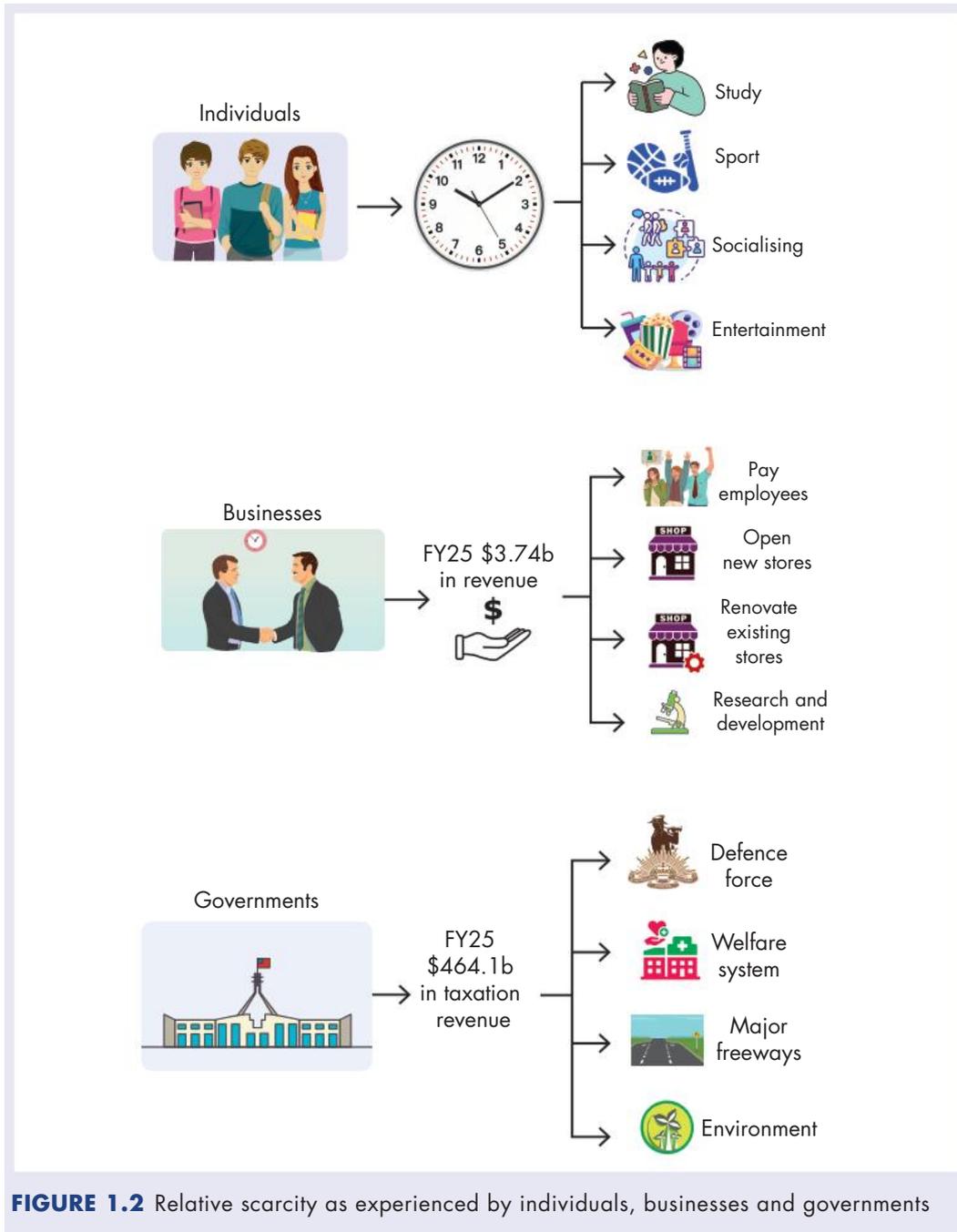
Because economics is a social science and not a physical science (like physics or chemistry), economists cannot test their hypotheses under controlled laboratory conditions. Sometimes, they also have to deal with irrational human behaviour. Nevertheless, the advice economists can give is very valuable, and forms the basis for decision making and policy at a personal, business and governmental level.

- On a personal level, an economist’s advice is useful when we are making decisions regarding purchases of goods and services, or investments in the share market or superannuation.
- In business, managers need to consider costs and benefits before making decisions on issues such as the expansion of a firm, agreeing to wage increases for staff or extending domestic sales to the international marketplace.

- Economic decisions in government can involve issues such as the setting of a federal, state or local council budget that will determine the allocation of funds to departments responsible for law and order, transport, agriculture or defence, or the changing of the taxation system.

These decisions may even have ramifications at the international level.

An understanding of economics helps us understand and solve real-world problems, and the more you know about economics, the better the decisions you will make.





Economists use their skills in the social science discipline to identify, explore and solve economic problems. Danielle Wood is an economist and Chair of the Productivity Commission.

The Productivity Commission is a government agency that provides independent research and advice to the federal government on economic, social and environmental issues affecting the welfare of Australians. It produces a number of regular reports that review a range of topics, including Aboriginal and Torres Strait Islander wellbeing, government services and expenditure, trade and assistance, and productivity performance.



Weblink
Productivity
Commission

Go to the Productivity Commission website and locate the 'Performance reporting dashboard' (under 'Ongoing reporting').

- Explore how the Productivity Commission is tracking progress in different categories.
- Choose one category (e.g. disability labour force participation) and write a paragraph describing the economic problem being addressed.
- Using data, draw a conclusion on the level of improvement being made to address the issue.



Fairfax Media/Fairfax Media/Getty Images

FIGURE 1.3 Danielle Wood, Chair of the Productivity Commission

1.1.2 Scarcity and choice

KEY IDEA

Economics is concerned with the study of scarcity. It involves decision making that takes place at the individual, national and international levels.

Economics is concerned with the fact that humans are plagued by scarcity. As we have seen, 'scarcity' means insufficiency relative to wants. To say there is a scarcity of something simply means that the amount that is available is limited: there is not enough to satisfy all the wants of all possible users.

Obviously there will be different degrees of scarcity. Let us take water as an example.

In a desert, water may be very scarce and a person must economise – choose the best use and conserve water for that purpose. They will not waste it on any use other than drinking. They may be willing to give up almost anything to get enough water to reach civilisation.

Even in a city, water is scarce to some degree, and residents have to pay for it by means of water rates. They have to give up something for it; they have to economise to some extent. Nevertheless, city dwellers have many uses for water. Apart from needing it to drink, they want to take showers, wash their cars, water their gardens and fill their swimming pools. Usually, there is a sufficient quantity available to do all of these things; however, at times, water may be in such short supply that restrictions on its use must be imposed.

The more scarce something is, the higher will be its economic value – that is, its cost, what you have to give up for it – and the more the use of it will have to be rationed. If something is not scarce, and enough is available for all possible users, there is no need to economise. Such things are called ‘free goods’. Water is sometimes a free good and air is usually a free good.

CHECK FOR UNDERSTANDING 1.1

- 1 **Recall** the essence of the economic problem.
- 2 Economics is considered a social science. **Describe** how this is different to the physical sciences.
- 3 **Explain** the economic concept of scarcity.
- 4 The most common word used when describing economics is ‘money’. **Explain** why this is incorrect.

How is scarcity determined?

Of course, there may be some things available in small quantities that are not considered to be scarce. For example, a few cases of rotten fruit lying around at a market are probably not considered scarce commodities. If something is to be called scarce in the economic sense, two conditions have to be satisfied:

- 1 People must want it.
- 2 The amount of it must be limited.

Some things have a negative rather than a positive economic value (e.g. polluted air or water) and we may be willing to pay someone to get rid of them. The question of who should pay such a cost is an interesting one. Should it be the business that was directly responsible for, in this example, the pollution, or the consumers for whose benefit the business is run? Or should all taxpayers share the cost, no matter who the guilty party might be? As with other economic decisions, such questions can be answered only after a party makes a **value judgement**; that is, when they decide what is ‘right’, ‘equitable’ or ‘fair’. Economists make value judgements like everyone else, but the primary job of an economist is to figure out the impacts of alternative courses of action, given a particular set of values or goals.

1.1.3 Wants

CONCEPTS



Competitive wants: goods/services that can be substituted for each other; for example, butter and margarine

Complementary wants: wants that go together; for example, a house, furniture and plants

Needs: things that are essential for life in our society

Opportunity cost: the best alternative opportunity forgone when a choice is

made (often referred to as 'real cost' or 'economic cost'); for example, being unable to study chemistry because you chose to study economics

Recurrent wants: wants that are never satisfied and keep recurring; for example, food

Wants: things we desire because they give us satisfaction – various types of goods and services

As we have seen in 1.1.2, the two conditions for calling a thing scarce are that it must be wanted and it must be limited in supply. Economics is about how society uses its scarce resources to try to achieve maximum progress towards all objectives, and improve the overall welfare of the community. Clearly some things are more important than others. Air, food, clothing and shelter are regarded as **needs** or necessities for life in our society. But we have many **wants** or desires that are not quite as important: see Figure 1.4.

FIGURE 1.4 The differences between needs and wants

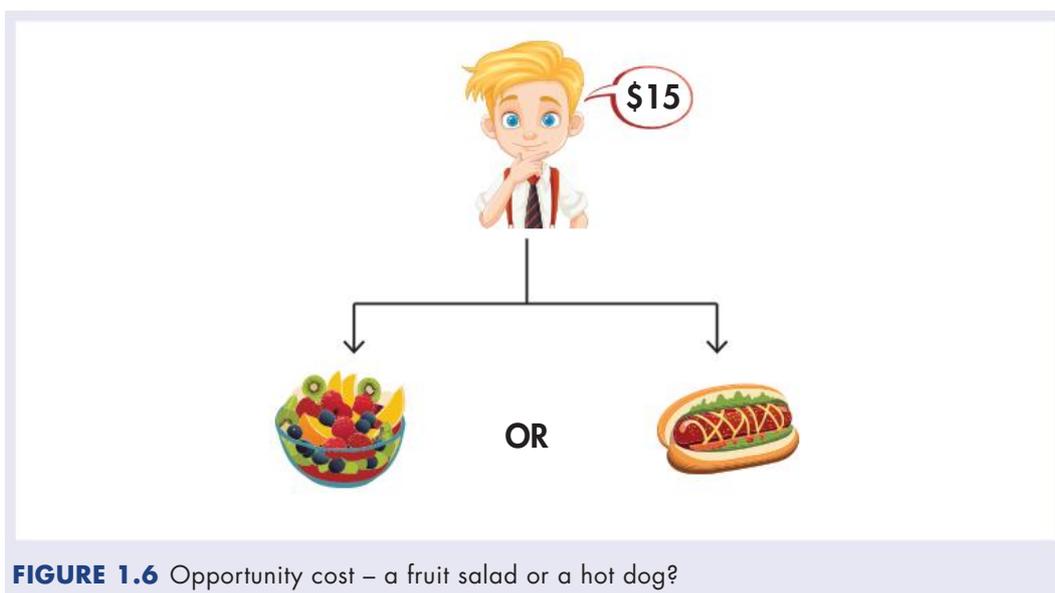
Needs	Wants
Things that are essential for life in our society, e.g. food, water, clothing, shelter	Things (various types of goods and services) that are desired because they give us satisfaction, e.g. the latest iPhone
Do not change over time	Unlimited and insatiable
All individuals have the same basic needs	Vary in intensity
	Individually or collectively desired

Wants have a number of characteristics: see Figure 1.5 on the following page.

Since there is not enough of everything to go around, everyone – people, businesses and governments – need to make choices. Individuals and families must decide how to use limited income, savings and other resources. Similarly, an economist investigating the funding of the health-care system will have to decide how best to distribute limited income between such things as the purchase of equipment or the building of new facilities.



Firms make choices based on their costs and profits, while governments are limited by their ability to tax, borrow and spend money. For example, if the federal government chooses to increase its spending on roads, there is not only a monetary cost but also a real or **opportunity cost**. This may be the opportunities forgone; for example, a reduction in the number of university places available for students. Or, if a company manager has to choose between a series of radio commercials and an email campaign, the opportunity cost of choosing to advertise on radio is the benefit that would have accrued from an email campaign. In the rural sector, a farmer may have a choice between using the land for growing wheat or grazing sheep. In this case, the opportunity cost of grazing sheep would be the benefit forgone from the next best land use; that is, the growing of wheat.





ECONOMICS DATA



Australian statistics

Navigate to the Australian Bureau of Statistics to find current data on the following:

- the percentage of Australia that is arable farmland
- the number of people currently employed in Australia
- the number of people currently unemployed in Australia
- the amount of new private capital expenditure in Australia in the last year, and the trend relating to this (i.e. is it increasing, decreasing or steady?)
- the number of businesses in Australia.

1.1.4 Factors of production

CONCEPTS



Allocative efficiency: occurs where a country's resources are used in the economy in combinations that generate the maximum benefits for consumers and the country

Capital: the factor of production comprising the stock of human-made resources used to create further goods and services

Ceteris paribus: a Latin phrase that means 'all other things being equal'

Economic growth: a sustained increase in the productive capacity of an economy over a specific period of time, usually indicated by the increased availability of goods and services in the economy

Enterprise: the factor of production that is the ability to initiate and manage the production process by combining and organising the other factors of production (land, labour and capital)

Entrepreneur: the innovator who supplies enterprise to the productive process

Factors of production: the broad categories under which the resources that go into creating goods and services to satisfy human wants can be classified; that is, land, labour, capital and enterprise

Labour: the factor of production that includes all kinds of human effort, both mental and physical

Land: the factor of production that includes all naturally occurring resources (except human labour); for example, minerals, fuels, plants, water and fish

Productive or technical efficiency: occurs when use of a country's resources generates the maximum output possible

Productivity: a measure of the efficiency of production, expressed in terms of the rate of output per unit of inputs

To satisfy people's wants in an economy, four types of resources are combined to produce goods and services. These are known as **factors of production**. To be regarded as a resource, a thing must be known and accessible at the point of time in question, and have the potential to satisfy wants.

Land

Land and ‘natural resources’ are terms used to describe the materials and ingredients provided by nature, which may be used in the production of things people want. Minerals, forests, rivers and soils are all good examples of natural resources. We have large amounts of many of these resources in Australia, and we may continue to discover new ones. Changing technology may increase our ability to use existing natural resources, but these resources are still limited or fixed in amount at any particular time. Thus, our ability to produce goods and services depends partly on the availability and efficient use of our natural resources. One role of economists is to determine the best way to allocate these resources in the production process.



FIGURE 1.7 Land



FIGURE 1.8 Labour

Labour

Labour is another type of resource or factor of production. To adapt a natural resource for human use, the application of work or labour is required. To some extent, the quantity of the resource produced will change with the quantity of labour applied. But we must also consider labour **productivity**, or average production per worker.

Many factors affect productivity. These include the quality of the labour force, the amount and quality of the resources with which the labour force works, and the efficiency with which labour is combined with other resources in production.

Capital

Most people think of **capital** as money but, to the economist, capital is any human-made instrument of production. It comes into existence when goods are not directly consumed but are converted into other goods, such as machinery that will increase future production. So, if we want to increase our wealth or stock of capital, we cannot consume all our production – we cannot consume all our income. We must save part of that income so that it becomes available for investment in capital goods. Examples of such goods are tools, machinery, factories, railways and port facilities. The ownership of capital and hence resources is very inequitably distributed within Australia, with a relatively small number of people controlling a large proportion of the nation’s capital and resources.



FIGURE 1.9 Capital



FIGURE 1.10 Enterprise

Enterprise

Enterprise or entrepreneurial ability is the ability to initiate the production process by organising and combining all necessary factors of production in a *productive establishment*. If this is done efficiently, the establishment will make a profit as a reward for innovation, for taking risks in running the enterprise and for helping to satisfy wants. Entrepreneurial ability is usually seen as a distinct type of resource or factor of production, but some economists prefer to classify it as a specialised type of labour.

Income from the factors of production

Each factor of production has a place in an economic system and each has its own important function. In the free-enterprise economic system, individuals and companies are able to own productive resources. As owners, they expect a return or reward. This generates income, which, as it is spent, becomes the fuel that powers an economy.

- Income from the use of land or natural resources is called *rent*.
- Income earned from labour is called *wages*.
- Income earned by lending money, or capital, is called *interest*.
- The reward to **entrepreneurs** for the risks, innovative ideas and efforts that they have put into their businesses is called *profits*.

Efficient production in any country depends on the best combination of outputs, using the lowest cost combination of inputs or resources. In the example shown in Figure 1.12 on page 14, regarding wheat and cotton, it can be seen that the most efficient allocation of resources occurs along the production possibility curve. Any combination of resources that produces less wheat and/or cotton – for example, at F – is inefficient, because at that point not all resources are used. We must learn to economise – to use the resources we have available to their best advantage in producing goods and services to satisfy our wants.

Since the resources with which we can satisfy these wants are limited, we must choose the most pressing wants (the highest on our scale of preferences) to be satisfied. Choosing between wants and allocating our resources most efficiently is what economics is all about.

Efficient allocation of resources

It is the aim of any economy to maximise the production of goods and services, or to be producing on the *production possibility frontier*. This is called **productive or technical efficiency**. At this point, the nation's resources are being used in the most efficient way to produce the maximum amount of goods and services possible at the lowest cost.

Allocative efficiency occurs where the resources are allocated in the most efficient way to generate the maximum possible benefits for both consumers and the nation. It would be

wasteful and inefficient if the country produced a good or service in a productively efficient way, but the product was not one that consumers wished to purchase or consume. An example might be a country that chooses to produce military hardware very efficiently, but this is not wanted by peace-loving consumers.

Hence it is obvious that the values and priorities of consumers help to determine the most efficient allocation of resources.

CHECK FOR UNDERSTANDING 1.2

- 1 **Explain** why resources are called 'factors of production' in economics.
- 2 **Distinguish** between physical capital and the three other factors of production.
- 3 **Distinguish** between enterprise and labour as factors of production.
- 4 **Explain** why a country might pursue allocative efficiency rather than technical efficiency.
- 5 **Distinguish** between technical and allocative efficiency.
- 6 Copy and complete the following table.

	Limited/Unlimited	Example
Land		
Labour		
Capital		
Enterprise		

Production possibility curve

Our choice between competing wants is a choice between alternative uses for the resources required to satisfy those wants. For example, if Australia decides it wants cotton more than it wants wheat, it is at the same time deciding to use labour and other resources to produce cotton instead of wheat. This can be shown by means of a production possibility table, as shown in Figure 1.11, and then converted to a production possibility graph, as shown in Figure 1.12 on the following page.

FIGURE 1.11 Production possibility table: possible combinations of wheat and cotton, assuming all available resources are used

Possible combinations	Tonnes of wheat	Tonnes of cotton
A	100	0
B	75	12.5
C	50	25
D	25	37.5
E	0	50

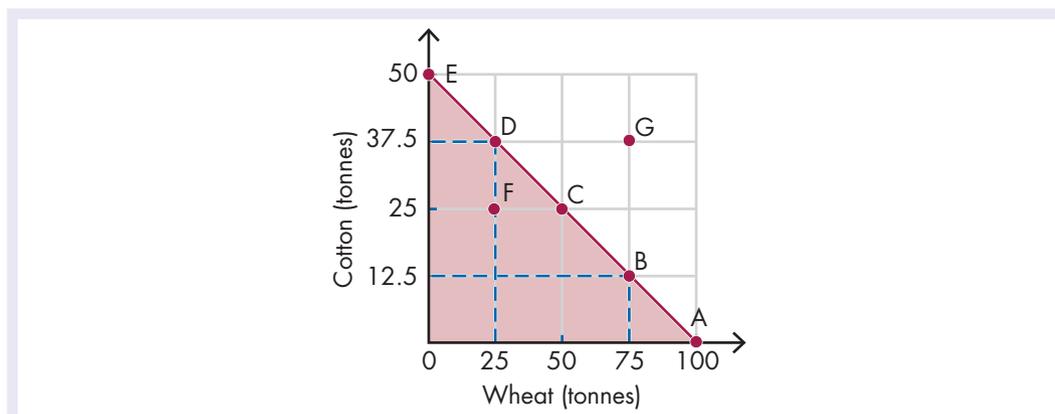


FIGURE 1.12 Production possibility graph for wheat and cotton

Assumptions of the production possibility model

The *production possibility frontier* is a model used by economists to demonstrate the concept of opportunity cost. Using the model involves some assumptions:

- an economy aims to use all resources fully and efficiently
- there are only two goods produced in this simplified economy
- all resources can be used to produce each good, and hence there must be some perfect mobility between production of the two goods
- the level of technology is assumed to be fixed
- resources are fixed.

The graph in Figure 1.12 shows the production possibilities of wheat and cotton from the efficient use of a given amount of resources. These resources can be used to produce any combination of wheat and cotton that lies on or below the line A–E: the *frontier*. If no wheat is produced, then 50 tonnes of cotton can be produced. If no cotton is produced, then there would be sufficient resources to produce 100 tonnes of wheat. The opportunity cost of producing 50 tonnes of cotton is to forego the production of 100 tonnes of wheat.

Whenever a choice is made to satisfy a particular want, some other want goes unsatisfied. A more realistic situation to the one shown in Figure 1.12 may be one in which Australia needs to allocate some resources to the production of both wheat and cotton; for example, position B on the production possibility curve – 75 tonnes of wheat and 12.5 tonnes of cotton.

The shaded area in Figure 1.12 represents all possible combinations of output of wheat and cotton.

Producing above or below efficiency

The frontier – the line joining A and E – represents the absolute limit of output possible from a given set of resources at any point in time. If Australia were to decide on a level of production depicted by point F (25 tonnes of wheat and 25 tonnes of cotton), not all of the available resources would be used. A surplus of capacity would still be available in the economy equivalent to 25 tonnes of wheat or 12.5 tonnes of cotton. It should be apparent that this is an under-utilisation of resources. On the other hand, Australia might aim to produce at point G. Unfortunately, this is unattainable since it lies beyond the production possibility frontier for the resources available.

To move production to point G in the future, the economy would need to find additional resources to use (e.g. an increase in the labour force or an increase in the amount of farm machinery available, making the workers more productive – i.e. an increase in productivity).

Alternatively, a change in the technology available might be achieved, such as genetically modified seeds, the development of improved machinery or the introduction of computer technology to farming.

Note that no dollar values have been used, but costs can still be considered. If Australia decides to change the production combination from B to D, then the nation will gain 25 tonnes of cotton, but the cost of that decision would be a loss of 50 tonnes of wheat. This is called the 'opportunity cost' of producing more cotton. While the graph is, in this case, a straight line (see Figure 1.12), in the real world it is a curved line (see Figure 1.13).

Opportunity cost is a basic concept in every economic decision, and you can apply the production possibility curve to many situations.

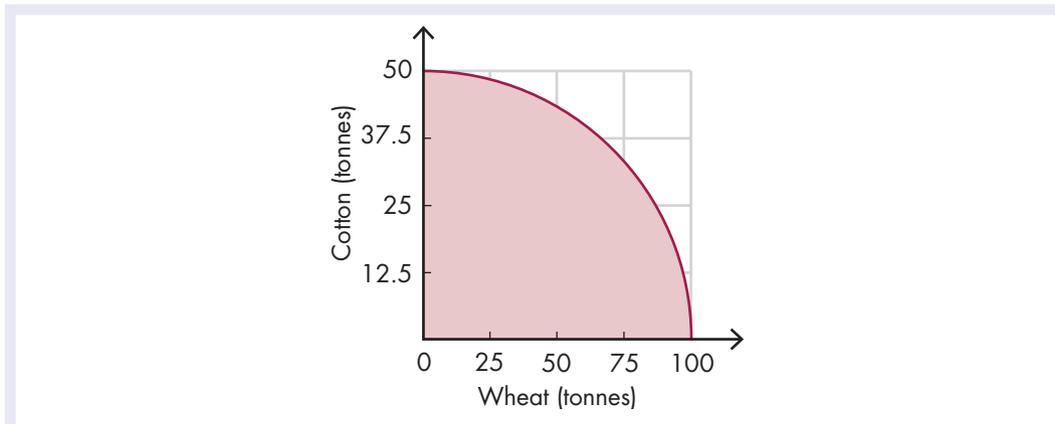


FIGURE 1.13 Production possibility curve for wheat and cotton – a more realistic situation

ECONOMICS IN ACTION



Worksheet
1.1 Removing
assumptions

Removing assumptions

Draw a production possibility curve for each of the following.

- 1
 - a Two goods are produced: computers and breakfast cereal. The level of technology improves, enabling more computers to be produced. How will the production possibility frontier change?
 - b A new hybrid breed of wheat is developed, enabling better yields from wheat crops. Show this relaxation of the assumption on the same diagram.
- 2 A new iron ore deposit is discovered, increasing the ability to produce solar panels. Therefore, the assumption of a fixed amount of resources is relaxed. Show this on a diagram. Alternatively, what would happen if the mine were flooded as a result of a natural disaster? Show this on another diagram.
- 3 Draw diagrams to show what would happen in the following situations:
 - a There is an improvement in the general standard of education of the population. What assumption would this challenge?
 - b There is a decrease in the health of the population due to the vaping epidemic. How would this affect the production possibility curve?
 - c Australia is attacked by a foreign country. Instead of producing wind turbines, we need to produce tanks. How would this affect the production possibility curve?

Production possibility as an economic model

The production possibility frontier is an example of an economic model. Economists use economic models to attempt to explain concepts and economic relationships. In doing this, they make assumptions about parts of the model, and simplify the model. For example, there is obviously no economy in the world that produces just two products. Yet by assuming these, the model helps to identify some complex economic relationships. Economists call this the **ceteris paribus** assumption. ‘Ceteris paribus’ means ‘all other things being equal’; so the assumption is that other relevant, influential factors are taken to be constant.

Refer back to Figure 1.12. Point G can only be reached if one or more of the assumptions is relaxed or removed. If an economy is able to move from point B, C or D to point G, then it is clear that it is producing more of each of the goods. When more resources are used, or they are used more efficiently, the production possibility frontier will move outwards. This will result in more goods being produced and available within the economy. The increase in the amount of goods available within the economy is referred to as **economic growth**.

Shifts in production possibility

The production possibility curve for any economy is seldom, if ever, stable. It is constantly changing due to changes in conditions in the economy, such as the following.

- Improvements in the health of the population may result in an increase in the number of workers available for work, and a reduced amount of leave taken due to sickness. This may result in improved productivity of workers.
- Increased levels of education among the population would be expected to increase productivity of workers and increase the amount of skills and knowledge within the economy. The effect of this would be to increase the amount of goods and services that can be produced.
- Labour can become more productive due to:
 - new ways of doing tasks
 - moving to more capital- and technology-based production methods (such as using robots in production)
 - increased skill levels through training
 - increased motivation of workers.
- In the production possibility frontier model, there are only two products (a basic assumption). Changes in the level of technology used in the production of one product will not always be the same as changes in the level of technology used in the other product. This is called *asymmetric technological advances* and would result in the output of one product increasing, while the output of the other product might not change at all. This is shown in Figure 1.14. If there is an adoption of improved technology in car manufacturing but no change in mango production technology, the production possibility curve will change shape, as there are now more cars produced using the same amount of resources.
- Should a major war break out, then an increased number of resources will be shifted into the production of weapons and support materials. This will mean fewer resources are available for the production of consumer goods. Therefore the production possibility curve will change shape as resources are moved within the economy.

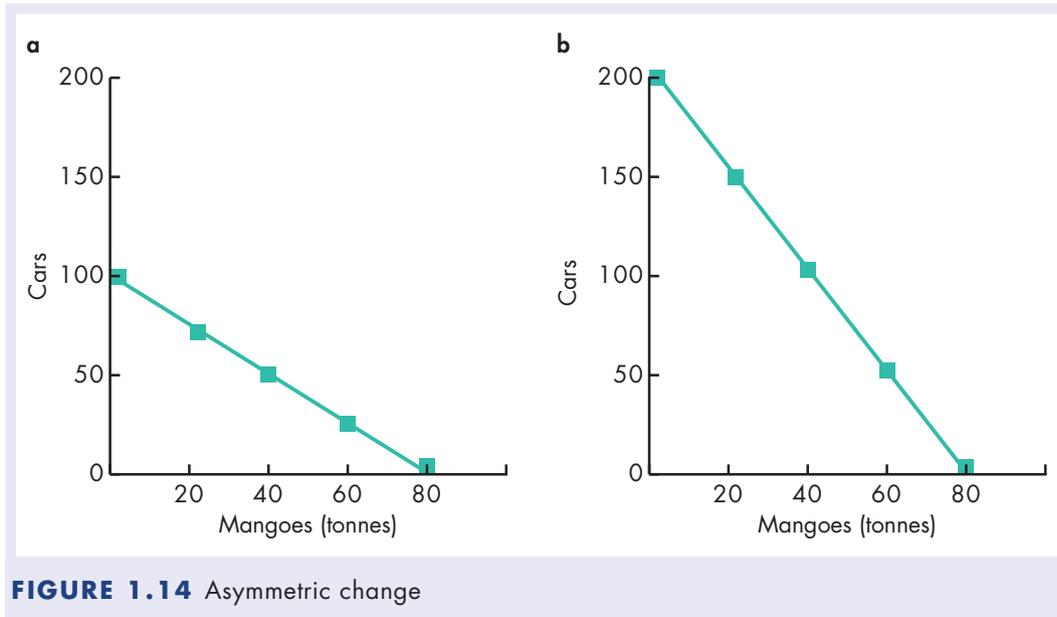


FIGURE 1.14 Asymmetric change

ECONOMICS IN ACTION



Draw a series of production possibility curves to show how a model might change in each of the following circumstances. There are only two products, as shown in Figure 1.12.

- 1 Workers are able to work until they are 80 years old because of improvements in health standards.
- 2 All students will be required to obtain a university degree or TAFE qualification as a result of a shift in government education policy.
- 3 Workers may receive higher pay rates if they increase productivity in the workplace.
- 4 A new development results in higher yielding seeds for wheat, but no change in cotton seeds.

ECONOMICS CHALLENGE



While the production possibility curve in Figure 1.12 has been drawn as a straight line, in most cases such curves are drawn as a convex line, as in Figure 1.13.

Research the 'law of diminishing returns' and determine why this is so. To begin your research, watch 'The Law of Diminishing Marginal Utility' YouTube video on the One Minute Economics channel.



Weblink
One Minute
Economics

CHECK FOR UNDERSTANDING 1.3

- 1 Consider the following production possibility frontier model:

Point	Coffee machines	iPads
A	40	0
B	35	17
C	26	25
D	15	31
E	0	33

Draw a production possibility curve representing the production of coffee machines and iPads.

- 2 If the economy is at point A and moves to point B, iPad production will increase by 17 units. What will the opportunity cost of the increase in iPad production be?
- 3 If the economy moves from point D to point C, what will be the gain and what will be the opportunity cost?
- 4 If the economy moves from point C to point B, what will be the gain and what will be the opportunity cost?

1.1.5 The economic problem

CONCEPTS



Consumer sovereignty: the ability of consumers to determine the pattern of production through their spending decisions

Economic indicators: economic variables whose patterns of fluctuation portray, in a reasonably consistent and predictable way, the general course and level of aggregate economic activity; for example, employment levels, inflation levels and economic growth

Economic problem: the problem of deciding or choosing how to satisfy unlimited wants with limited resources

Government intervention: action by the government that affects economic activity, resource allocation and normal market operations to help achieve economic goals; for example, provision of subsidies, change in tax rates, changes in government expenditure, regulation of foreign investment

Interest: the price paid for the use of capital

Market: a place or situation where buyers and sellers interact for purposes of trade or exchange

Market mechanism: the interaction of the forces of demand and supply to determine the price at which a commodity is sold

Profits: payments in return for enterprise or entrepreneurial ability resulting from running a business enterprise in which revenues received exceed costs of running the business

Rent: payments in return for the use of land or other natural resources used in the production process

Wages: payments to employees as a return for the provision of labour or human effort to the production process (usually calculated on the basis of actual production or hours worked)

KEY IDEA

When households, businesses and governments are confronted by the universal economic problem of scarcity, they rely on an economic system to make decisions about the alternative uses of their limited resources. Not all nations approach the economic problem in the same way.

As we saw at 1.1, societies throughout history have developed organisational and institutional patterns called ‘economic systems’. Different types of economic systems use different approaches to solving the **economic problem**: how to satisfy unlimited wants with limited resources.

Resources are limited – some absolutely and some relative to wants. So we are faced with the very real problem of scarcity. Scarcity is relative, and exists whether we live in a rich country or a poor one.

Because of the economic problem, decisions must be made about how the factors of production will be used to produce the goods and services people need and want. To accomplish this, every society must answer the following three questions:

- 1 What and how many goods and services are to be produced?
- 2 How are those goods and services to be produced?
- 3 Who will receive and consume those goods and services?

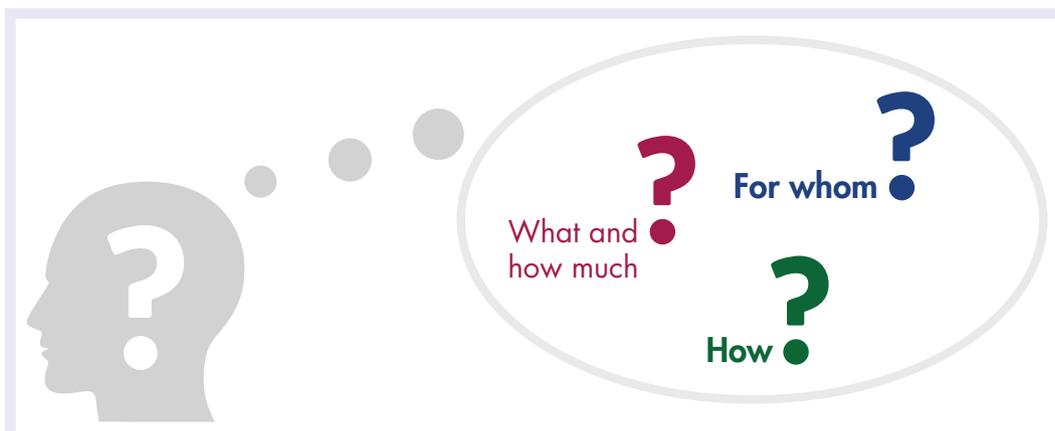


FIGURE 1.15 The three basic economic questions

In the Australian economy, what to produce is essentially determined by consumers. While most production is undertaken by private firms (or entrepreneurs) in an attempt to make a profit from their economic activity, producers are dependent on consumers to purchase their goods and services. If their goods and services cannot be sold, producers will make a loss and be forced out of business. So consumers determine what will be produced through their decisions as to what they will purchase.

If firms overproduce, they may be forced to sell off surplus stock at prices below cost, and so reduce their profit. On the other hand, underproduction will result in a failure to maximise profit. Therefore, firms must attempt to gauge the public’s demand for their products so they can produce just the right amount; that is, so that supply equals demand.

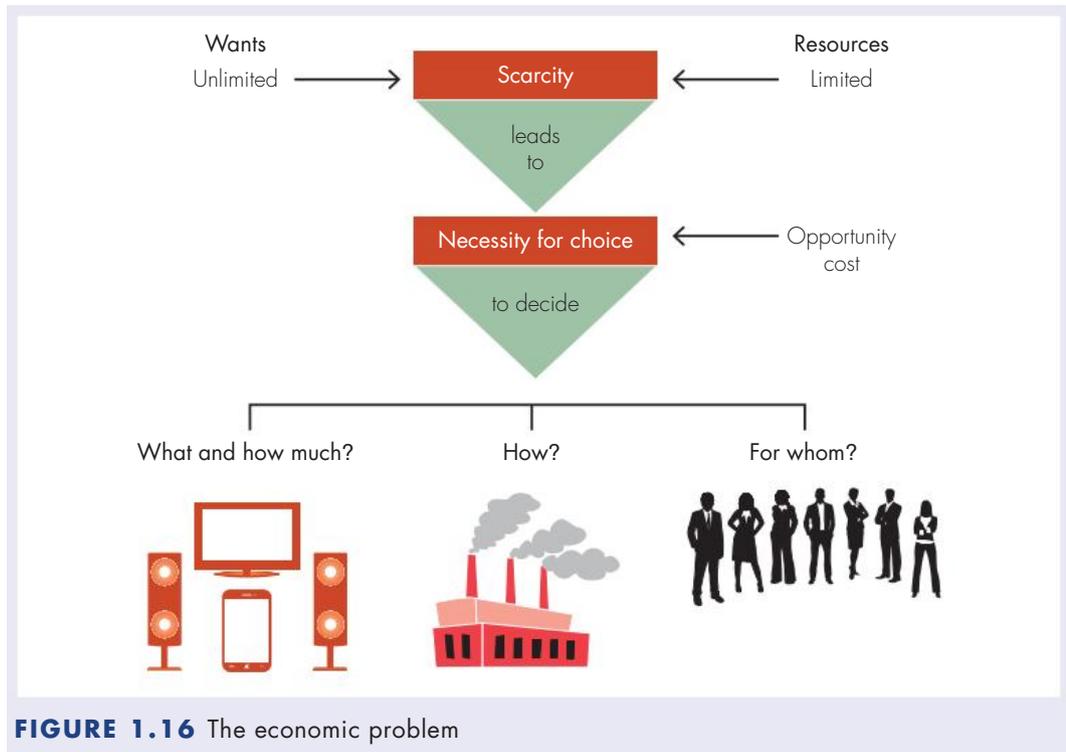


FIGURE 1.16 The economic problem

There are a range of decisions to be made regarding *how* to produce goods and services. The production methods used will be decided by entrepreneurs, who will generally be looking for the method with the lowest cost in relation to the size and quality of output. The government has some influence in this. It may, for example:

- impose safety regulations concerning machinery and its operation
- prescribe the percentage of home-produced raw materials to be used in the production of certain goods
- regulate the impact that production can have on the environment
- enforce health standards that must be complied with in the manufacture of goods, such as defining the materials that can be used in manufacturing children's toys.

The question of *who* will use the goods and services produced in an economy is another element of the economic problem. Since there will not be enough goods and services produced to satisfy everybody's wants, some way must be found to decide how the output will be divided. Do the goods and services go to those who need them or to those who can afford to pay for them?

The basic factor that determines the share of total production each person receives is the income from **wages** (as a return on labour), **rent** (as a return on land and buildings), **interest** (as a return on capital) and **profit** (as a reward for taking risks in the production process). However, governments take a large fraction of this gross income through various forms of taxation. This government income is used partly to provide community goods and services for the general welfare of society, and partly to pay for various social services, such as pensions and unemployment benefits.

A family's ability to buy goods and services to satisfy its wants will depend on:

- the total money income received from wages, rent, interest and profit *less*
- any taxation paid to governments (e.g. income tax and goods and services tax (GST)) *plus*
- social service payments received from governments, such as cash payments (e.g. pensions and textbook allowances).

Some economic systems are very closely controlled and organised by central authorities, while others operate with much greater individual freedom. Australia has a mixed-market or modified **market** economic system – in which there is a mixture of control by the government and freedom of individual enterprise, and in which the three basic economic questions are answered in the marketplace.

Solving the economic problem

Who ultimately decides what and how much, how and for whom production occurs? Is it the consumer, the producer or the government – or perhaps a combination of all three?

All three need to make choices. Each will have a different motive for making its choices and, because of this, the final preferences of each will probably differ. Consumers are mainly concerned with obtaining the maximum possible satisfaction from their income. Producers, on the other hand, are interested in maximising profits. They would prefer an allocation of resources that favoured this result. The position of the government is different again, depending on its specific objectives.

1.2 The market or private-enterprise economy

The market or private-enterprise economy is the type of economy with which many of us are most familiar. The market economy is characterised by:

- the ownership of private property
- the use of market pricing
- varying degrees of government control
- self-interest as the motive for, or incentive to, work.

In a market economy, what to produce is determined by the interaction of consumers, firms and the government in the marketplace. Consumers influence what will be produced and how much of it will be produced by the way they spend their income. Of course, business people try to influence the demand of consumers through advertising and other selling activities, but consumers make the final decision. This is sometimes known as **consumer sovereignty**. Consumers decide whether they will or will not buy and, if they buy, in what quantities and at what price.

In a market economy, the market puts different values on the contributions of different people. In a competitive market we are paid for our resources, whether it is labour or materials, according to how they satisfy wants. This means that people who own large amounts of resources (or high-quality resources) will receive more income than others and will be able to buy a larger share of goods and services produced. This means that some people may have to do without things that they need.

In Australia, individuals have quite a large degree of economic freedom.

- Entrepreneurs are free to produce almost any goods they wish.
- Wage earners are (theoretically) free to select almost any employment they wish.
- Consumers are free to spend or save largely as they wish.

But we do not have complete freedom, as would be experienced in a completely free-enterprise or 'laissez-faire' type of economy. The Australian economy works within an overall framework of government regulations that safeguard society. Because of the government's regulation and intervention, the Australian economy is often referred to as a *modified market economy*. The government legislates hours of work and minimum wages. It sets prices for some products, and it pays subsidies and social service benefits. The government intervenes in economic life in many ways.

It is the job of the government, in relation to the Australian economy, to make decisions in the interests of the whole community. Governments have come to recognise that the welfare of large and small groups within society is important, so they regulate the economy. The freedom of choice of individual consumers and businesses to act in their own interests is thus reduced.

The allocation of resources and the distribution of what is produced still takes place, largely through the operation of the market (see Chapter 3), but the government intervenes to borrow money, charge taxes, grant cash subsidies and run its own businesses with objects in mind such as:

- maintaining high employment
- helping all members of society to maintain a reasonable standard of living
- producing some financially unprofitable products, such as national defence or police protection, which are important to the welfare of society but which would not be provided by private enterprise. These are called *collective wants*.

Many advantages are claimed for the market or private-enterprise system. The profit motive and emphasis on the **market mechanism** are credited with being responsible for innovations and cost reductions in industry, large increases in national output, a great quantity and variety of goods and services, and a high standard of living. Theoretically, the free operation of the market mechanism results in efficient allocation of resources and a very adaptable, flexible system that takes account of changes in consumer demand. It is self-regulating and gives more economic freedom.

But there are also disadvantages. Many inequalities exist in such an economy, including poverty, inequalities of opportunity and various forms of discrimination. Losses in production can be caused by industrial disputes. Unemployment, inflation and waste occur as the level of economic activity rises and falls. A freely operating market mechanism may fail to supply sufficient collective wants and may result in some social costs that require economic decision making and **government intervention**.

1.2.1 Decision making: the central problem of every economy

The central problem of every economic system is decision making in a context of scarcity.

In a market economy such as Australia's, everyone makes economic decisions and choices. Costs and benefits are carefully examined by individuals, firms and governments, who can then choose the best possible alternatives to achieve maximum satisfaction for their needs and wants. Society must choose a combination of private goods (e.g. food and clothing), which consumers buy as a result of their own individual decisions, and public or collective goods (e.g. schools, hospitals and roads). Public goods are provided through government spending (financed by taxation or government borrowing) to satisfy the wants of society as a whole. If governments did not provide these goods to the public, the public could collectively change the government through the ballot box.

When investigating problems or issues, economists use many of the tools of the social scientist. They use graphs, case studies, statistics, **economic indicators**, surveys and models. They use the theories of other economists and social scientists. They use inductive and deductive reasoning (see 1.1) to help them make decisions.

Many prominent economists have shaped the way that decisions are made. One of the earliest was Adam Smith.

ADAM SMITH (1723–90)

Adam Smith is regarded as the founder of modern economics. His work, *An Inquiry into the Nature and Causes of the Wealth of Nations* (usually called *The Wealth of Nations*), published in 1776, was the first complete study of political economy. It was a massive work consisting of five books, which between them covered all aspects of the subject. Many of the ideas were not original, as Smith freely admitted, but this work was far more than a compilation of existing thought. Smith adapted, analysed, combined and improved the theories of his predecessors and contemporaries, and then added much that was completely original.

His main concern was with the factors that increased the wealth of the community. He believed that labour was the source and also the final measure of value. To increase the wealth of the community it was necessary to improve the skill of the labour force. This could be done by the division of labour, as he showed in the well-known example of pin production. In this example, Smith explained that, if one worker were employed in all the processes of pin-making, that worker could, at best, make 20–30 imperfect pins in a day; but when a number of workers were divided into groups, with each performing simple, specialist, repetitive operations, the workers could produce hundreds of perfect pins each day.

In Smith's view, an increase in the total wealth of the community was the natural result of a freely operating market. If left to themselves, producers would make what buyers wanted (consumer sovereignty) in order to make a profit. Buyers would spend their money on what they wanted most. Buyers and sellers meeting in the market would lead to the evolution of a harmonious social order. In other words – and here we have the crux of Smith's theories – people acting out of personal self-interest actually worked for the betterment of society as a whole, as if, to quote Smith, 'guided by an invisible hand'.

As Smith saw it, there was no conflict between what was best for the individual and what was best for society. The individual, by attempting to increase their own wealth, would necessarily increase the total wealth or welfare of society.

This argument left no place for the government in the operation of the economy. Smith reacted strongly against the protectionist policies of his time, and advocated free trade. In fact, he favoured a full *laissez-faire* economy. If there were no government interference, the problems of production and distribution would be solved by the operation of supply and demand in a freely competitive market.

This is not to say that Smith saw no place for the government at all. In his view, the government was necessary for purposes such as defence, but it definitely should not interfere with the operation of the market.

The importance of Adam Smith's contribution to economic thought cannot be exaggerated. For scope of argument, *The Wealth of Nations* is unparalleled. Although many of its theories have had to be modified, the work still stands as a massive foundation upon which other economists have built.



FIGURE 1.17 Adam Smith

Culture Club/Hulton Archive/Getty Images



Weblinks
Three economists
and their theories

Jacob Clifford

ECONOMICS CHALLENGE



Economists

If you would like to know more about Adam Smith, follow the link to 'Four economists and their theories'. Compare his thoughts with those of some of the greatest economists of the 20th century: Joan Robinson, John Maynard Keynes and Karl Marx, the great socialist thinker and economist. Make a brief summary of their lives, works and theories, highlighting differences between the thoughts of Smith, Robinson, Keynes and Marx.

1.3 Are all economic systems the same?

CONCEPTS



Capitalism: an ideology based on the importance of the market system, private ownership of most of the means of production and limited government intervention, and underpinned by the belief that economic activity is motivated by profit and individual interests; often used synonymously with the term 'free enterprise'

Capitalist market economy: an economic system in which important economic questions are decided by interaction between individual buyers and sellers in the marketplace

Mixed economy: an economy or economic system that relies on both markets and governments to allocate resources

Socialism: an ideology based on the view that most of the means of production should be publicly owned and directed towards the

satisfaction of community needs rather than private profit; in theory, an economy that is in transition between communism and capitalism

Socialist/command economy: an economic system in which decisions about what to produce, and the way the proceeds of production should be distributed among members of the society, are made by a central planning authority

Socialist/market economy: an economic system based on government, rather than individual, ownership of key resources, deemed critical to the operation of the economy; it allows some decentralised decision making

Subsistence economy: an economy in which individuals produce commodities primarily for their own use and not for exchange through the market

KEY IDEA

The economic problem of scarcity is common to all economic and political systems and to all economies, regardless of their level of development.

As we have seen at 1.1, the resources available for the satisfaction of human wants are limited – some in absolute terms and some relative to wants that appear to be without limit. There are just not enough resources to satisfy all human wants. We are thus faced with the

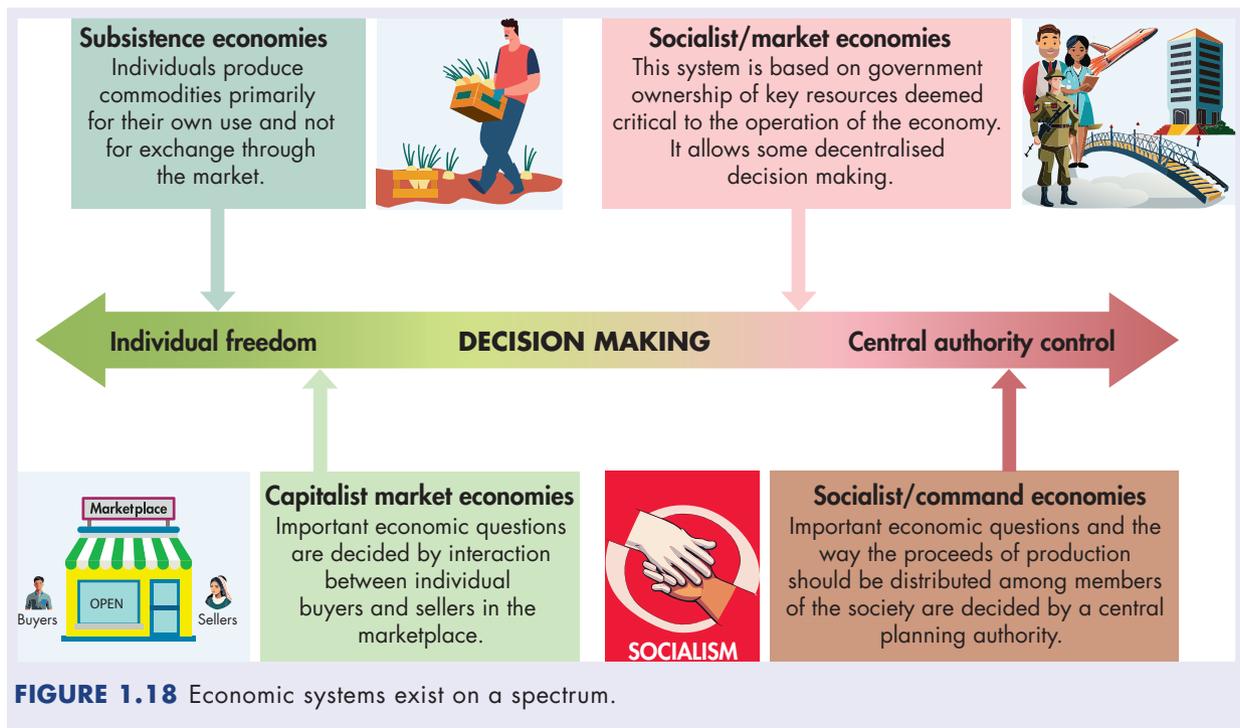
very real problem of scarcity. Scarcity is obviously relative, but it exists whether we live in a rich country or a poor one. All societies must decide how to use their limited resources to best satisfy their wants.

In an attempt to economise and to make the economic decisions necessary to overcome the economic problem, all societies have developed an organisational and institutional pattern that we call an economic system. Some economic systems are very closely controlled and organised by central authorities, while others operate with much greater individual freedom. They all try to answer the same three basic economic questions – what and how much to produce, how to produce, and for whom to produce.

The classification of economic systems is difficult because no two economic systems are identical in every respect.

A traditional classification of economic systems uses four broad groupings:

- 1 **subsistence economies** (where traditions determine economic decision making); however, pure subsistence economies no longer exist
- 2 **capitalist market economies** (where the market controls economic outcomes); this is the dominant system, which can be subdivided into authoritarian and democratic subsystems
- 3 **socialist/command economies** (where the state plays a major role in the operation of the economy); there are few of these currently in existence
- 4 **socialist/market economies** (where the state plays a role in the operation of the economy, but there is some market control of economic outcomes).





ECONOMICS CHALLENGE



Complete the following table using reliable sources to determine how each country attempts to solve the economic problem.

	What and how much to produce	How to produce	For whom to produce
Cuba			
France			
Canada			
North Korea			
Singapore			
Norway			
China			
Saudi Arabia			
USA			
UK			

1.3.1 Features of economic systems

Capitalist market economies and socialist/command economies are generally known as 'exchange' or 'modern' economies because they:

- rely on specialisation to increase production
- have a large, modern industrial sector, and
- provide surpluses for exchange and investment, using money as a medium.

Subsistence economies are known as 'barter' or 'primitive' economies, because goods are commonly swapped directly for other goods. Specialisation, surpluses, industry and a monetary sector are not evident in subsistence economies.

In reality, economies and parts of economies usually exhibit features of more than one of these traditional economic systems and are known as **mixed economies**.

FIGURE 1.19 There are several features of economic systems that determine their classification.

Key features that can be used to classify different economic systems:

- the manner in which resources are owned
- the manner in which resources are coordinated and controlled
- the presence or absence of the profit motive as a stimulus to production
- the degree to which market forces dictate the use of resources and production patterns
- the degree of state intervention in the day-to-day operation of the economy
- the process used to distribute the proceeds of production
- the level of economic development

1.3.2 Subsistence economies

Traditionally, subsistence economies are defined as those in which individuals produce commodities primarily for their own use and not for exchange through the market. They are characterised by a low level of economic development. In such economies, customs and traditions play a large part.

FIGURE 1.20 There are several characteristics of subsistence economies.

Subsistence economies are traditionally characterised by:
an absence of markets
an absence of money
very little specialisation
a low level of technology or industrial skills
very little saving and, therefore, little accumulation of capital
relatively low standards of living
little scope for trade
absence of industry and infrastructure

As noted above, pure subsistence economies no longer exist. They were found in isolated communities, such as those in desert, mountain and jungle regions. The attainment of economic growth and development in these areas has proved difficult.

Within the limitations of scarce physical resources, isolation and lack of technology, the organisation of a subsistence economy represented a system of resource management designed to ensure the survival of present and future generations. A low level of material standard of living is a logical adaptation to these conditions.

‘What and how much to produce’ was usually based on family or tribal decisions as to what was required for subsistence. ‘How to produce’ was generally very labour-intensive methods that provided occupation for all members of the group, using simple forms of capital equipment such as nets or hoes. The question of ‘for whom to produce’ usually had a simple answer: subsistence economies produced for themselves. Wealth in terms of material possessions was determined by a person’s status in society. There was no concept of private ownership. Property and resources were ‘owned’ communally.

Historically, only where specialisation increased and greater production resulted could barter economies develop, eventually leading to exchange economies with highly developed specialisation and the use of money. Figure 1.21 on the following page illustrates the various stages through which a subsistence economy may progress over time.

1.3.3 Socialist/command economies

The collapse of **socialism** in Eastern Europe and the Union of Soviet Socialist Republics (USSR) in the early 1990s destroyed what was traditionally considered to be the socialist/command economy. It was similar to the capitalist market economy in that it was a modern industrial economy with extensive specialisation and monetary exchange. Beyond this basic

similarity, however, the socialist/command system differed in many essential respects in its approach to deciding what was to be produced, how production and distribution were to be organised, and how efficiencies and economies in the use of productive resources would be achieved. While this model of an economic system no longer applies in its entirety, we will still study its features, advantages and disadvantages to help us better understand the systems that prevail today.

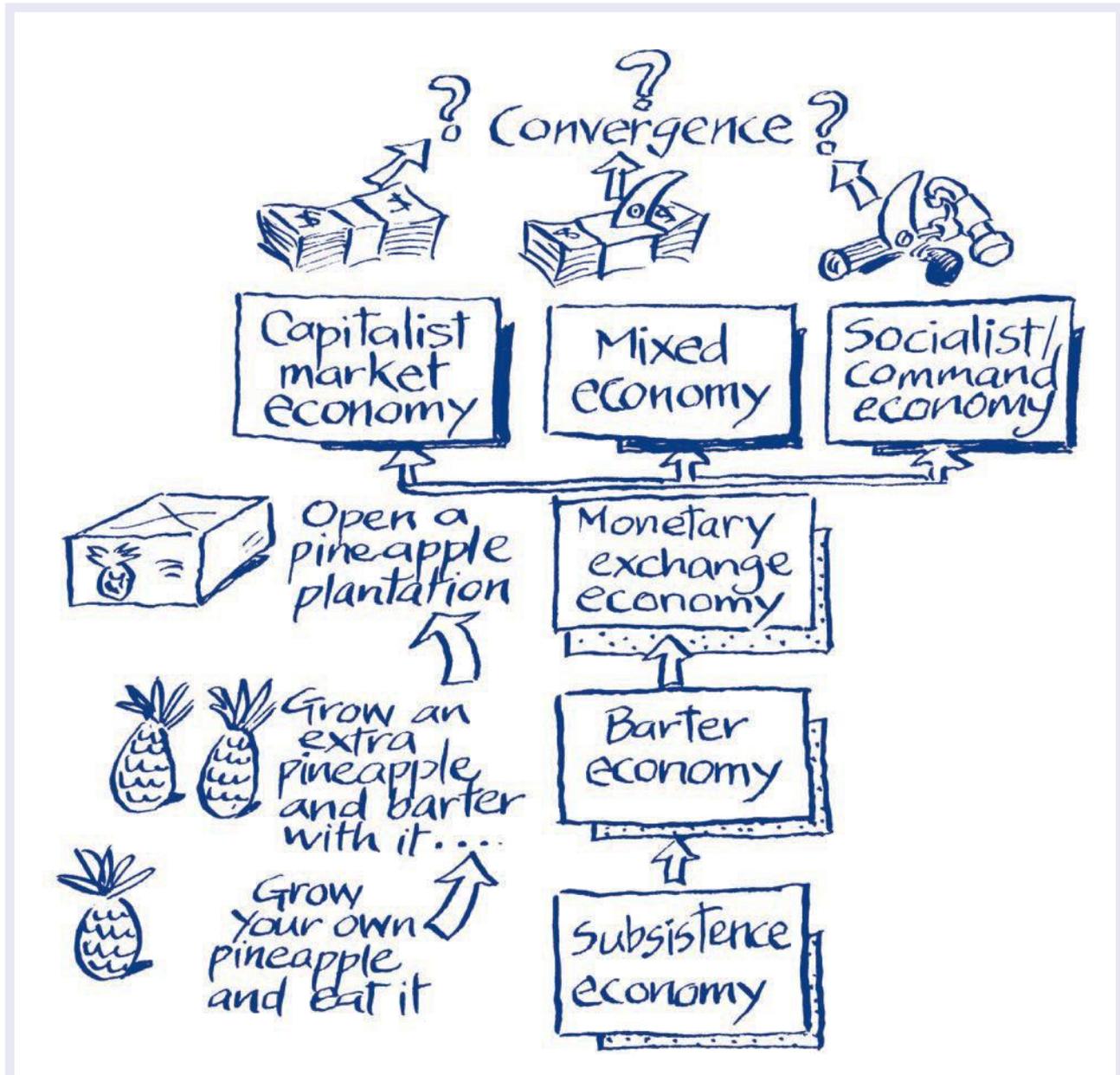


FIGURE 1.21 The progression of economic systems

FIGURE 1.22 Determining whether a country has chosen a socialist/command economy requires consideration of these fundamental characteristics.

The fundamental characteristics of a socialist/command economy
Although consumer goods are privately owned by citizens, profit-making property and capital goods are owned by the state and cannot be bought, sold or privately owned.
<p>Economic decisions concerning:</p> <ul style="list-style-type: none"> • what to produce in the economy as a whole (or in some part of it) • what to produce in each individual enterprise • the location of productive units and retail outlets • the quantity, quality and method of production, and • to whom to allocate what is produced <p>are made by state planning agencies, not by enterprises themselves. Only relatively minor personal consumption decisions are made by individuals.</p>
All productive resources and capital investments are allocated directly by a central government authority in accordance with – and within – the framework of an overall central plan.
<p>By virtue of its ownership of the means of production and distribution, the government takes on the role of a huge business enterprise embracing nearly the whole economy. All major economic relations and interactions, including:</p> <ul style="list-style-type: none"> • the allocation of resources • the distribution of production • price setting, and • the flow of funds <p>take place as if they are inside one single gigantic enterprise.</p>
<p>The price mechanism performs only a limited function and the profit motive is not the main stimulus to production. The guiding principles are:</p> <ul style="list-style-type: none"> • the economy should be directed towards socially prescribed goals, and • the government planners should devise the measures to attain what is in the best interests of the state as a whole, rather than the best interests of the individuals who constitute it.

Socialist/command economies in which such characteristics were found included China, Vietnam, Cuba and North Korea.

Socialist/command economies claimed many advantages over those with lesser degrees of state control and planning. First, many command economies in the early years achieved higher rates of growth than other countries. For example, the USSR achieved an average growth rate of about 6 per cent in the period 1930–80. (The average growth rate in the USA over the same period was about 3 per cent.) The USSR achieved such economic growth by concentrating very heavily on investment in capital goods at the expense of consumer goods and services.

Second, it was claimed that the socialist/command economy could avoid the wastage of resources common to the capitalist market economy. For example, it was maintained that there was minimum wastage of resources through economic depressions, unemployment, industrial disputes and advertising. Similarly, efficient central planning was said to prevent resource wastage through unnecessary duplication of production.

There were, however, many disadvantages associated with such a highly organised and centrally planned system. Production inefficiencies were the major problem. Much power was in the hands of a few people, at the head of the political machinery. Planning a long way

ahead may have reduced flexibility, failed to provide what consumers really wanted and hindered adjustments when bottlenecks occurred.

Some sense of initiative or risk-taking seems to have been missing in a socialist/command economy, perhaps because of a lack of effective reward for innovation. There was much less economic and political freedom in general and much less freedom of choice in particular. Goods were often rationed or simply unavailable. They may have been inferior in quality and of a standardised nature. The social ownership of resources did not, however, reduce inequalities in the distribution of income and wealth. People with powerful political connections gained and retained wealth and power.

1.3.4 Socialist/market economies

The socialist/market economy is the economic model that fits in between the hard-core socialist/command model and the laissez-faire capitalist market model. Eastern European countries, such as the former Yugoslavia and Hungary, chose to go down this path in managing their economies. More recently, China instituted economic reforms throughout its provinces that moved the nation towards this type of model. Many of the socialist/market economies are now classified as capitalist – authoritarian or democratic.

The collapse of the USSR in 1991 saw Eastern European countries grappling with the notion of **capitalism**, while still being deeply entrenched in socialist ideals.

Socialist/market models have allowed a market-driven system to operate within a centrally planned state system. State-run enterprises have tended to focus more on the production of capital goods, while the market-driven sector has been allowed to cater for consumers. We could argue that a similar system existed for years throughout the USSR, with the ‘black market’ or ‘second economy’ providing desperately sought-after consumer goods.

The main criticisms of the socialist/market model have focused on the difficulties of achieving coexistence between a state-run enterprise sector and a market-driven sector. A common complaint in all centrally planned economies is that state-run enterprises remain inefficient, bureaucratic and inflexible, and lack commitment to serving the consumers of their products.

A further concern in countries that have experimented with the socialist/market model is the existence of a tiered price system that has seen the price of some commodities set by a central planning authority, while others are allowed to be determined by market forces. Serious imbalances soon emerge when authorities choose to hold some prices at artificially determined levels, while permitting other prices to respond to the forces of supply and demand and to world trends.

CHECK FOR UNDERSTANDING 1.4

- 1 **Describe** the main characteristics of a subsistence economy.
- 2 **Describe** the four broad groupings of traditional economic systems.
- 3 **Distinguish** between the economic models of the former USSR and modern China’s socialist/market economy.

ECONOMICS CHALLENGE



Worksheet
1.2 Economics
Challenge

How should the economic system be classified?

Place each of the following countries – and other countries of your choice – in an appropriate position on a copy of Figure 1.23, which uses a two-dimensional classification system: the degree of development and the degree of state control.

- Australia
- Chile
- China
- India
- Indonesia
- Malaysia
- Poland
- Russia
- Singapore
- South Korea
- Vietnam
- North Korea

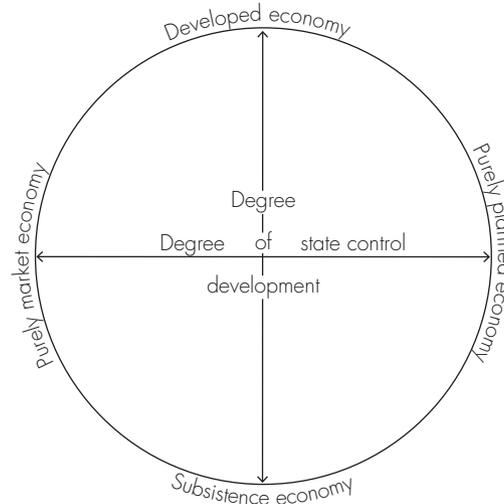


FIGURE 1.23 Spectrum of economic systems

R 1.1 Terminology

Select the correct term from the list below that describes each statement.

- | | | |
|----------------------------|--------------------------------|--------------------------|
| A capital | E land | I economics |
| B opportunity cost | F allocative efficiency | J value judgement |
| C subsistence | G economic system | |
| D socialist/command | H wants | |

- 1 the study of the ways in which a society decides to use its scarce resources to satisfy unlimited wants
- 2 the factor of production that includes all naturally occurring resources (except human labour)
- 3 the organisational and institutional pattern through which choices are made about which wants to satisfy, and how to allocate resources to do this
- 4 the best alternative opportunity forgone when a choice is made
- 5 things we desire because they give us satisfaction
- 6 the factor of production comprising the stock of human-made resources used to create further goods and services
- 7 an economic system in which decisions about what to produce and the way the proceeds of production should be distributed among members of the society are made by a central planning authority
- 8 an economy in which individuals produce commodities primarily for their own use and not for exchange through the market
- 9 occurs where a country's productive resources are used in the economy in combinations that generate the maximum benefits for consumers and the country
- 10 a decision based not just on facts, but on personal opinions or values

R 1.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 Economics is considered to be a social science because:
 - A** it is an analytical, problem-solving discipline.
 - B** it deals with human problems in a scientific way.
 - C** the economist can test hypotheses under controlled laboratory conditions.
 - D** the economist studies problems in the same way as the natural or physical scientist.
- 2 'Scarcity' means that:
 - A** there is not enough of a commodity to satisfy all wants.
 - B** everybody wants a particular commodity.
 - C** the cost of pollution must be paid for by all taxpayers.
 - D** a commodity has a negative economic value.
- 3 The economic problem is caused by the fact that:
 - A** we cannot easily decide what goods and services to produce.
 - B** resources are scarce and wants are limited.
 - C** resources are limited and wants are unlimited.
 - D** resources are unlimited and wants are limited.

- 4 In order to solve the economic problem, the following questions need to be asked:
- A what goods or services to produce and how to use limited resources to produce these goods
 - B for whom goods should be produced
 - C how to use limited resources to produce goods
 - D what goods or services to produce, how to use limited resources to produce these goods, and for whom the goods should be produced.
- 5 The economic method of problem solving involves four steps. Which of the following gives these steps in the correct order?
- A looking for alternatives, identifying economic aspects, choosing the best solution, defining the problem
 - B defining the problem, identifying economic aspects, looking for alternatives, choosing the best solution
 - C identifying economic aspects, looking for alternatives, defining the problem, choosing the best solution
 - D identifying economic aspects, choosing the best solution, defining the problem, looking for alternatives
- 6 The opportunity cost of purchasing an iPad is:
- A the purchase price plus the value of the alternative purchase forgone.
 - B the value of the alternative purchase forgone.
 - C the purchase price of the iPad.
 - D nothing, if the iPad was a gift from your parents.
- 7 Wants are unlimited because:
- A they vary from person to person.
 - B they are determined by tastes.
 - C incomes keep rising.
 - D they can never be fully satisfied.
- 8 Which of the following would **not** be classified by an economist as capital?
- A the household washing machine
 - B a supermarket cash register
 - C a factory
 - D a printing press
- 9 If the economy moves along its production possibility curve, then:
- A it must employ more resources.
 - B there is opportunity cost involved.
 - C production of both goods is increased.
 - D some unemployment will occur.
- 10 An economic system is:
- A the way a government earns revenue and spends it.
 - B the way a country decides on production, allocation and distribution.
 - C all the financial institutions in a country.
 - D a way the standard of living of people is measured.

R 1.3 Short response questions

- 1 **Recall** the difference between:
 - a goods and services
 - b individual wants and collective wants.
- 2 **Describe** the factors of production and the income earned by each.
- 3 **Distinguish** between enterprise and labour, with examples.
- 4 **Explain** opportunity cost and how it is related to the concept of scarcity.
- 5 **Describe** a production possibility frontier model and outline the basic assumptions of this model.
- 6 **Explain** why and how the economy aims at maximum efficiency in the allocation of resources.
- 7 **Distinguish** between a market economy and a command economy, citing examples of each.
- 8 **Describe** an economic system and outline briefly how economic systems can be classified.

R 1.4 Activities

Production possibility curve

What are the assumptions made when using a production possibility curve?
Use production possibility curves to **explain** the following economic concepts:

- a choice
- b opportunity cost
- c under-utilisation of resources
- d unemployment
- e efficiency
- f productivity
- g economic growth.



Worksheet
R1.4 Production
possibility curve

Factors of production

Every product you buy or see in a shop has involved the use of all factors of production – land, labour, capital and enterprise. To prove this, select three basic products from the list below and write down the resources needed to produce them and transport them to market. Do not forget to include the energy used to run the factories and machines used to produce and transport the products.

- wooden toothpick
- loaf of bread
- T-shirt
- hammer
- apple

Scarcity

When you walk through your local shopping centre, it is hard to believe that scarcity is a problem. Are T-shirts and technology devices really scarce? But even when store shelves are full, you probably cannot afford all you want, so you make choices about how to spend your limited resources – time, money and energy.

Read the paragraph below and answer the questions that follow to explain how you might choose to use your scarce resources in this situation.

Holidays are just around the corner. You have been working hard at school and you would really appreciate a rest. You have plans to take it easy and have a relaxing time. Last night, you received two phone calls that made you stop and think. First, one of your friends called to invite you to spend Tuesday, Wednesday and Thursday at the beach. Your friend will provide transportation, but it will probably cost you \$100 each day for food and entertainment. This is an interesting offer but you are saving for new clothes and \$300 will put a dent in your savings account. Next, your uncle offered you the opportunity to paint his apartment. He will pay you \$500, but the job will take four or five days. He wants you to start on Monday.

What will you do? List your choices.

- 1 _____
- 2 _____
- 3 _____

List the advantages and disadvantages of each choice in a table like the one below.

	Choice 1	Choice 2	Choice 3
Advantages			
Disadvantages			

Clearly listing your choices and identifying their advantages and disadvantages will help you make better decisions. An economist would say that it may help you understand the opportunity costs of each option and identify possible trade-offs.

What will you decide?

In many cases, the opportunity cost and benefits of a decision vary from person to person, depending on a person's interests, needs and wants. Compare your decision with the decisions of your classmates.



Worksheet
R1.4
Scarcity

Chapter

1

Production possibilities

Individuals, businesses and nations make decisions about how to use their resources. Often, these decisions can be understood better by plotting a graph showing the production possibilities resulting from different combinations of resources.

- 1 Maria has four hours of free time each day. She can spend them studying or working at Wang's Chinese Restaurant for \$18 per hour. Figure 1.24 illustrates the trade-off between school grades and the wages Maria could earn.

- What are the minimum wages Maria could earn if she works five days a week?
- What grades can she expect if she works 10 hours each week?
- What advice would you give Maria if she were interested in becoming a pharmacist?

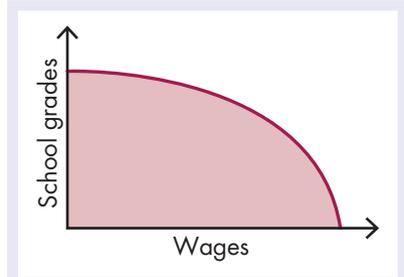


FIGURE 1.24

- 2 The Australian Parliament must approve the federal budget. This involves many difficult choices. For example, the parliament can decide to spend money on national defence, health insurance programs, roads and highways, education and many other worthwhile causes. The curve in Figure 1.25 illustrates a hypothetical trade-off between spending on defence and highways.

- What is the opportunity cost of one submarine?
- What is the opportunity cost of 30 km of highway?
- What other information would you need in order to decide on the best combination of defence spending and highway construction?

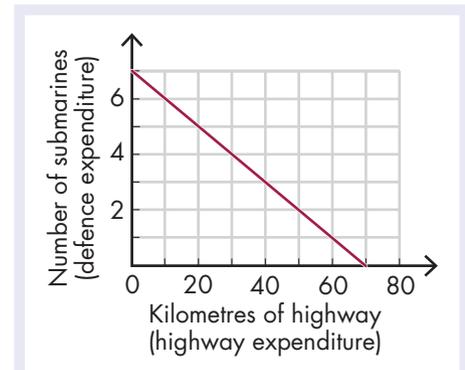


FIGURE 1.25

Economics in Action worksheets:

- 1.1 Removing assumptions

Economics Challenge worksheets:

- 1.1 Economics Challenge
1.2 Economics Challenge

Chapter 1 Review worksheets:

- R 1.4 Production possibility curve
R 1.4 Scarcity

 Nelson MindTap

To access resources above, visit
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Betsie Van Der Meer/Getty Images

2

Economic flows

The circular flow of income, GDP, aggregate demand and supply, and the business cycle are essential components of the economy.

Focus questions and inquiries

- What role do individuals, households and businesses play in the Australian economy?
- What is the relationship between different sectors of the economy?
- How is the circular flow of income reflected in the real economy?
- What causes change to the size of the circular flow?

This chapter will examine:

- the five-sector circular flow of income model
- the components of aggregate demand and aggregate supply
- impacts on the size of the circular flow
- the economic cycle, with booms and busts.

2.1 The circular flow of income model

CONCEPTS



Consumption expenditure: the total spending on goods and services by the household sector

Disequilibrium: a situation in the circular flow where injections do not equal leakages, causing fluctuations in output, income, expenditure and employment

Economic model: a simplification of a complex situation in the real world, usually represented in the form of a diagram, graph or mathematical equation

Equilibrium: a balanced situation from which there is no tendency to change; for example, where supply equals demand in the market, or, in the circular flow, where injections equal leakages, causing output, income, expenditure and employment to remain unchanged

Exports: goods and services sold to foreign countries

Final goods: final products in a state ready for sale; for example, a washing machine is a final good

Imports: goods and services purchased from foreign countries

Income: payments to households in the form of wages, rent, interest and profit

Inequality: a relative concept concerned with differences in welfare, such as in income, wealth and opportunity

Injection: an inflow of expenditure into the circular flow of income

Intermediate goods: goods that are used in the production of final goods; for example,

steel is an intermediate good used in the construction of houses and other products

Investment: spending either on new assets or additions to stocks used in the production process

Investment expenditure: spending to produce goods and services (including capital goods) by the production sector

Leakage: an outflow of expenditure from the circular flow of income

Production: the process of combining land, labour, capital and enterprise to provide goods and services in an economy

Savings: that part of present income that is not spent on consumption, but set aside for future use

Sectors: divisions of the economy in the circular flow of income model

Subsidies: grants made by the government to industries whose survival is considered to be beneficial to the public, to enable them to compete with imported goods

Tariff: a tax applied to the import or export of goods

Taxation: a method of financing government activities that involves compulsory payments to the government by individuals, companies or other organisations; usually based on income earned, and goods and services sold

Welfare: a measure of how well off people are from both a quantitative and a qualitative point of view

KEY IDEA

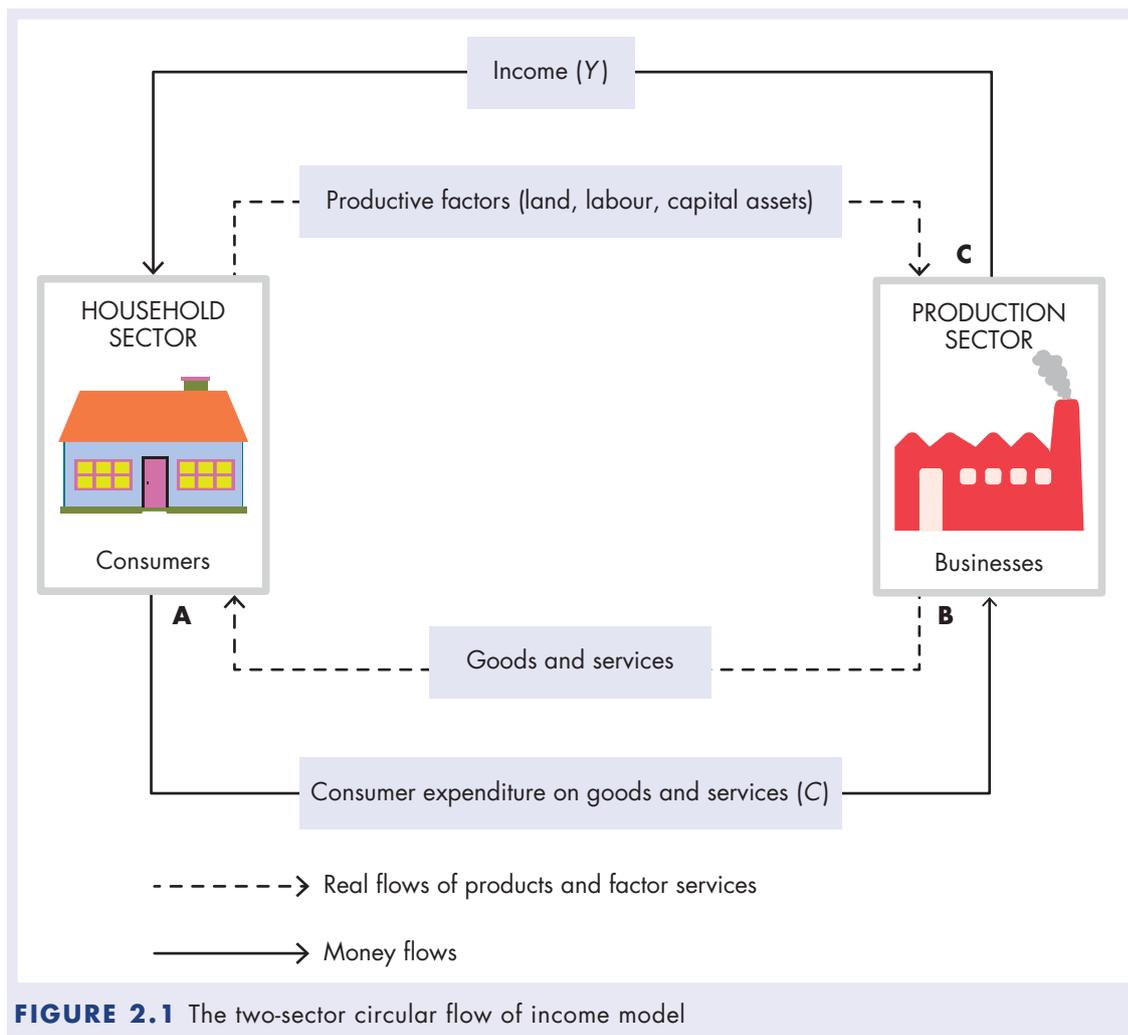
The circular flow of income model demonstrates important relationships between sectors in the Australian economy and can assist in explaining and forecasting changes in the levels of economic activity.

The Australian economy is a complex system. It involves numerous individual consumers, firms, governments, financial institutions and overseas transactions, all playing important roles. It is therefore convenient for study purposes to divide the economy into different **sectors**. In Australia's national accounting system, these sectors are identified as:

- the household or personal sector
- the production or business sector
- the financial sector, which includes the banks
- the government sector
- the foreign sector.

All individuals are consumers, regardless of whether they are involved in economic production. Firms compete for the productive services (labour and skills) of consumers while simultaneously producing goods and services for consumption by consumer households. Moreover, firms provide consumer households with **income** payments in the form of wages, rent, interest or profit, in return for the resources and services they provide. In turn, households spend most of their income payments (money) on the goods and services produced. This completes a circular flow of both goods and services and of money, as shown in Figure 2.1.

This simplified two-sector **economic model** helps us understand how the Australian economy operates and what determines the value of all that it produces.



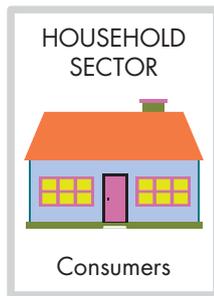
Such an economic model is a simplification of reality because we know the real world is complex. However, once the model has been established and its operation explained, it serves as a stepping stone towards achieving a better understanding and approximation of the real-world situation.

2.1.1 The two-sector economy

KEY IDEA

When consumer demand increases (an increase in total expenditure), an increase in total income results, and this finances greater expenditure, which leads to an increase in production.

The household sector



The household sector consists of the basic consuming units within the economy. It is also the source of supply of the specialised labour force that is required by firms, and the capital resources needed for **production**.

Some of the units in this sector have a dual capacity within the economy; for example, farmers are generally sole traders operating their farming businesses for a profit, but they are also the customers buying the products of other firms to satisfy the wants of their own households. Partnerships may be owned by members of various households, and companies may be owned by hundreds or even thousands of shareholders.

In practice, we must distinguish a firm from its owners. A firm is a productive unit established to supply goods and services. On the other hand, households contribute the essential elements of labour, management ability and financial capital that enable the firm to engage in production. In return for their contribution, householders receive monetary income in the form of wages, rent, interest or profit, which allows them to be consumers of the goods and services produced by firms.

The production sector



Firms are the basic productive units in the economy. Most of the production of goods and services is in the hands of private firms, which are motivated by the desire to maximise their profits by producing goods and services for sale in the market. While their own self-interest is the guiding principle, they must operate within the economic and legal framework laid down by governments.

The production sector includes all enterprises that are either incorporated (companies) or unincorporated (partnerships and sole traders), as well as government enterprises that are operated to make a profit, such as the state railways. All business enterprises are engaged in either the production or sale of goods, or in the provision of services.

Conclusions from the household and production sectors

Having established the two-sector circular flow of income model (see Figure 2.1), we are able to draw some conclusions from it. For simplicity, we will only deal with the money flows. All income is spent and everything that is produced is consumed. All production generates income for those who produce it and all expenditure is income for those who receive it.

One important conclusion can be drawn from this: total income is equal to both total production and total expenditure.

The reason for this is that we are looking at the same money flow, but at different points in the diagram:

- At point A it is called 'expenditure'.
- At point B it is called 'value of production' or 'output' (measured in economics as gross domestic product, or GDP).
- At point C it is called 'income'.

Total income = total product = total expenditure.

Using symbols, this can be expressed as:

$$Y = O = E$$

where	Y	=	total income (\$)
	O	=	total output (product) (\$)
	E	=	total expenditure (\$)

As all income is in a continuous flow, the economy is said to be in **equilibrium**.

Intermediate goods in the circular flow

Having used our simple model to establish that total income is equal to both total production and total expenditure, we can now begin to work towards a more realistic situation.

In assuming that no **intermediate goods** were produced and, therefore, all goods and services produced were sold directly to consumers, we neglected the fact that the output of one producer may be the input of another. For example, steel produced by a firm called Bluescope Steel is not sold directly to consumers, but to other producers who will use it to produce final consumer goods, such as ships and washing machines. In some cases, there may be many stages of production before a finished or final commodity reaches the consumer. This presents problems in measuring the value of total product, as we will see later. If we included the total output of all producers, we would be counting the value of this output two or three times.

For the moment, we will simply include all transactions involving intermediate goods as exchanges that occur within the production sector. The goods and services that flow out to consumers are **final goods** and services. They are the result of all earlier production stages and so are used to measure the value of production.

2.1.2 The three-sector economy

KEY IDEA

There is a strong link between savings and investment. If householders can reduce their demand for consumer goods and increase their savings, resources can be released from the production of consumer goods and redirected to the production of capital goods. In this way the country's stock of physical capital can be developed and living standards can be increased in the long term.

Savings in the circular flow

In our simple two-sector circular flow of income model (see Figure 2.1) we assumed that there were no **savings**; that is, all income earned was spent. This is obviously unrealistic and creates

a completely static economy in which there is no possibility of **investment** and growth. We will now relax this assumption and see how our model changes with the introduction of saving. Note that we are still considering an economy with no government or foreign sector. We will restrict our discussion to consumer savings.

'Savings' is the term for income not spent on consumption, and represents a **leakage** from – or gap in – the circular flow. Unless this gap is plugged, a situation arises in which producers will not be able to sell all that they produce to consumers. For example, if producers create \$100 worth of income (wages, rent, interest or profits) for householders, but householders save \$20 and spend only \$80, the producers are left with \$20 of unsold product. If this occurs, producers will not continue to produce \$100 worth of final consumer goods.

The leakage or gap can be offset by another expenditure **injection** into the circular flow. This injection takes the form of **investment expenditure**. Investment expenditure may be either:

- expenditure on capital equipment, or
- an increase in the stocks of unsold consumer goods and services not intended for present consumption.

These are final goods, not intermediate goods – but they are final investment goods rather than final consumer goods; for example, bakers' ovens rather than bread, or aeroplanes rather than holiday trips. The capital market (i.e. banks and non-bank financial intermediaries, such as credit unions and insurance companies) makes the savings available for investment in production. Using our simple example, production can still remain at \$100, even with savings, but what has happened is that the composition of production and expenditure has changed. There is \$80 of **consumption expenditure** and \$20 of investment expenditure – or \$80 worth of consumer goods and \$20 worth of capital or investment goods. Producers can make a profit producing bakers' ovens, just as they can make a profit producing bread. Savings finance the investment expenditure. The leakage or gap is plugged.

The receipts of producers are now made up of consumption expenditure and investment expenditure. Businesses in the production sector borrow the accumulated savings and purchase capital goods (investment) from other producers within the production sector. The circular flow diagram is simplified by not showing borrowings flowing into the production sector and coming out again as investment expenditure on capital goods from the production sector.

Household income (Y) is now represented by consumption expenditure (C) and savings (S):

$$Y = C + S$$

Production or output of firms (O) can be either in the form of consumption goods and services (C) or investment goods (I), hence:

$$O = C + I$$

From this, it can be deduced that $S = I$.

If the economy is in equilibrium, we have the following:

$$C + S = C + I$$

However, if business investment does not match household savings, then the level of income in the economy will vary and the economy will be in **disequilibrium**, which is the normal state of the economy. The **inequality** of savings and investment causes fluctuations in the level of economic activity – the level of expenditure, output produced and income earned.

The financial sector



The financial sector comprises mainly banks, which provide the day-to-day requirements of the community for exchange, borrowing and lending, and the central bank – the Reserve Bank of Australia – which is responsible for issuing notes and coins and controlling the supply of money.

Other financial intermediaries – such as the short-term money market, insurance offices, building societies, finance companies and credit unions – provide a variety of specialised financial services. They make it easier for households and businesses, governments and overseas enterprises to borrow and lend money to one another, thus increasing the volume of the circular flow.

Households are often able to raise their living standards in the long term if opportunities for saving (deferred consumption) are available. They are able to provide for such things as retirement (through life insurance and superannuation), education and holidays. Similarly, opportunities exist for them to increase consumption by borrowing, which can also raise living standards in the short term.

Likewise, businesses depend very heavily on funds that the financial intermediaries make available. The establishment of a business or its subsequent expansion may be conditional upon obtaining access to funds. This is due to the considerable time that may be involved before there is a cash flow into a business from the sale of its output. Businesses also add to their profits by lending their surplus funds to financial intermediaries until they are required.

ECONOMICS IN ACTION



Describe, using a diagram, the circular flow of income between households and the production sector in a closed economy with no government.

2.1.3 The four-sector model

KEY IDEA

The government may seek to influence or regulate economic activity by intervening in the operation of the circular flow.

The discussion so far has been confined to the household, production and financial sectors. In the real world, governments exert an important influence on the activities of both consumers and producers. In order to make our model more realistic, we will include the government sector in our discussion. This gives us a four-sector circular flow, as shown in Figure 2.2 on the following page. Now we can proceed to explain the workings of this expanded model.

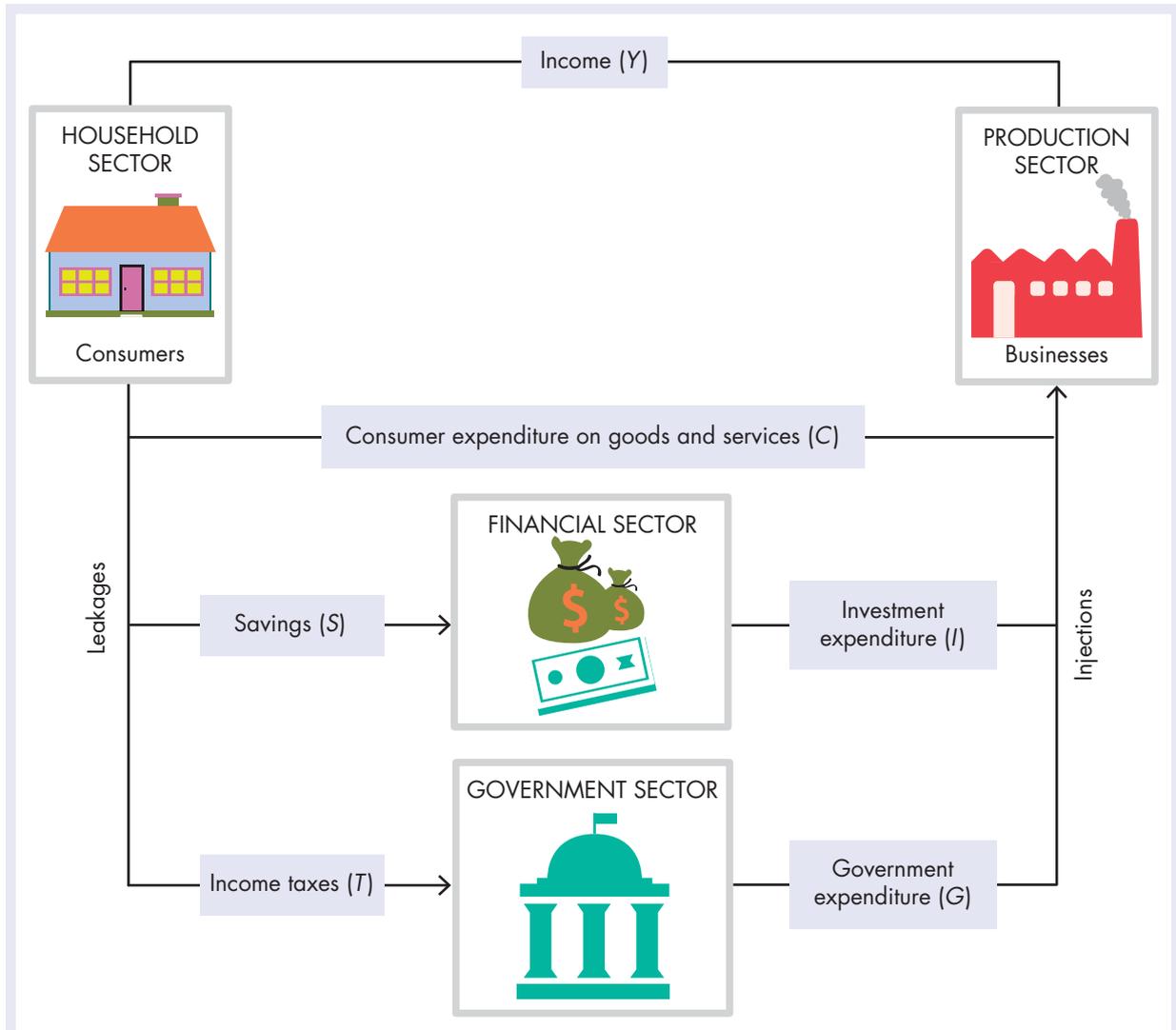


FIGURE 2.2 The four-sector circular flow of income model

The government sector



When speaking of the government sector in the circular flow, we are referring to all three levels of government – federal, state and local – as they occur in Australia. This includes government departments that provide collective, not-for-fee goods and services which are necessary for the smooth functioning of a modern, developed economy, such as defence, schools, roads, railways, hospitals and flood mitigation programs. These are known as *social overhead capital*.

The government fits into the circular flow as a receiver and spender of income in much the same way as the sectors already considered. However, government influence on the circular flow goes far beyond this basic role.

The government receives income from both the household sector (including income tax, goods and services tax (GST), excise tax and rates) and from the production sector (company tax and payroll tax). Part of this income is used to provide collective goods and services.

If the economy is in equilibrium, then the following will exist:

$$C + S + T = C + I + G$$

where $T =$ taxation
 $G =$ government expenditure

It is not necessary that $S = I$ or $T = G$. It is the combined totals that have to be equal.

The government also has a major influence on the circular flow through its various economic management policies. These policies will bring about changes in the money flows within the economy. The following are examples of policies that have such effects.

- **Monetary policy:** This is applied by the Reserve Bank of Australia to bring about changes in aggregate (total) demand by influencing the supply and cost of funds available through the financial system. (Aggregate demand is discussed at 2.2.) If there is a need to contract the economy, then monetary policy can be used to reduce the supply of money in circulation, and this will lead to an increase in interest rates.
- **Fiscal policy:** This refers to the government's use of deficit or surplus budgets. This affects the aggregate level of spending, either by changing the net income of the individual or the firm through **taxation**, or by adjusting the level of government spending. In using budget deficits or surpluses, the government can attempt to maintain the **welfare** of society and to counteract problems such as excessive inflation or unemployment.
- **External policy:** This influences the levels of **exports** and **imports**. External policy can be in the form of changes to **tariffs, subsidies** and exchange rates to influence international payments or receipts by modifying the prices of exports or imports.

The government has become increasingly involved in providing assistance in various forms to the production and household sectors.

In the production sector, the most significant assistance that the government arranges for producers is tariff protection against cheap imported goods. Other assistance includes direct government contributions to industrial and agricultural research, trade agreements, taxation concessions and public investment in marketing facilities. Subsidies are provided out of government funds for a variety of industries.

In the household sector, besides the actual financial assistance given to members of the community in the form of social service payments, the government also helps protect consumers by legislation. This outlaws such practices as *resale price maintenance* and other restrictive trade practices. Resale price maintenance is where a supplier of a product determines the minimum price at which retailers must sell that product. The Australian Competition and Consumer Commission, the Office of Fair Trading and the Queensland Civil and Administrative Tribunal are agencies for government activity in the area of consumer protection.

In the community, as outlined above, the government supplies a variety of collective goods and services, which, for various reasons, individual firms are not prepared to provide.

2.1.4 The five-sector model

It is now time to relax the last of our simplifying assumptions. In our analysis so far, we have been considering a closed economy; that is, an economy with no foreign trade. This is unrealistic, particularly in the case of Australia, where goods and services bought and sold overseas have a large and important influence on domestic production. In order to prevent the circular flow of income model becoming so complicated that it defeats its purpose, we will assume that only the household sector imports. Of course, the production and government sectors also import. Our focus, however, is to show how the foreign sector may influence the level of domestic business production by causing leakages and injections in the expenditure flow.

The foreign or external sector



The foreign sector represents another set of leakages and injections in the circular flow and, therefore, another opportunity for loss of equilibrium or balance. Leakages take the form of payments for imports. If consumers spend money on goods and services produced overseas, they are satisfying their wants, but this spending does not encourage domestic production. Injections consist of payments received from overseas buyers of exports. Export receipts (i.e. the income received from exports) do not come from the income of domestic residents, but they do encourage domestic production.

The impacts of these leakages and injections are shown in Figure 2.3.

For the economy to be in equilibrium, the following needs to occur:

$$C + S + T + M = C + I + G + X$$

where M = imports
 X = exports

It is to Australia's advantage to maintain at least a balance between export receipts and import payments. Householders can have considerable influence on this through their pattern of consumption of goods and services. Through its trade policy, the government attempts to ensure that Australia's export receipts exceed import payments, and that capital inflows and interest payments remain at acceptable levels. The government also tries to ensure that our balance of payments (which is the summary of a nation's payments to, and receipts from, the rest of the world over a year) leaves us in a viable position without excessive foreign debt.

CHECK FOR UNDERSTANDING 2.1

- 1 **Recall** what each of these symbols stand for: C , S , T , M , I , G , X , Y .
- 2 **Describe** why it is necessary to make assumptions when developing a model in economics.
- 3 **Explain** how a leakage of savings results in the circular flow becoming smaller.
- 4 **Describe** how financial institutions serve as a link between savings and investment.
 - a What will happen if $S > I$?
 - b What will happen if $S < I$?
- 5 **Describe** what conditions are necessary for equilibrium in the four-sector model.
- 6 **Describe** what will happen, assuming $S = I$, if $T > G$.
- 7 **Distinguish** between a closed economy and an open economy.



Weblink
 Tutor2u Circular flow
 of income model

ECONOMICS CHALLENGE



There are several online tutorial resources that seek to explain the circular flow of income model. Review some of these. Can you draw the circular flow with all the detail required in a way that you will recall? This is one economic model that you will use throughout your course.

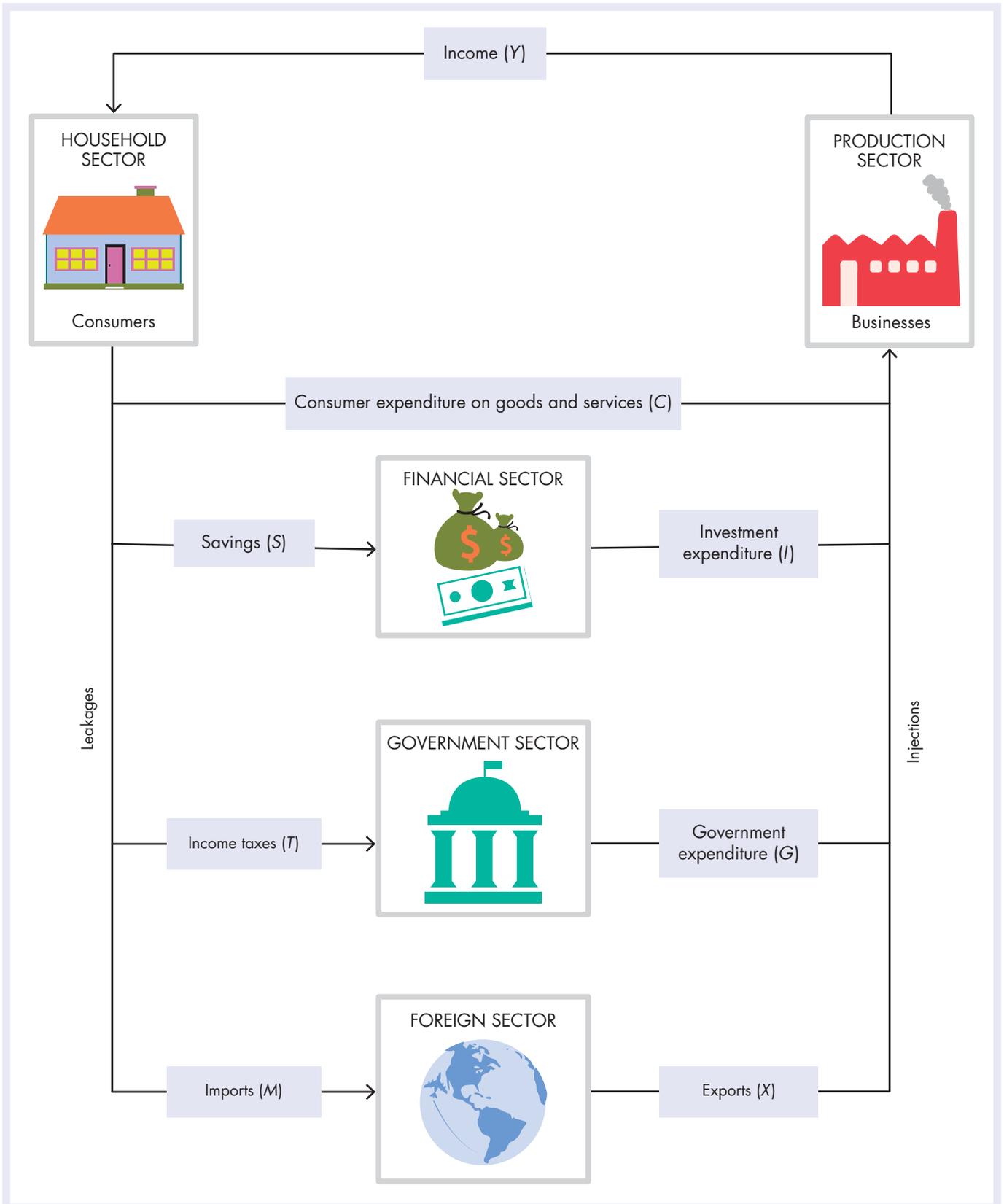


FIGURE 2.3 The complete circular flow of income model

2.1.5 Usefulness of the circular flow of income model

CONCEPTS



Consumer price index (CPI): a measure of changes in the average level of prices of goods over a certain period

Contraction: when the economy is in overall decline

Current account: a measure of the inflows and outflows of money resulting from buying and selling goods and services, and from earning income, in the international marketplace

Economic growth: a sustained increase in the productive capacity of an economy over a specific period of time, usually indicated by the increased availability of goods and services in the economy

Gross domestic product (GDP): a measure of the monetary or market value of goods and services produced in an economy in a given period (usually one year) after deducting the cost of intermediate goods and services used in their production

Reserve Bank of Australia: the central bank within the Australian economy, which sets the cash rate and aims to maintain financial stability

Unemployment: the state of being out of work or not having paid employment

KEY IDEA

Measurement of the flows between sectors of the circular flow of income model is fundamental to an understanding of how Australia attempts to solve the economic problem through a mixture of both private and public decision making.

By using the circular flow of income model, we have been able to gain a picture of the working of the Australian economy. A simplified model enables us to see clearly the interdependence of the various sectors of the economy, and the flows between them. We can see how the decisions of the production sector will, by means of the circular flow, affect the income and the future decisions of the household sector, the government sector and the foreign sector. The model can help demonstrate the following:

- markets that affect the levels of production
- expenditure and income flows that affect the levels of production
- factors influencing the decision makers in the various sectors.

Flows of money from the production sector represent income paid to householders for their labour, while flows of money from the household sector to the production sector represent expenditure by consumers in exchange for goods and services. In the simple two-sector model, these two flows are equal because what is earned in income is spent in consumption.

If the model is expanded and made more like the real world, then some of the householders' money can leak out of the system to the financial sector (as savings), to the government sector (as taxation) and to the overseas sector (as payment for imports) – these are called *leakages*.

Also, money can be injected back into the circular flow from the financial sector (as investment funds for firms), from the government sector (as government expenditure on goods from businesses) and from the overseas sector (as receipts for exports) – these are known as *injections*.

For the economy to be in balance, or equilibrium, total leakage flows should equal total injection flows. This does not often happen in the real world, and the amount of money in circulation (the money supply) may expand if total leakages are less than total injections. On the other hand, the money supply may contract if total leakages are greater than injections.

The circular flow of income model provides economists with an insight into what determines the level of total national production: **gross domestic product (GDP)**. It shows the total expenditure – that is, $C + I + G + X$ (consumption expenditure plus investment expenditure plus government expenditure plus export expenditure) – by each of the sectors and plays an important role in determining how much the production sector will be willing to produce.

ECONOMICS CHALLENGE



Navigate to the the Australian Bureau of Statistics (ABS) website and find the size of Australia's GDP for the past five years. Graph these figures using a bar graph or a line graph. What is the trend for Australia's GDP?



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Australian Bureau of
Statistics (ABS)

Like any good economic model, the circular flow of income model not only gives an explanation of what determines total national production, but also helps us to understand what would happen if certain variables were changed. So, it can provide ideas as to how the government could attempt to manage total economic activity to achieve certain economic objectives: see Figure 2.4.

FIGURE 2.4 Government economic objectives

The government has a range of economic objectives, including:

Price stability/low inflation: measured by the **consumer price index (CPI)**

Low **unemployment**: measured by monthly unemployment figures

Economic growth: measured by changes in GDP

External stability: measured by balance of payments figures

For example, suppose there is large-scale unemployment because the production sector has cut back production. The government can attempt to stimulate production by stimulating aggregate (total) expenditure (made up of C , I , G and X). The government needs to stimulate one or more of the flows. One possible policy is for the government to cut income taxes. This would reduce the leakage from the expenditure flow, as well as encourage more investment and give the household sector more disposable income to spend. C and I would rise, with more expenditure flowing to domestic production. The production sector may respond to this increase in expenditure by producing more goods and services. To produce more, this sector employs more people and so reduces the unemployment problem.

Alternatively, if the quarterly CPI figures indicate that the level of inflation is unacceptably high, the government may, in conjunction with the central bank (the **Reserve Bank of Australia**), seek to increase interest rates. This may encourage householders and business people to invest less money and to save more. This would result in a **contraction** of the economy through a leakage of funds from the circular flow and, all other things being equal, a reduction in the rate of inflation.

Another real-world example of how the government may intervene in the circular flow is if the foreign sector is in imbalance. Suppose that money flowing out of the economy in payment for imports was unacceptably higher than receipts for exports. This would represent a leakage from the circular flow and could result in a deficit in the **current account** of the balance of payments. Unless the government does something, a sustained current account deficit could result in a decrease in the standard of living of Australians, or a need to borrow from overseas and so contribute to the foreign debt. The government may decide to intervene and assist Australian exporters with subsidies, or restrain importers by imposing trade restrictions such as tariffs. In the short term, all other things being equal, the leakage from the circular flow may be stemmed.

CHECK FOR UNDERSTANDING 2.2

- 1 **Recall** the use of economic models.
- 2 **Describe** the importance of savings in the circular flow of income.
- 3 **Describe** why the government wishes to influence the circular flow.
- 4 **Explain** the options government has to influence the circular flow.

ECONOMICS CHALLENGE



FIGURE 2.5 Circular flow data for economies A to F

Money flow	Economy					
	A (\$m)	B (\$m)	C (\$m)	D (\$m)	E (\$m)	F (\$m)
Consumption	80	200	100	500	300	1000
Savings	20	50	30	100	60	300
Taxes	10	10	15	60	80	200
Government spending	20	20	30	50	120	200
Imports	30	—	40	100	70	180
Exports	20	—	30	105	60	240
Investment	20	60	25	50	80	250

Figure 2.5 presents circular flow data for six economies. For each economy, calculate the following:

- 1 number of sectors
- 2 deficit or surplus budget (hint: the budget outlines taxation revenue and government spending)
- 3 balance of payments surplus (hint: exports minus imports)
- 4 total leakages from the circular flow
- 5 total injections into the circular flow
- 6 state of the economy (hint: is it in equilibrium, expanding or contracting?).

2.2 Aggregate demand

CONCEPTS



Aggregate demand: the total expenditure on the goods and services produced in an economy in a period of time

Disposable income: the amount of income available to an individual after payment of tax

Government expenditure: the total spending on goods and services by governments at local, state and national levels

Interest rate: the price paid for the use of capital, expressed as an annual percentage of the value of the capital

Net exports: the income earned by exports less the spending on imports into Australia

Private investment expenditure: the purchase of new equipment and plant, buildings and vehicles to increase the ability to produce goods and services

KEY IDEA

Economists use measures of aggregate demand to show how demand factors interact to change the overall level of economic activity within the economy.

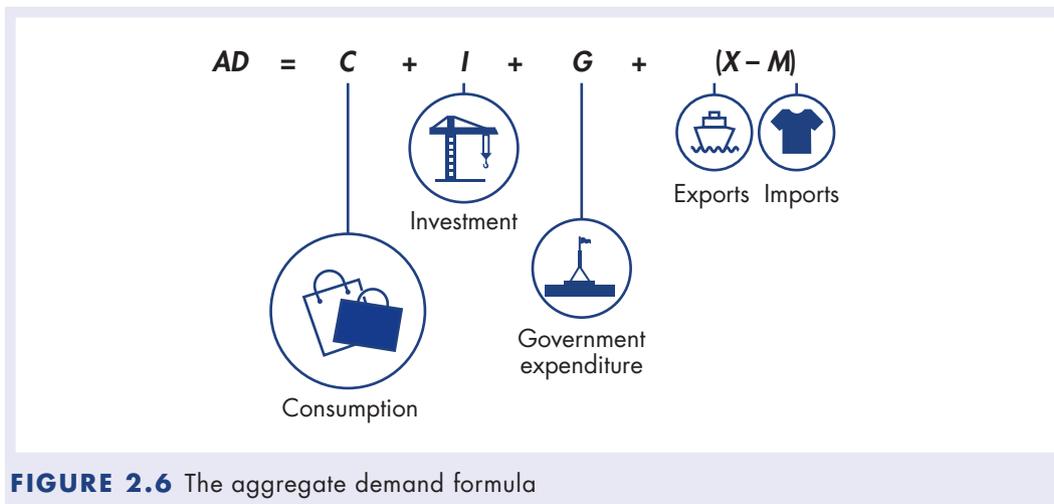
If the demand for goods and services never changed or varied, then the economy would essentially stay in equilibrium. However, this is unrealistic. In reality, the assumptions made in the circular flow of income model are not likely to ever occur.

The constant change in demand from households (consumption), business (**private investment expenditure**), governments (**government expenditure**) and the foreign sector (exports minus imports) means the economy is rarely, if ever, in equilibrium. There are always leakages (savings, taxes and imports) and injections (private investment demand, government demand and export demand).

Aggregate demand is calculated by adding consumption expenditure by households, private investment expenditure by firms or the production sector, government expenditure and **net exports**.

This can be expressed as:

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



Economic growth explainer/Reserve
Bank of Australia

FIGURE 2.6 The aggregate demand formula

2.2.1 The determinants of aggregate expenditure

Economists study the changes in the level of aggregate demand and why it varies, so that the level of economic activity can be explained and managed. To do this, it is necessary to understand why each of the components may vary over time.

Factors affecting consumption expenditure

There are several factors that determine how much households will spend on goods and services for consumption. Our needs for basic items will come first. These include food, clothing, housing and education. How much we spend on luxury items – for example, new cars and electric goods – will be influenced by factors such as income, wealth, borrowing capacity and consumer feelings about the state of the economy.

The level of **disposable income**, or how much consumers have to spend, is the main factor affecting the size of consumption spending. The higher the level of disposable income, the more likely it is that consumers will demand more goods and services.

The **interest rate** level affects the cost of credit:

- the higher the rate, the more households need to pay interest on items purchased by credit
- the lower the rate, the more households are likely to spend, as the opportunity cost of expenditure falls.

Consumer expectations of the future affect the level of aggregate demand. If consumers are confident of the economic future, they will tend to spend more. If consumer feelings or sentiment is not so positive, then spending may be more restricted.

Government policies, such as those relating to taxation and health costs, affect the price of some goods and services.



FIGURE 2.7 Consumption

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Factors affecting investment expenditure

Aggregate private investment expenditure can change considerably. The production sector invests more when there is confidence in the future of the economy, and less when economic conditions are not so good. Firms endeavour to minimise risk, or minimise the loss on their investment.

When a firm borrows to invest, the rate of interest will help determine when and how much investment is undertaken. When interest rates are high (i.e. the price of borrowing money is high), there is likely to be a lower rate of private investment expenditure.

Business expectations are what a firm thinks about the current economic conditions, likely future conditions and the effect these will have on profitability. If the firm expects future sales to be positive, it is more likely to invest than if sales outlooks are gloomy.

Government policies relating to taxation, incentives to businesses, subsidies and other similar policies affect business decisions, and may encourage or discourage business investment. An example would be a government decision to allow taxation incentives for investment in technology to improve production and reduce production costs.

Ultimately, firms make decisions to invest based on perceived profitability. If a firm believes investment will increase profitability, then it will invest.



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FIGURE 2.8 Investment expenditure

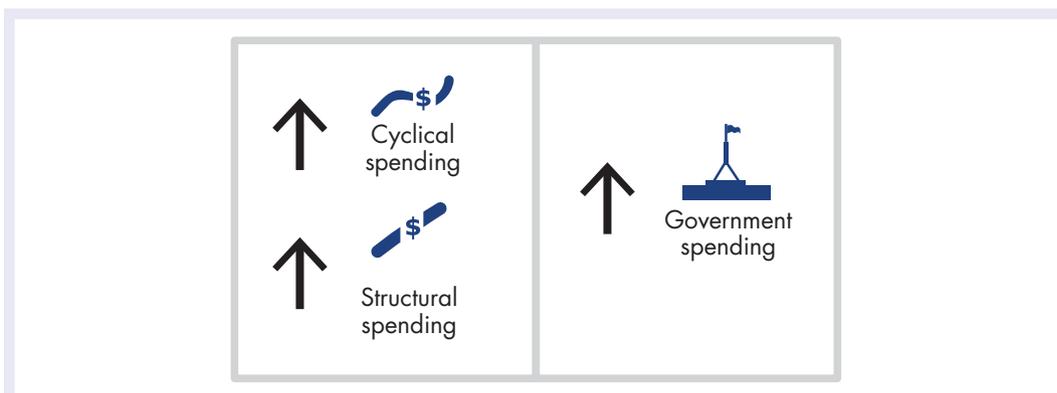
Factors affecting government expenditure

Governments provide many collective services – such as health, education, social welfare and defence – and expenditure on these does not vary much. However, some items of government expenditure vary as economic conditions change; for example, an increase in unemployment benefits may occur when unemployment levels rise.

Sometimes, government policies require additional spending; for example, following a natural disaster in Australia, or when the government makes a deliberate policy change such as lowering income tax on businesses.

Government spending can be either structural or cyclical.

- **Structural spending** occurs regardless of the state of the economy; for example, health, education and defence.
- **Cyclical spending** tends to move with the state of the economy. For example, in an economic upturn when the unemployment rate has increased, there will be less government spending on programs to support unemployment benefits (welfare payments).



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FIGURE 2.9 Government expenditure

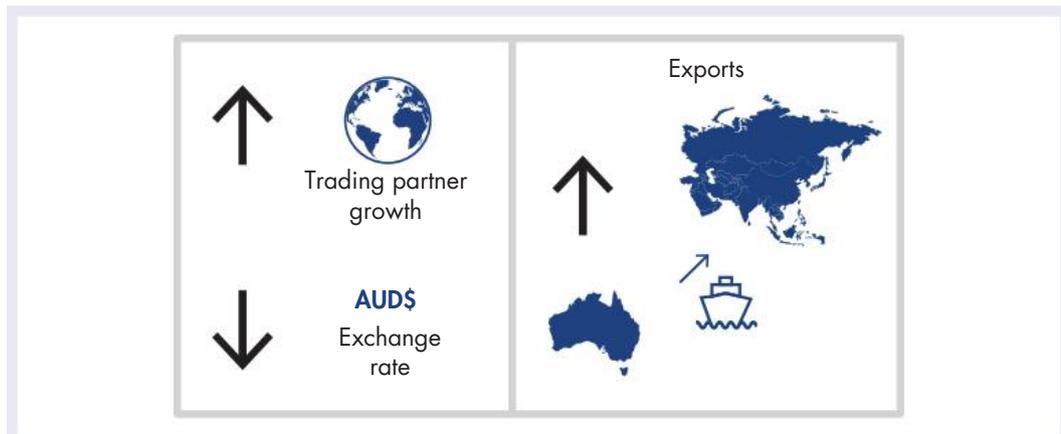
Factors affecting net exports

The economic conditions around the world affect our exports.

For example, agricultural exports depend on world seasonal conditions. A drought overseas may increase our exports, while a drought in Australia may decrease them.

In addition, Australia's exports of coal and iron ore to China have grown rapidly since the 2010s, as these are inputs into steel production in China. China uses steel in the construction of housing and infrastructure, as its economy has grown strongly and the country has continued to industrialise.

Australian exports are also generally higher when the Australian dollar exchange rate is low, because it becomes cheaper for other economies to buy Australian goods and services.

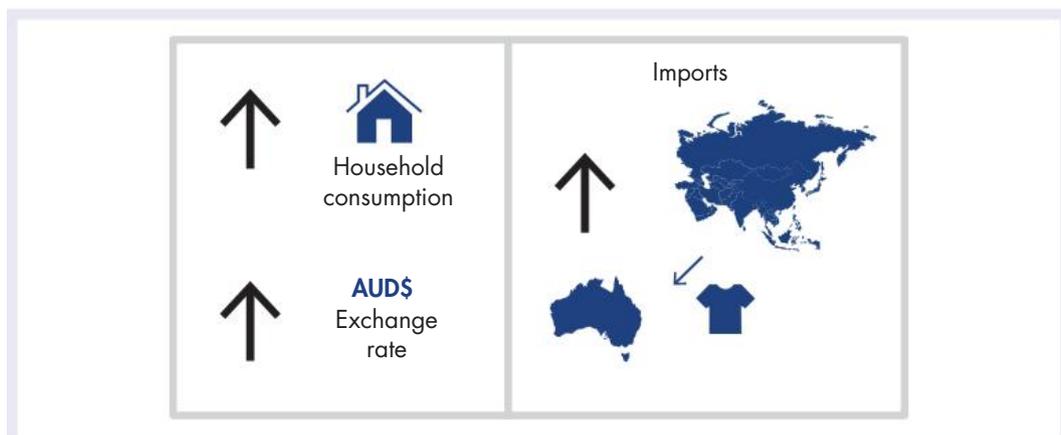


Economic growth explainer/Reserve Bank of Australia

FIGURE 2.10 Net exports

Economic conditions in Australia will determine the size of our imports. When our economy is growing strongly, we tend to import more from overseas.

The level of imports also depends on the Australian dollar exchange rate. Imports are generally higher when the Australian dollar exchange rate is stronger, because it becomes cheaper to buy goods and services from overseas.



Economic growth explainer/Reserve Bank of Australia

FIGURE 2.11 Imports

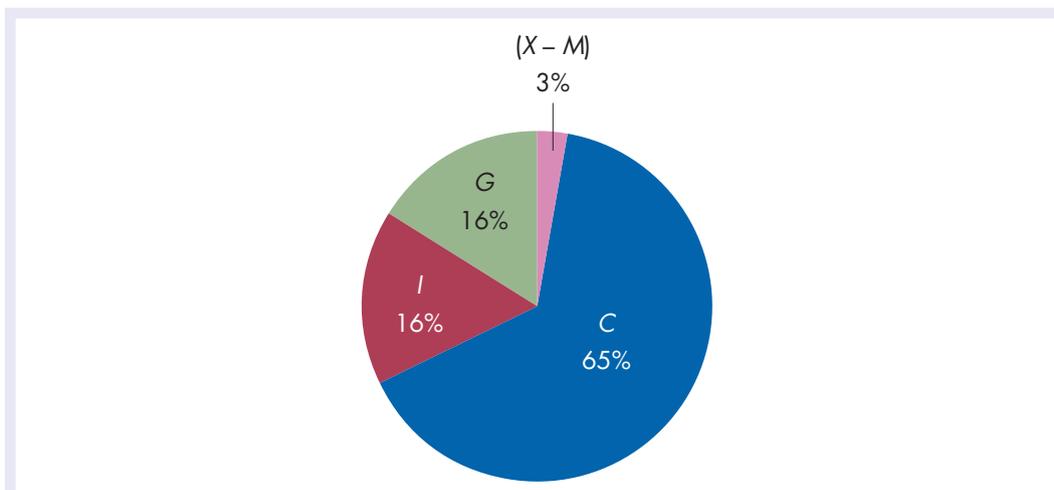
Contributions to GDP growth

Each of the components of aggregate demand contribute to growth in GDP. The size of the contribution to growth is determined by both:

- the size of the component, and
- the growth rate of the component.

Consumption almost always makes a large contribution to growth in GDP, as it accounts for more than half of GDP. It tends to grow at a steady rate.

Smaller components with a more volatile growth rate can also have large effects on growth in GDP. For example, mining investment has recorded large swings since the early 2010s, associated with the resources boom and downswings; so it has made large contributions to, and subtractions from, growth in GDP at different points in time.



Natalie Berndt

FIGURE 2.12 Contributions to GDP growth estimate 2022/23

CHECK FOR UNDERSTANDING 2.3

- 1 **Recall** the formula for aggregate demand. How do economists measure this?
- 2 **Explain** the meaning of private investment expenditure and why it is important for economic growth to occur.
- 3 **Explain** how the level of consumption expenditure affects the size of GDP.
- 4 **Describe** the factors that affect the size of consumption expenditure, and give two examples of this.
- 5 **Describe** the factors that determine the level of private investment expenditure.
- 6 **Explain** how the federal government influences private investment expenditure.
- 7 Economic conditions affect the size of government expenditure. **Describe** one example of how conditions would cause a change in the level of government expenditure.
- 8 **Explain** how the level of net exports is affected by climatic conditions and the exchange rate for the Australian dollar.

2.3 Managing the flow of income

CONCEPTS



Boom: the phase of the business cycle where the general level of economic activity is above average; it is characterised by full employment and inflationary pressure due to demand being in excess of supply

Business cycle: alternate but irregular periods of prosperity and recession in an economy; also called the trade cycle or the economic cycle

Downswing/contraction: the slowing down in aggregate output and income levels due to a rise in uncertainty

Paradox of thrift: occurs when people try to save more in times of recession, which

leads to a fall in both aggregate demand and economic growth

Recession/trough: the phase of the business cycle where the general level of economic activity is below the economy's potential; it is characterised by high unemployment, reduced level of inflation, and low business and consumer confidence

Upswing/recovery: where the economy moves into a period of prosperity and healthy business activity; it is characterised by increasing confidence on the part of business and consumers

KEY IDEA

The economy tends to fluctuate in a cyclical manner over time. Forecasts of the cycle phases are the basis of appropriate policy responses.

From the discussion at 2.2, you should understand that the flow of income within the circular flow varies over time, and according to economic conditions.

Most economists have tended to see fluctuations in the size of the circular flow as being part of a general series of fluctuations in economic activity known as the **business cycle**, trade cycle or economic cycle.

The phases of the business cycle can be most easily explained with the aid of a diagram, as shown in Figure 2.13 and in the description that follows.

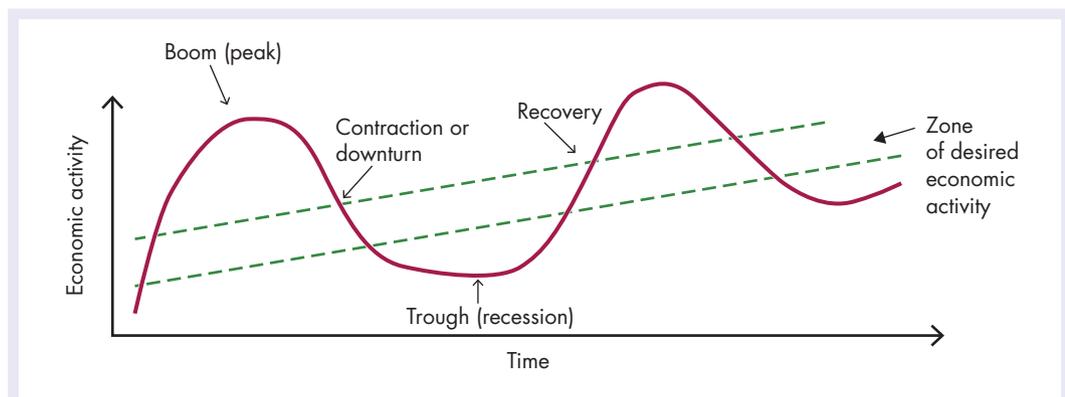
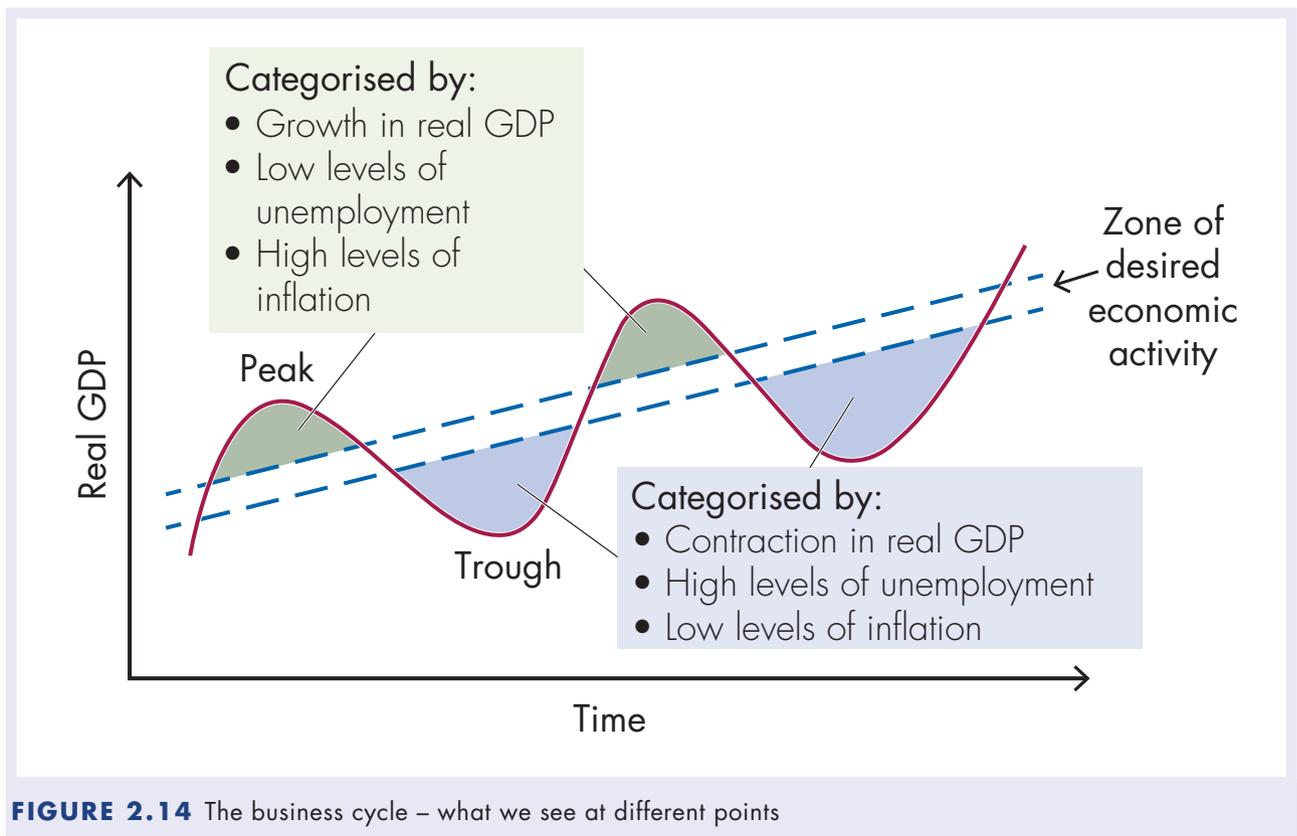


FIGURE 2.13 The business cycle

- **Upswing/recovery:** The cycle begins with the economy moving into a period of prosperity and healthy business activity, characterised by increasing confidence on the part of business and consumers. Demand will rise, resulting in increases in production and increases in investment.
- **Boom:** As the economy nears the stage where all resources, including labour, are fully employed, the high levels of demand will cause both the price of consumer goods and services and the cost of productive resources to rise. This is the classic boom situation of full employment and inflation.
- **Downswing/contraction:** As productive resources become more costly, producers find profits are being squeezed unless they pass on cost increases as price increases for the finished product. Eventually this, plus the fact that consumers reach a point where they have all the consumer durables they need, will lead to a levelling off of consumer demand. A slowing down in the rate of increase of demand and production will lead to a slowing down of investment. The economy therefore begins to slow.
- **Recession/trough:** Once expenditures begin to fall, production falls. Income and demand also fall. This accelerates the decline in investment in an exact reverse of the upswing situation. Falling demand results in smaller profits and a smaller demand for productive resources. This could result in high unemployment. This is illustrated by the **paradox of thrift**, which was popularised by economist John Maynard Keynes. It states that people try to save more in times of recession, which leads to a fall in both aggregate demand and economic growth.





Weblink
RBA Chart Pack

Worksheet
2.2 RBA Chart
Pack

ECONOMICS IN ACTION



Navigate to the RBA Chart Pack to gather data for the following: retail sales growth, housing loan approvals, business investment, and employment and hours worked.

Analyse each of these graphs and suggest where the Australian economy is on the business cycle at the present time.

2.4 Government intervention

CONCEPTS



Balanced budget: a budget in which current revenue is equal to current expenditure; that is, $T = G$

Basis points: a common unit of measure for interest rates and other percentages in finance; one basis point is equal to 100th of 1 per cent, or 0.01 per cent, and is used to denote the percentage change in a financial instrument

Deficit budget: a budget in which current revenue is less than current expenditure; that is, $T < G$

Discretionary fiscal policy: the deliberate manipulation of government expenditure and revenue to achieve economic objectives

Fiscal policy: measures undertaken by governments in relation to raising revenue

through taxation and determining the nature of government expenditure, aimed at influencing a nation's aggregate demand

Internal stability: a state of the economy when there is full employment and price stability

Monetary policy: policy measures implemented through the Reserve Bank of Australia to bring about changes in aggregate demand by influencing money supply and interest rates

Public final demand: government spending consisting of both consumption and capital expenditure

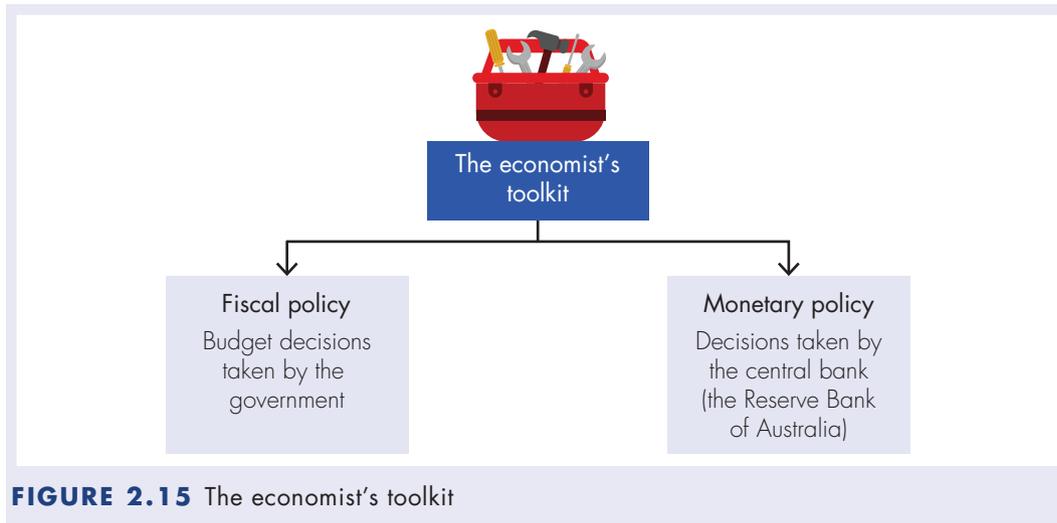
Surplus budget: a budget in which current revenue is greater than current expenditure; that is, $T > G$

KEY IDEA

Government spending through the budget affects the size of the circular flow of income and assists with controlling fluctuations within the economy.

It is necessary for the government to implement policies to smooth out fluctuations in the business cycle, so that the impact on the economies of the various sectors is minimised.

The government is able to use two broad sets of policy to achieve its aim of **internal stability** (i.e. a situation where there is full employment and price stability). Think of these as being an economist's toolkit.



2.4.1 Fiscal policy

Fiscal policy (or budgetary policy) is the use of government expenditure and revenue to regulate the aggregate level of economic activity, and influence the size of the circular flow of income. In Australia, fiscal policy is implemented primarily through the federal government's annual budget.

The principles of fiscal policy are based on the assumption that the basic economic function of the budget is to control and manipulate the level of aggregate demand, so as to achieve the government's economic objectives. The deliberate manipulation of government expenditure and revenue to achieve economic objectives is called **discretionary fiscal policy**.

Budget outcomes

The government is both a producer and a consumer in the economy. As a consumer of goods and services, it spends money to employ labour and buy resources. This government spending is known as **public final demand** (G), and consists of both consumption and capital expenditure. It is an important part of aggregate demand.

The government mainly affects the level of aggregate demand, and thus the level of economic activity, by adjustments in government revenue and expenditure to bring about a desired budget outcome. It does this through its taxation policy, and its policy of borrowing funds, usually for capital expenditure.

These adjustments could result in a balanced, surplus or deficit budget.

A **balanced budget** is one in which current revenue is equal to current expenditure; that is, $T = G$. A balanced budget should have little effect on aggregate demand.

A **surplus budget** is one in which current revenue is greater than current expenditure; that is, $T > G$. This results in a decrease in aggregate demand and should result in a decrease in the circular flow, as income held is a leakage from the circular flow. A surplus budget would be an appropriate government response during an upswing in economic activity to help reduce pressure on inflation by slightly reducing the size of aggregate demand.

A **deficit budget** is one in which current revenue is less than current expenditure; that is, $T < G$. This results in an increase in aggregate demand and a net injection, and should result in an increase in economic activity. A deficit budget would be an appropriate government response during a downswing or contraction in economic activity to assist in reducing unemployment.

2.4.2 Monetary policy

Monetary policy is policy measures implemented through the Reserve Bank of Australia to bring about changes in aggregate demand by influencing the supply of money and interest rates available to individuals and firms through the financial system. Interest rate changes are measured in **basis points**.

The effect of an increase in the money supply is shown in Figure 2.16.

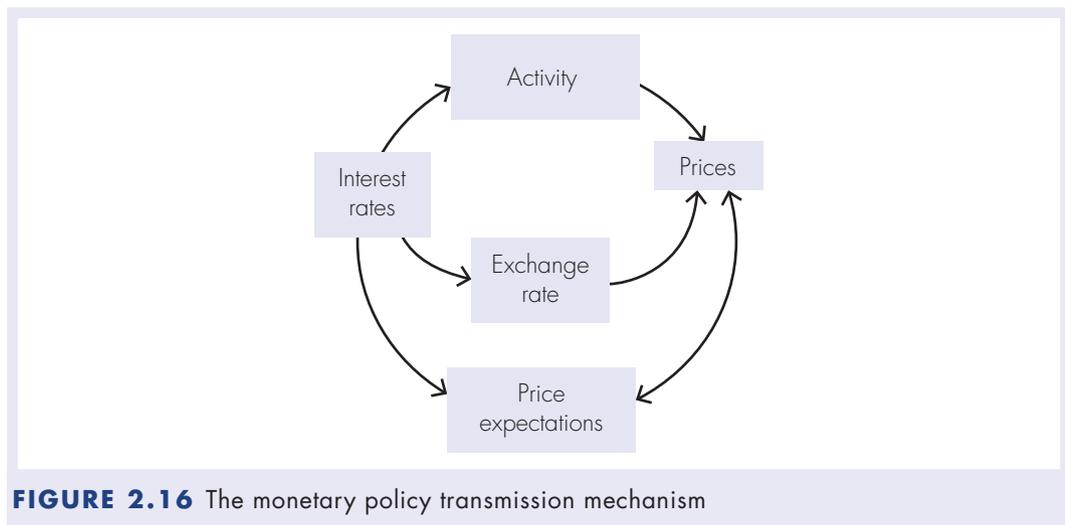


FIGURE 2.16 The monetary policy transmission mechanism

If there was an increase in money supply, then there would probably be a decrease in interest rates and consequently an increase in consumption, an increase in investment and a likely increase in income. There would be an increase in aggregate demand, providing consumer and business expectations for the future are reasonable. This would be an appropriate policy during a downswing or contraction and a recession in the business cycle.

The reverse would apply if there was a decrease in money supply. In this case, interest rates would be increasing and hence there would be a reduction in consumption, a decrease in investment and a likely decrease in income. Overall, aggregate demand would decrease. This would be an appropriate policy during an upswing or boom in the business cycle.

Monetary policy is implemented by the Reserve Bank on behalf of the federal government. If, in the opinion of the government and the Reserve Bank, the economy is faced with inflation above the inflation target of 2–3 per cent, the Reserve Bank can attempt to reduce aggregate demand by increasing interest rates, reducing money supply and making credit more expensive. An increase in interest rates may adversely affect some households or consumers,

particularly those with housing and other loans, as the repayments they have to make will increase. Conversely, those who have bank term deposits will gain from a higher amount of interest being paid. In the long term, the effect will be to lower inflation.

The reverse can apply if inflation is low and the government and the Reserve Bank wish to encourage an increase in spending, and hence aggregate demand.

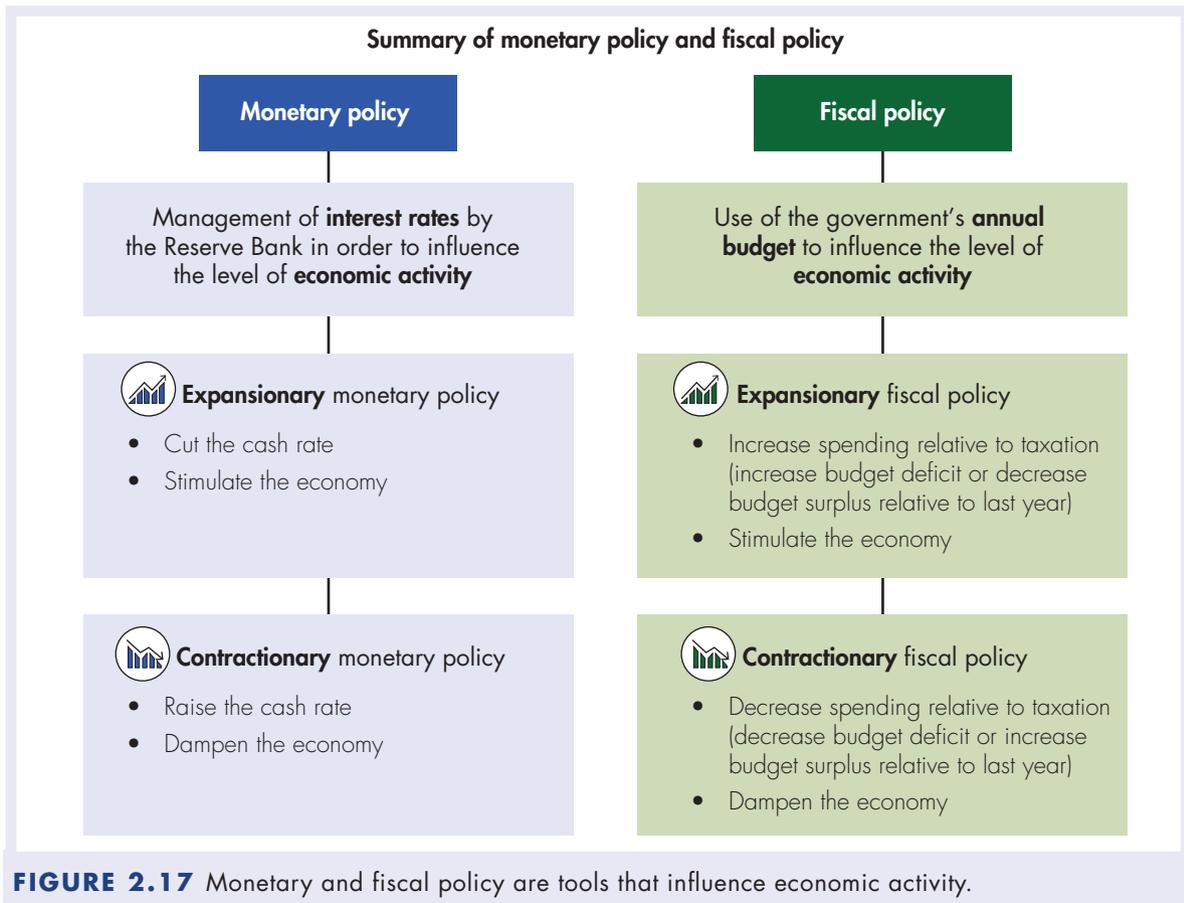


FIGURE 2.17 Monetary and fiscal policy are tools that influence economic activity.

2.4.3 Aggregate supply

CONCEPTS



Aggregate supply: the total value of goods and services available for sale in an economy in a given period of time

Infrastructure: the basic physical and organisational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise

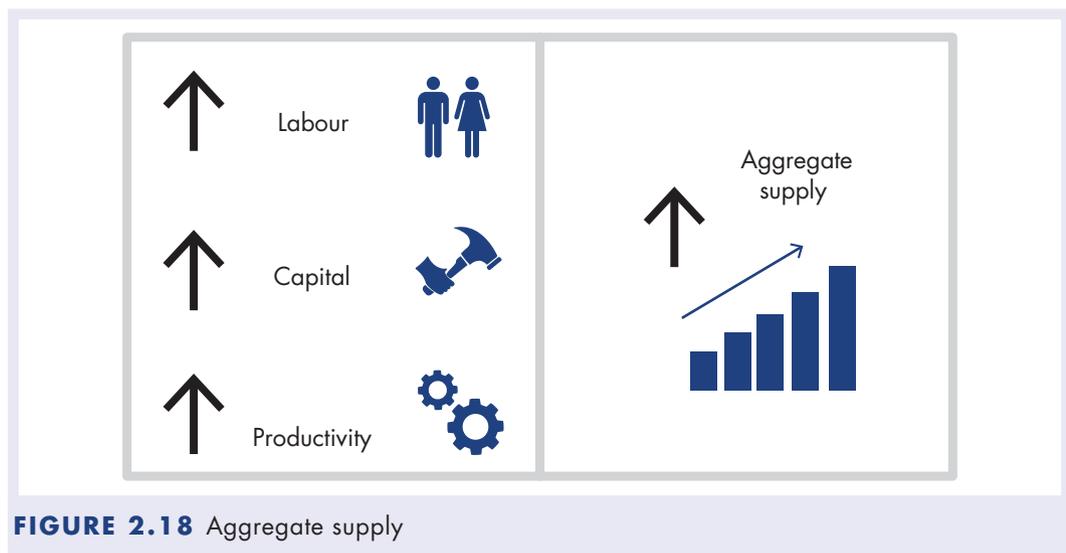
So far, we have concentrated on aggregate demand within the circular flow of income, and in particular, demand generated by consumers, businesses, government and the external sector. There is another aspect to be considered, and that is aggregate supply.

Aggregate supply is the total value of goods and services available for sale in an economy in a given time period. This can affect the size of the circular flow, especially if there are insufficient quantities of goods produced and available for sale. In this case, demand would

not be met. It would be necessary to improve the productive capacity of the economy to produce more goods and services. It may be that there are some under-utilised resources that can be used to do this, such as unemployed workers or land. An increase in aggregate supply to match the amount demanded will boost the size of the circular flow.

If there are insufficient under-utilised resources to improve productive capacity, then economic growth will be constrained and some demand will not be able to be met. Economic growth is a sustained increase in the productive capacity of an economy over a specific period of time, usually indicated by the increased availability of goods and services in the economy. For economic growth to occur, there must be an increase in the amount of goods and services produced (i.e. there needs to be an increase in aggregate supply).

The decisions to produce more goods and services are usually made by entrepreneurs and the production sector within the economy. Should a business decide to expand its production, it will contribute to our economic growth.



The government can facilitate some economic growth through policies that aim to help producers; for example, by reducing costs incurred in production, and assisting businesses to be more competitive in the marketplace. Examples of such policies include the following:

- investment in **infrastructure** such as ports, railways and roads, which will help businesses get their product to market
- the continued expansion of technology such as the NBN, which aims to increase the speed and efficiency of the Internet
- immigration policies designed to attract skilled labour to Australia to fill domestic skill shortages; these may be permanent arrivals or short-term workers
- increased funds for training Australian workers, such as TAFE facilities
- encouraging more workers to enter the workforce, and encouraging older workers to remain in the workforce (e.g. by extending the age at which a worker can access the aged pension)
- tax concessions for businesses that invest in new technology, thus expanding production.

CHECK FOR UNDERSTANDING 2.4

- 1 **Recall** each of the following terms:
 - a budget
 - b fiscal policy
 - c monetary policy
 - d deficit budget.
- 2 **Describe**, in terms of the business cycle, when and why a government might seek to operate a surplus budget.
- 3 **Explain** the effects of a deficit budget on the circular flow of income and the business cycle.
- 4 **Recall** the organisation that is charged by the federal government to implement monetary policy in Australia.
- 5 **Describe** how an increase in the cash rate (interest rate) by the Reserve Bank would affect the economy.
- 6 **Explain** how an interest rate decrease would affect the circular flow of income and the business cycle.
- 7 **Recall** what is meant by the term 'aggregate supply'.
- 8 **Explain** why economic growth is an aim of the federal government.
- 9 **Explain** how the government can facilitate the expansion of aggregate supply.

2.5 Current economic conditions affect economic flows

Economic flows within Australia are affected by the constant change in economic conditions, both within Australia and overseas. Any change in economic conditions will inevitably flow on to one or more sectors within the economy, and thus the size of the circular flow and economic growth are constantly being challenged by changing conditions.

2.5.1 Factors affecting economic flows in the long term

CONCEPTS



Business confidence: how optimistic firms are about the state of the economy and the future of their business

Consumer confidence: how optimistic consumers are about the state of the economy and their personal financial situation

Exchange rate: the value of a nation's currency expressed in terms of the currency of another nation

Productivity: a measure of the efficiency of production, expressed in terms of the rate of output per unit of inputs

In the long term, there are several major factors that affect the flow of goods and services, and income, within the Australian economy. They will be discussed only very briefly here, as they will be the subject of major examination much later in your Economics course.

FIGURE 2.19 Major factors affecting economic growth in the long term

Within the Australian economy	Relating to the foreign/external sector
Interest rate	Rate of economic growth experienced in our trading partners
Productivity	Exchange rate
Disposable income of the Australian population	
Levels of consumer and business confidence	
Government policies	

The interest rate is the price paid for the use of capital, expressed as an annual percentage of the value of the capital. In other words, this is the cost of borrowing money. At the same time, it is income for those lending money. In Australia, the interest rate is closely aligned to the cash rate, which is set by the Reserve Bank of Australia. A change in the interest rate will affect economic flows.

A lower interest rate should stimulate demand. Consumers will pay less to borrow money and businesses are likely to invest more, as investment costs less. Hence, production is likely to increase. The opposite will happen if interest rates are increased. Consumers will pay more to borrow money and demand will decrease, and businesses will pay more to invest, resulting in lower investment.

Productivity is the amount produced per worker. If productivity increases, this would cause the production possibility curve to move outwards (see Chapter 1 at 1.1.2). This is economic growth because it means that more is produced using the same quantity of the resource: labour. This may encourage higher exports, cheaper prices and an increase in supply. Any combination of these outcomes would stimulate growth, and increase economic flows.

The ability of the household sector to purchase goods and services is determined by disposable income. This is the amount households have left to spend after paying tax. If income tax falls or households receive an increase in wages, their disposable income would increase, allowing them to purchase more goods and services.

Consumer confidence refers to how optimistic consumers are about the state of the economy and their personal financial situation. Similarly, **business confidence** refers to how optimistic firms are about the state of the economy and the future of their business. If consumers and businesses are optimistic, they are more likely to spend rather than save. Spending generally increases the economic flows within the economy.

Government policies, both fiscal and monetary (see 2.4), can expand or decrease the size of economic flows within the economy. Examples include subsidies to producers to enable

them to compete with imports from overseas, and an increase in the minimum wage for less skilled workers. Such policies are usually designed to increase the size of the economic flow.

External conditions can also affect the economic flows within the Australian economy. Of major concern and interest to our country is the performance of our trading partners, such as China, the USA, Japan and South Korea. If they have strong economies, then their demand for resources from Australia will remain high. If they experience a downturn in their economies, then demand for Australian exports will fall, affecting the economic flows within our economy.

In addition, the **exchange rate** (the value of a nation's currency expressed in terms of the currency of another nation) affects economic flows. On the demand side, demand for our exports will fall if the value of our currency increases, while imports will become cheaper and hence demand for these will increase. If the value of our currency falls, demand for our exports should increase while demand for imports should increase. On the supply side, an increase in currency value should assist producers who use imported products in their production process, by reducing the cost of production.

CHECK FOR UNDERSTANDING 2.5

- 1 **Explain** two determinants affecting economic growth in the long term.
- 2 **Explain** how factors external to Australia might determine Australia's level of economic growth.

2.5.2 Short-term effects on the circular flow

Almost on a daily basis, the size and direction of economic flows in our nation is affected by economic events, both within Australia and overseas. Examples of such events include changes in consumer and business confidence, decisions about the minimum wages level in Australia, changes in government subsidies, changes in the level of a government tax, or a fall in production in China.

We will analyse just one example: consumer and business confidence measures and how changes in them might affect the economy.

ECONOMICS DATA

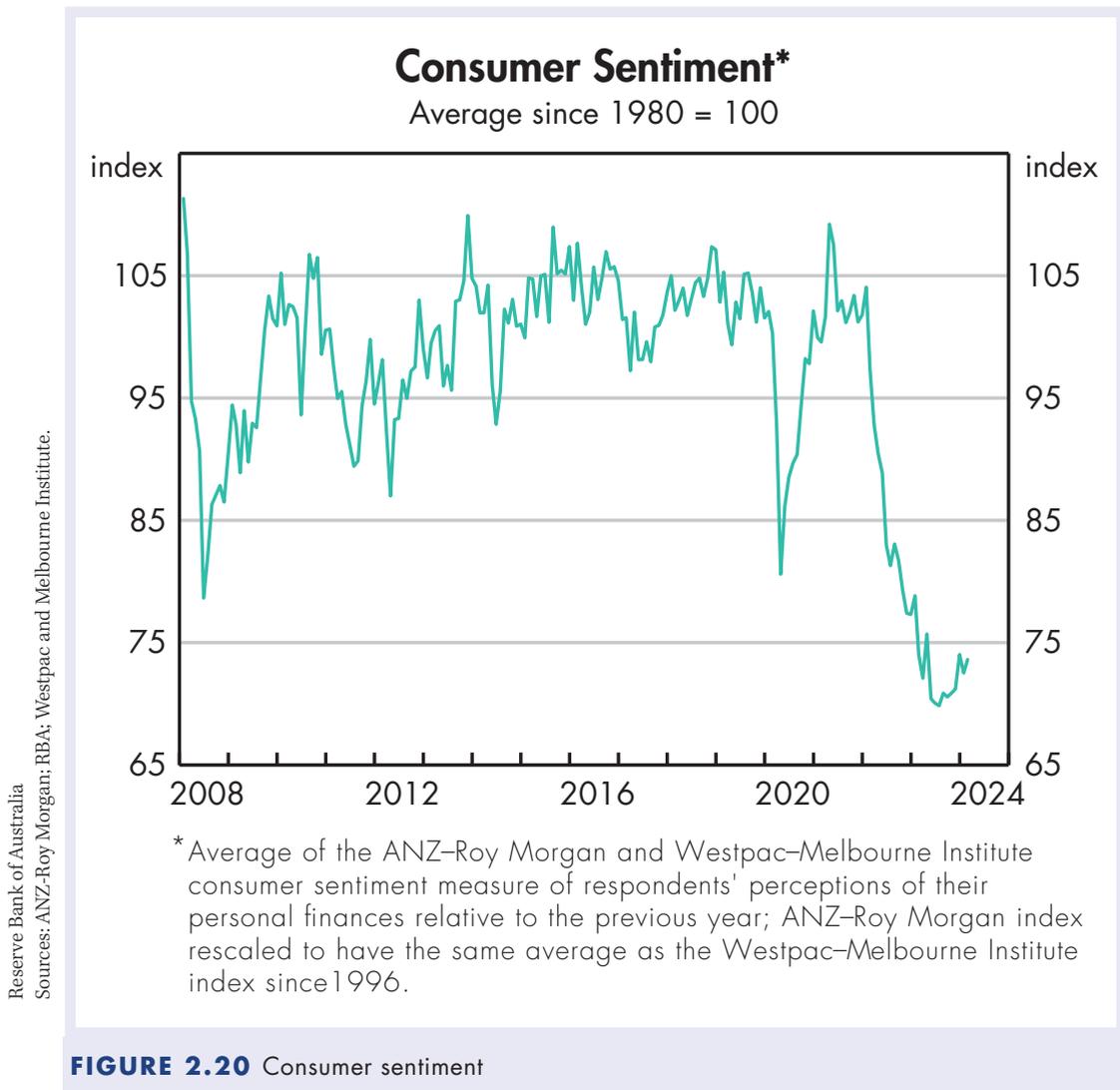


Locate the most recent data for consumer confidence and business confidence. These are usually available in the Reserve Bank of Australia Chart Pack.



Weblink
RBA Chart Pack

The Westpac–Melbourne Institute Consumer Sentiment Index is a generally accepted measure of consumer confidence (which it calls 'consumer sentiment'): see Figure 2.20 on the following page.



The graph shows that the Consumer Sentiment Index rose by 2.7 per cent to 82.1 in December 2023 from 79.9 in November 2023, due to inflation and interest rate expectations continuing to dominate. Consumers saw incomes come under extraordinary pressure from a surge in the cost of living in 2023. While ending on a slightly improved note, 2023 still marked the second worst calendar year for sentiment since records began in 1974.

At the same time, the NAB Business Survey (see Figure 2.21) showed a decline of 2 index points to +7, remaining just above the long-run average, while capacity utilisation (i.e. the extent to which a firm uses its productive capacity) also eased. Business confidence rose 8 index points to -1. The measures show a cooling trend that gradually brought conditions back to around their long-run average over the course of 2023.

Overall, the NAB Business Survey results show that economic growth had eased considerably by the end of 2023, after performing better than expected for much of the year; and that this slowing was beginning to translate into an improvement in inflation indicators. Nonetheless, businesses remained cautious about the outlook, with growth likely to remain subdued.

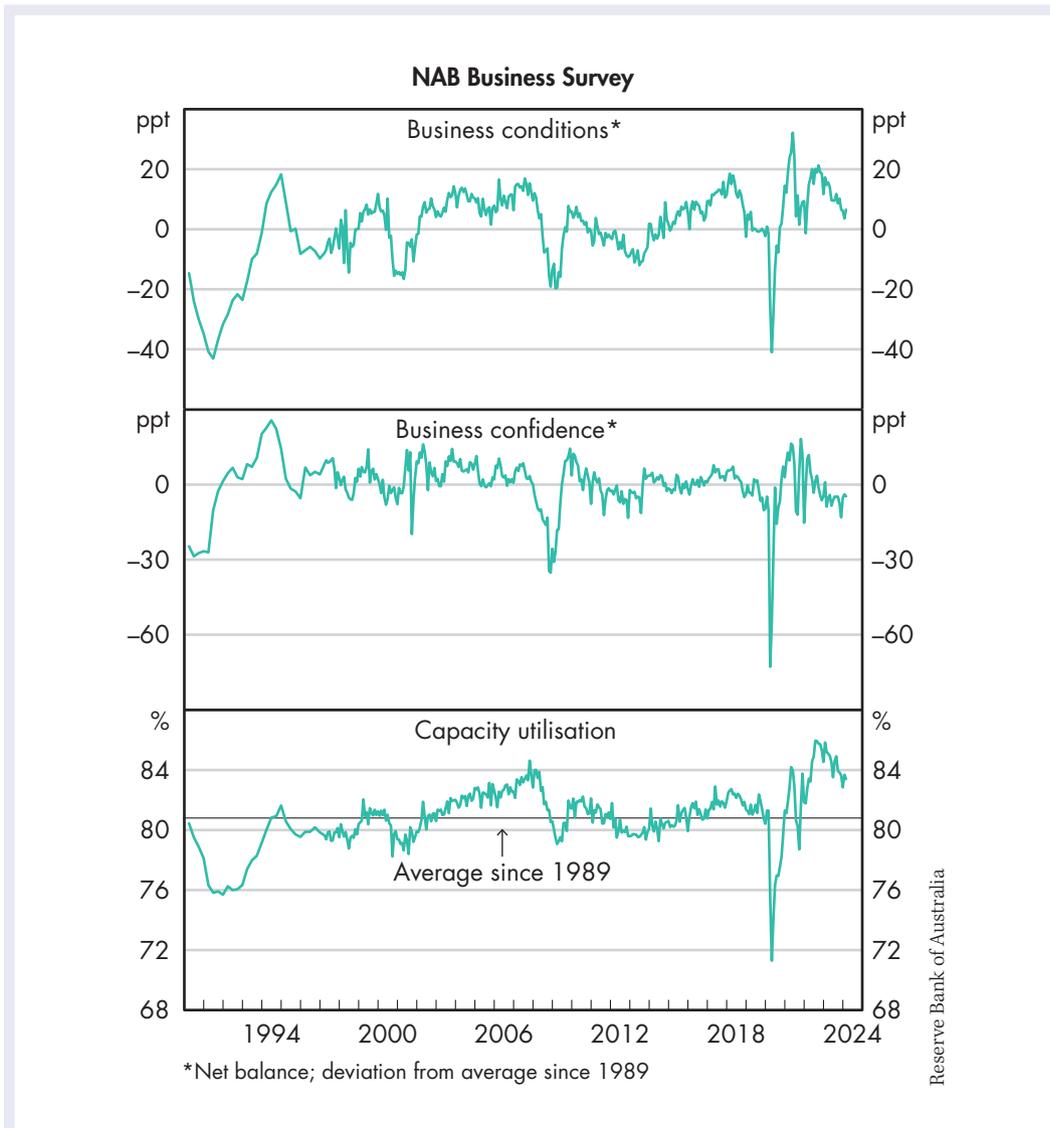


FIGURE 2.21 NAB Business Survey

ECONOMICS IN ACTION



Locate at least two recent news items from news sources on the Internet (e.g. ABC News online) likely to cause a change in economic conditions.

- 1 **Identify** the main economic event occurring in each article.
- 2 **Recall** the sector or sectors of the circular flow of income that will be affected by the event.
- 3 **Explain** how each sector will be affected.
- 4 **Identify** whether each event will increase or decrease the size of the circular flow.
- 5 **Explain** how each event might affect the position of Australia on the business cycle.



Worksheet
2.2 News
sources

R 2.1 Terminology

Recall the answers to the following questions in regard to the simple circular flow of income model.

- 1 What is the money flow from households to producers?
- 2 What is the money flow from producers to households?
- 3 What is the real flow from producers to households?
- 4 What is the real flow from households to producers?
- 5 Who provides the demand in the factor or resources market?
- 6 Who provides the supply in the factor or resources market?
- 7 Who provides the demand in the final goods or producer market?
- 8 Who provides the supply in the final goods or producer market?

R 2.2 Multiple-choice questions

Select the correct response to each of the following.

- 1 In the circular flow of income model, the real flow from households to producers is:
 - A wages and salaries.
 - B goods and services.
 - C factors of production.
 - D consumption expenditure.
- 2 In a circular flow of income model, if income is at a level where planned investment is greater than planned savings, then:
 - A total income will fall.
 - B total income will rise.
 - C total income will be unchanged but savings will fall.
 - D investment will fall.
- 3 If exports exceed imports, which of the following is required for the level of income to decrease?
 - A investment to be greater than savings
 - B injections to equal leakages
 - C the government to increase taxation so that it is greater than government spending
 - D investment by firms to be greater than household savings
- 4 An economic model should be rejected if it:
 - A is based on unrealistic assumptions.
 - B is a simplified version of the complex real world.
 - C generates misleading conclusions about economic behaviour in the real world.
 - D is based on an unrealistic hypothesis.

- 5 Which of the following is an injection into the circular flow of income?
- A a growing deficit in the balance of payments
 - B an increase in taxes with government expenditure held constant
 - C an increase in household savings
 - D an increase in the level of investment
- 6 If firms produce \$2000 million worth of goods and services, households consume \$1600 million worth of goods and services, and firms want to invest \$200 million in a year, then:
- A savings are \$400 million and stock will fall by \$200 million.
 - B savings are \$400 million and stock will rise by \$200 million.
 - C savings are \$200 million and inventories will fall by \$200 million.
 - D savings are \$200 million and stock will rise by \$200 million.
- 7 Which of the following is **not** an assumption of the two-sector circular flow of income model?
- A There is no taxation or spending by governments.
 - B There is no saving by either households or firms.
 - C All items are made from high-quality materials.
 - D Firms produce only finished items for sale.
- 8 The circular flow of income model demonstrates:
- A that the total level of income cannot change.
 - B the way income flows between different sectors of the economy.
 - C that all consumers are also producers.
 - D the flow of both intermediate and final goods and services.
- 9 In a simple circular flow where there are just firms, households and a financial sector, equilibrium occurs when:
- A households are obtaining maximum satisfaction from their incomes.
 - B planned savings equals planned consumption.
 - C there is full employment of resources.
 - D planned investment equals planned savings.
- 10 During a peak in the business cycle, an economy is likely to be experiencing all of the following **except**:
- A growing wages pressure.
 - B lower unemployment.
 - C lower inflation.
 - D higher interest rates.
- 11 A deficit budget *ceteris paribus* will:
- A increase the size of the circular flow.
 - B reduce the size of the circular flow.
 - C will not influence the circular flow.
 - D will increase exports.

- 12 Which one of the following is a necessary condition for the national income of an economy to be in equilibrium?
- A There is full employment.
 - B The budget of the federal government is planned to balance.
 - C There is neither a surplus nor a deficit in the balance of payments.
 - D Planned leakages from the circular flow are equal to planned injections into it.
- 13 In the circular flow of income model, which of the following, everything else being equal, does **not** represent a leakage?
- A undistributed profits of producers
 - B government expenditure on new national highways
 - C an increase in the government budget surplus
 - D unspent income deposited by households in a bank
- 14 If savings amount to \$100, investment \$150, taxation \$200, government expenditure \$250 and exports \$100, then for the circular flow to be in equilibrium:
- A imports should be \$200.
 - B taxation should be \$250.
 - C investment should be \$100.
 - D savings should be \$150.
- 15 If, in an economy, leakages increase and injections fall, then, ceteris paribus:
- A the level of economic activity will increase.
 - B total output and income will decrease.
 - C businesses will find that sales increase because households have more income to spend.
 - D the government will have to consider raising taxes to make up for the lost revenue.

R 2.3 Short response questions

- 1 Using a diagram, **explain** the structure and purpose of the five-sector model of the economy.
- 2 In the three-sector model of the economy, **recall** the role of the financial sector.
- 3 **Describe** what is meant by 'equilibrium' in the circular flow of income model? How can the level of income change over time?
- 4 **Explain** why equilibrium in the circular flow of income model occurs when $S + T + M = I + G + X$.
- 5 **Recall** the four assumptions on which the basic circular flow of income model is based.
- 6 **Describe** why firms reduce production as a result of savings by households.
- 7 Draw a business cycle. How is the period of upswing different from the period of downswing?
- 8 **Describe** what is meant by 'injections' to economic activity. Give an example of an injection.
- 9 **Recall** what a deficit budget is, and describe its effect on the circular flow of income in an economy.
- 10 **Describe** the effect of a decrease in the interest rate (cash rate) set by the Reserve Bank of Australia on the circular flow of income model.

R 2.4 Activities

- 1 **Recall** where each of the following would be placed on a circular flow of income model:
 - A interest received from a bank deposit
 - B a government aged pension payment
 - C the purchase of fighter jets from the USA by the Australian government
 - D dividends from shares paid to Japanese investors by an Australian mining company
 - E the Queensland Government borrowing from overseas sources
 - F a home loan to a married couple by a Brisbane-based credit union
 - G credit sales of iron ore to China
 - H incomes received by Australian tennis and golf players while playing overseas.
- 2 Develop a teaching resource (such as a computer presentation, board game or website) to help teach a group of younger students about the circular flow of income in the Australian economy. Ensure that all the main sectors and relationships are included in your model.
- 3 Consider the following table for a three-sector economy.

Income ('000)	Consumption ('000)	Investment ('000)
20	16	10
30	24	10
40	32	10
50	40	10
60	48	10

- a What is the equilibrium level of income?
- b What is the level of saving at that point?
- 4 a Given the following amounts, calculate the equilibrium level of income.
 - $C = \$15\,000$
 - $I = \$3\,000$
 - $G = \$4\,000$
 - $T = \$3\,500$
 - $X = \$2\,500$
 - $M = \$2\,000$
- b What will be the value of saving at equilibrium?
- 5 For each of the following newspaper headlines, explain which sector of the circular flow would be affected, and outline its impact on the overall level of economic activity.
 - a Increased number of Chinese tourists visit Australia
 - b Drought in rural areas reduces numbers of beef cattle in Queensland
 - c Government income tax on low income earners
 - d Australia's last car manufacturing plant has closed
 - e Interest rate rise of 0.5% by banks following Reserve Bank's decision

6 The following data is known about Wealthyland's economy:

	\$m
Total private consumption	3000
Private investment expenditure	750
Government consumption expenditure	250
Government investment expenditure	500
Taxation	800
Exports	500
Imports	600

- What is the net contribution to the circular flow from the foreign sector?
- What is the overall contribution of the government's budget to the circular flow?
- What effect does the budget position have on the circular flow?
- What is the aggregate demand in the economy?

R 2.5 Inquiry topics

1 **Explain** what problems arise from injections and withdrawals from the circular flow of income model. How are these problems affected by such events as:

- an increase in interest rates
- a decrease in income tax rates
- an increase in the unemployment rate
- hosting major sporting events such as the Olympic Games
- increases in imports of non-essential commodities?



Weblink
RBA Chart Pack

2 **Describe** the dominant sector of the Australian economy. Investigate historical trends and changes in the flows between sectors, and suggest other investigations or processes by which this question could be answered.

3 If the Reserve Bank of Australia decided to increase the cash rate by 0.5 per cent at its next meeting, what effect would that have on current conditions in the Australian economy? Use graphs from the RBA Chart Pack to **explain** where Australia is currently on the business cycle, and outline what would be an appropriate policy for the government to adopt.

Economics in Action worksheets:

- RBA Chart Pack
- News sources

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





3

Market forces

Demand, supply and equilibrium affect market behaviour.

Focus questions and inquiries

- What is the relationship between the price mechanism and the circular flow of income in the economy?
- Why do economists investigate supply and demand?
- How do market forces shape our economy?
- How do non-price factors shape supply and demand?
- Are free goods and services occasionally abused because they are free?
- Is the stock market an example of a typical market?

This chapter will examine:

- the price mechanism in the circular flow
- the operation of the price mechanism
- changes in demand and supply
- price elasticity of demand and supply
- the stock market as an example of how a market functions.

3.1 Markets and the circular flow

CONCEPTS



Market: a place or situation where buyers and sellers interact for purposes of trade or exchange

Price mechanism: the system or process by which price changes bring about equality between supply and demand in a market

Price: the sum of money paid for goods or services in a market

KEY IDEA

The price mechanism is a major linking mechanism between sectors of the circular flow of income model, and is fundamental to an understanding of how a country such as Australia attempts to solve the economic problem.

We have seen in Chapter 2 how an economic model can be constructed to simulate the two-way flow of goods and services and money between the various sectors of the economy. Each of these sectors is linked to the others by **markets** of various types; that is, by the workings of the **price mechanism**.

Markets are where exchanges of goods and services take place. They are where we buy and sell a wide range of things – virtually everything that flows through our economy. There are three main types of markets:

- **labour markets**, where labour is exchanged for money in the form of wages and salaries
- **goods and services markets (including virtual markets)**, where goods and services are exchanged for money
- **financial or capital markets**, where access to funds is arranged in exchange for interest payments.

Specific markets include stock markets, the property/housing market, markets for cars or boats, second-hand markets, the wool market, fruit markets and so on.

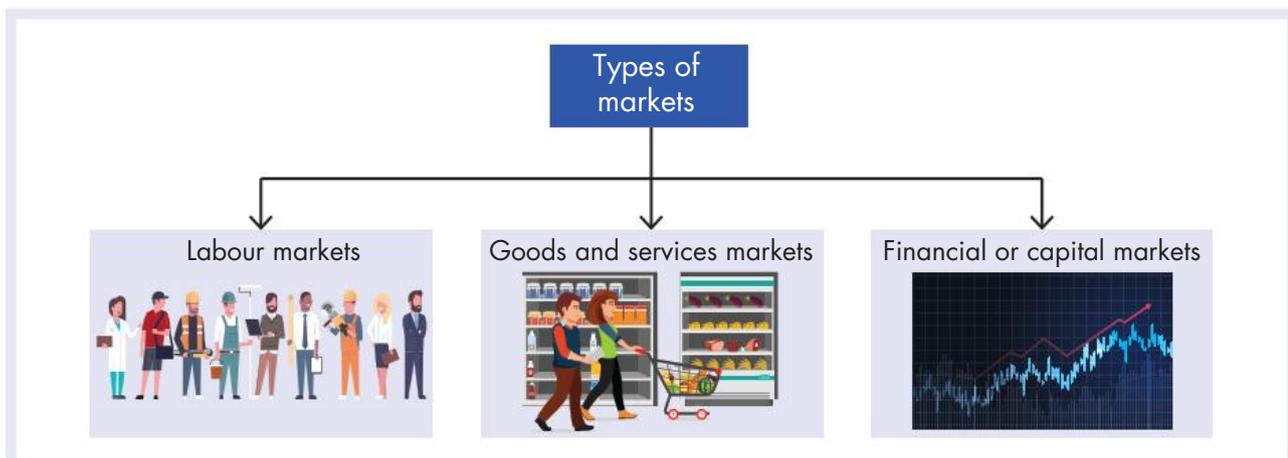


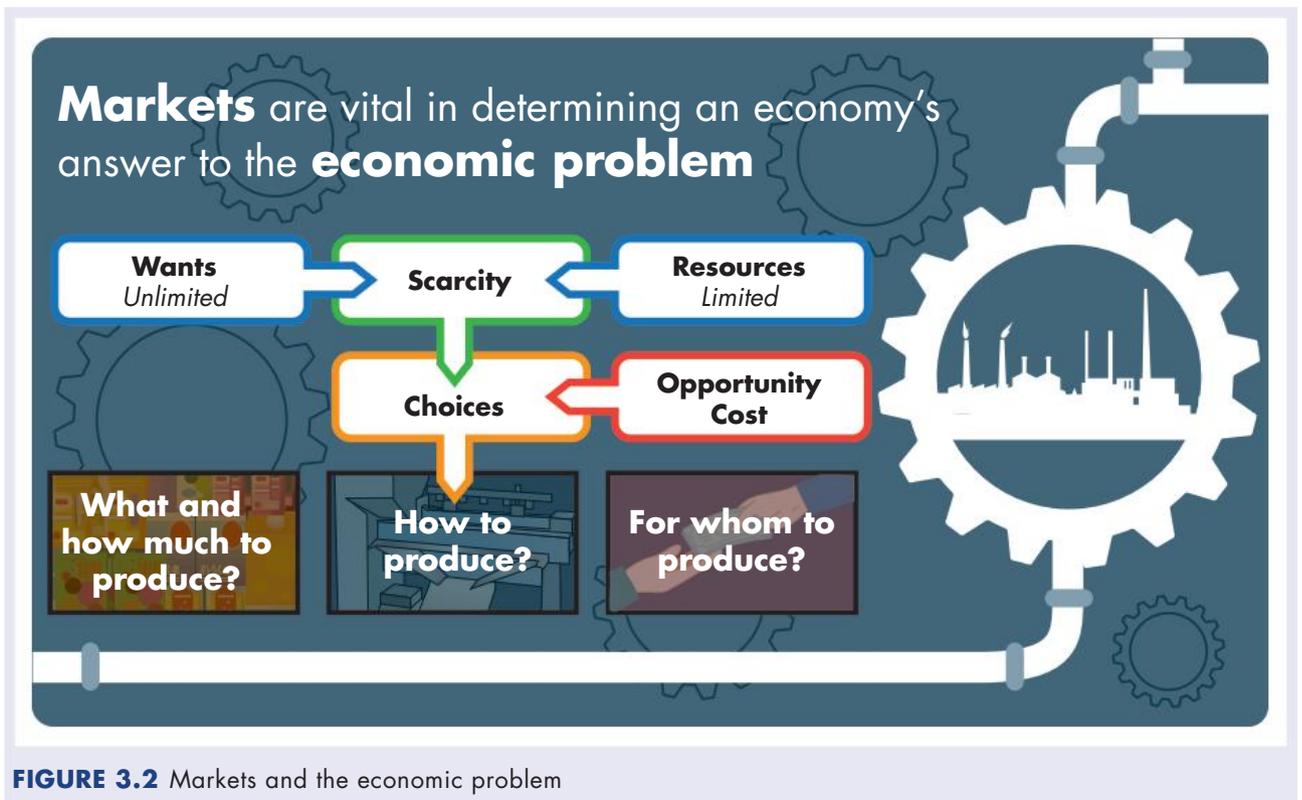
FIGURE 3.1 There are three main types of markets.

As individuals, workers and consumers, we are involved in many such markets in our everyday dealings. And, of course, so are businesses and governments. Markets can be local, national or international. In the modern world, they do not even have to be in a specific place. Markets and the price mechanism can operate using mail, telephones or the Internet to assist with making agreements and arranging exchanges.

Markets are vital in determining an economy's answer to the three basic questions an economy must solve – what and how much to produce, how to produce and for whom to produce (see Chapter 1). Markets allow consumers to show:

- what they want to buy (what and how much to produce)
- how items should be produced; for example, mass-produced versus handcrafted items (how to produce), and
- how much producers can charge for an item (for whom to produce).

To find out more about the nature and purpose of markets, see Chapter 5 at 5.1.

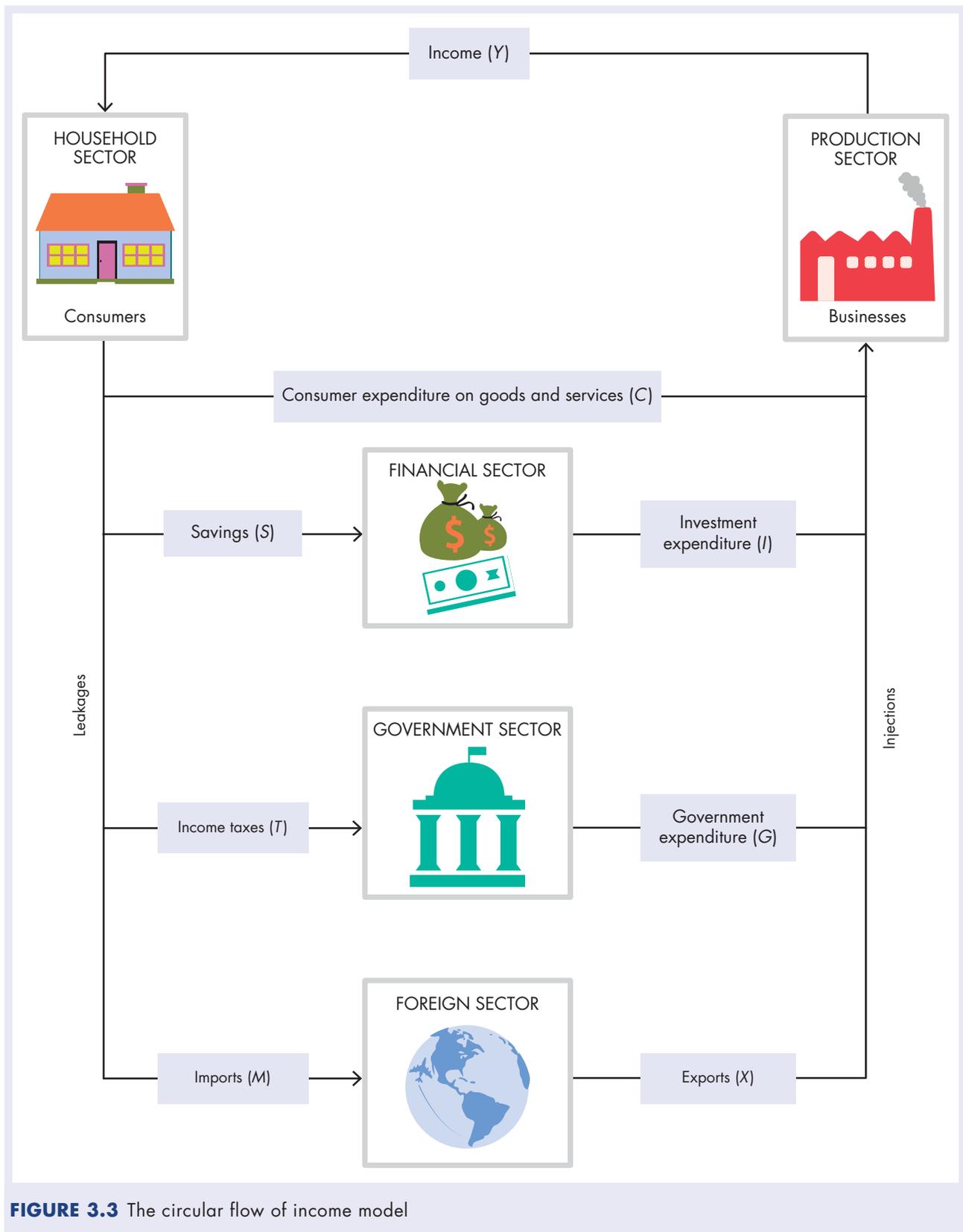


Natalie Berndt

ECONOMICS CHALLENGE

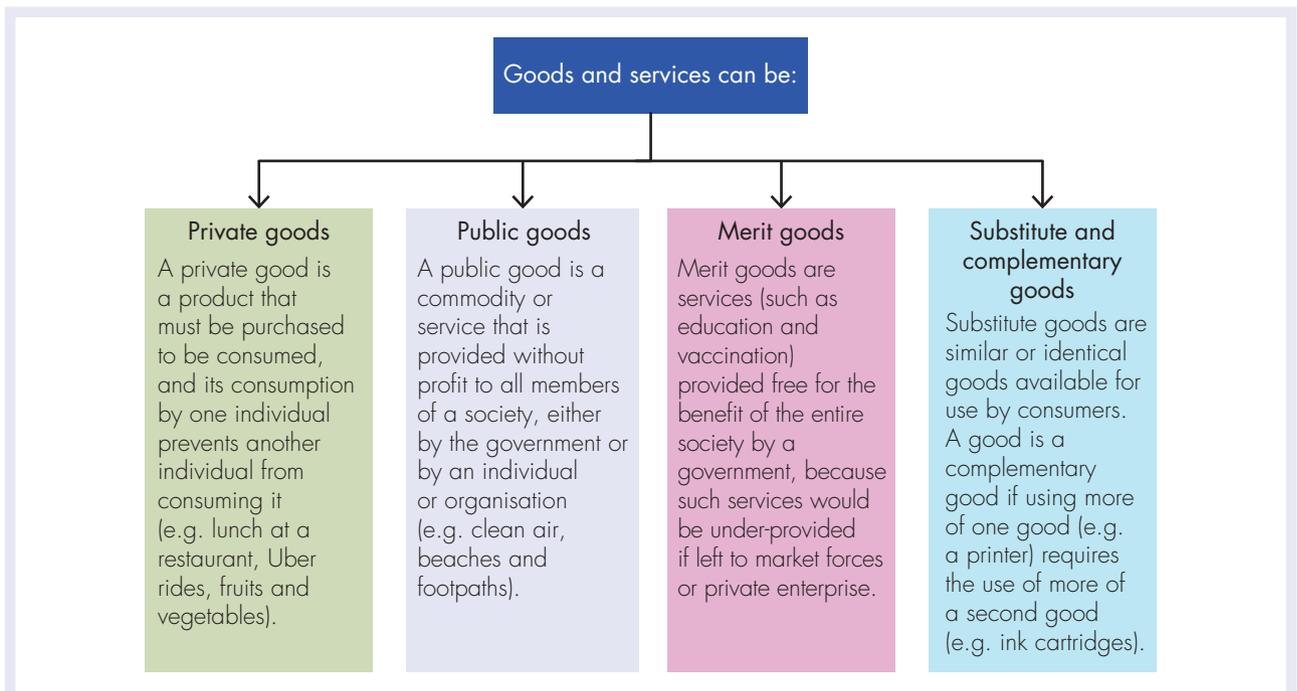


Draw a model of the circular flow of income: see Figure 3.3 on the following page. Shade in the main places where markets and the price mechanism operate. Remember that in most cases, there is a two-way flow, with money in some form flowing in one direction, and goods or services of some type flowing in the other. In each case, recall the type of market involved, indicate which people and/or organisations might be involved (e.g. consumers, local businesses, international businesses, governments or financial institutions), and describe exactly what they might be exchanging.



Let us distinguish between goods and services:

- **Goods** are tangible items that satisfy people's wants. They can be durable, such as cars and furniture; they can be non-durable, such as food and drinks; they can be goods for personal use, such as clothing and electronics; and they can be capital goods, which are used by businesses to produce other goods and services.
- **Services** are intangible activities that can be experienced or used to satisfy someone's needs or wants. Examples include health care, education, transport, hospitality and financial services.



Natalie Berndt

FIGURE 3.4 Goods and services can be classified.

This chapter will explore the general concept of the price mechanism and how it allows markets to work in our economy. We will also look at a specific market called the stock market, and examine how the price mechanism operates there.

Within a market, there are both buyers and sellers. A buyer in any market comes to that market with the aim of buying a particular good or service at the lowest or cheapest price possible. Consider the goods and services market, with which most people are familiar. It doesn't matter whether a consumer is shopping for groceries, a movie ticket or a mobile phone, the aim is to buy the item the consumer wants at the cheapest price. In the case of factor markets, where factors of production (land, labour, enterprise and capital) are bought and sold, the same principle applies. The buyer (usually a business) aims to buy a factor of production as cheaply as possible.

Sellers, on the other hand, wish to obtain the best price possible for the goods or services they have to sell. Consumers wish to sell their labour for the best price and obtain the highest return in the form of higher wages. A producer sells a good or service with the aim of obtaining the highest price for it in the marketplace.

It is obvious that both buyer and seller are unable to achieve their aim – the buyer paying the lowest price possible, and the seller maximising the price for the good or service being sold.

When explaining changes in the price mechanism, it is assumed that when changes occur in demand or supply, the *ceteris paribus* assumption applies; that is, all other things remain constant.

CHECK FOR UNDERSTANDING 3.1

- 1 **Explain** the concept of a market. Describe the various types of markets that we have access to today.
- 2 **Describe** how markets assist to solve the three basic economic questions.
- 3 **Recall** five items your family has purchased in the last few days. Decide which markets they were purchased in from this list: financial market, stock market, property market, retail market and wholesale market.

3.1.1 The operation of the price mechanism

KEY IDEA

In the Australian economy, the market and price mechanism provide the basis for resolving the economic problem.

If we lived in a completely competitive or unplanned economy, the price mechanism alone would determine:

- what goods and services would be produced
- what quantities of goods and services would be produced, as consumers demand some products and not others
- how the goods and services would be produced, due to the relative prices of the various factors of production, which could be combined in alternative ways with alternative cost structures
- how the production would be distributed, depending on the share each individual received as income for the sale of the resources they made available for production.

In such a situation the price mechanism operates freely, without any restrictions imposed on it by either producers or the government, and price becomes the sole factor responsible for equating supply and demand.

Even in the real world, with all its imperfections, the price mechanism is still the basis on which our market operates, and the basis for resolving the economic problem.

Price is the sum of money paid for goods or services in a market, and it will be determined by what buyers are willing to pay for goods and services, and what sellers are willing to accept for them.

- If *more* of a particular good or service is produced (or supplied) than consumers are willing to purchase (or demand) at the price being asked, then either:
 - stocks will start to grow and production will have to decrease, or
 - the price will have to fall.
- If *less* of a particular good or service is produced (or supplied) than consumers are willing to purchase (or demand) at the price being asked, then either:
 - production will have to increase, or
 - the price will have to rise.

Eventually, the price of all goods will be such that the supply of them will exactly equal the quantity demanded.

3.2 The theory of demand

CONCEPTS



Demand: the quantity of a commodity that will be purchased in a market over a given time at a given price

Equilibrium: a balanced situation from which there is no tendency to change; for example, where supply equals demand in the market

Law of demand: the proposition that the quantity demanded of a good or service is inverse to the price of that good or service

Marginal utility: the added satisfaction a consumer receives from consuming one more unit of a good or service

Propensity: a term used to describe a person's tendency or desire to act in a certain way; for example, 'propensity to save' is a person's willingness or desire to save

Utility: satisfaction gained by consumption of goods and services

KEY IDEA

Consumer demand is an important factor in the operation of a market.

3.2.1 Demand

The **demand** for a commodity is the quantity that will be purchased over a given time at a given price. This must extend beyond desire, or even need. It must be backed by the willingness and ability to purchase.

For most items, consumers will buy less at a higher price than at a lower price. We know this from common sense, but it is also understandable because of the law of diminishing **marginal utility**, which means the more of an item that we consume, the less satisfaction we get from each additional unit consumed. The **utility** we get from consuming something is measured by the satisfaction we get from it. For example, one chocolate bar may give us great satisfaction; a second bar may still be enjoyable, but less so than the first. The utility gained from each additional bar consumed (the marginal utility) will decline. If we continue to consume enough bars, we could make ourselves ill and the marginal utility of the last bar would be negative.

The law of diminishing marginal utility helps explain how levels of demand are reached. If ice creams are priced at \$1 each, we may actually get something like \$1.50 worth of satisfaction or utility from consuming one. We may get \$1 worth of satisfaction from a second, and 60 cents from a third. So we would probably not think it worthwhile to buy the third. We could get more satisfaction by buying some other product, thus increasing our total utility.

In this way, consumers decide how much of each item to buy. They will buy more of each item until they equate its marginal utility with its price. When we do this for all the goods and services we wish to buy, we can say that, as consumers, we are in **equilibrium**, having achieved the optimum combination of purchases and the highest possible level of satisfaction (utility).

Consumer demand depends on wants and income. To have a demand for something, two requirements must be met:

- 1 we must want it
- 2 we must be willing and able to spend some money to get it.

If these two conditions are met, we have a **propensity** to buy; in other words, a demand.

KEY IDEA

The **law of demand** tells us that consumers will buy more of something at a lower price than they would at a higher price.

If we examine the demand for a particular product (such as ice cream), we may be able to see more clearly what happens to demand. For example, total demand for ice cream may be 1200 litres a day if the price is only \$1 per litre. It may be 1000 litres a day if the price is \$2 per litre. If we raise the price to \$3, we may sell 800 litres. At \$4, we may sell 600 litres; at \$5, we may sell 400 litres; and at \$6, we may sell 200 litres. This could be shown in a demand schedule, such as the one in Figure 3.5.

FIGURE 3.5 A demand schedule for ice cream

Price per litre (\$)	Quantity demanded (litres per day)
1	1200
2	1000
3	800
4	600
5	400
6	200

In this schedule we can see very clearly that, as the price rises, the quantity demanded falls; and, as the price falls, the quantity demanded rises. This means that the price of an item and the quantity demanded of that item are *inversely related*; that is, they move in opposite directions.

Such a schedule can also be shown in graphical form, and the result would be represented by a demand curve, as shown in Figure 3.6.

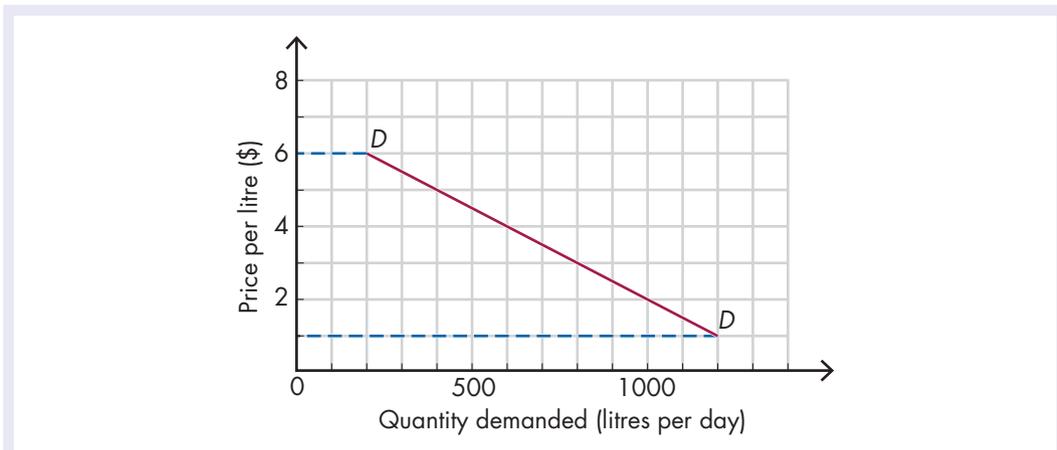


FIGURE 3.6 A demand curve for ice cream

The demand curve illustrates the law of demand. It simply shows that at lower prices, people will buy more. It illustrates people's propensity to buy. Naturally, demand curves will not always be a straight line but, because of the inverse relationship between quantity demanded and price, they will generally slope down to the right.

ECONOMICS CHALLENGE



Worksheet
3.1 Economics
Challenge

Can rats do economics?

Well, no, not exactly! But over the years they have been subjected to laboratory experiments to test some of our theories.

In the USA, researchers placed two white rats in cages and offered them 'root beer' (a soft drink) and 'Collins mix' (a non-alcoholic drink mix). The experimenters already knew that the rats preferred both of these to water.

The rats had to push a lever to obtain either drink. Initially the 'price' of both drinks was set at 20 pushes for each millilitre of drink. The rats were allowed an 'income' of 300 pushes per day. It soon became evident that the rats preferred root beer. The first rat drank 11 millilitres of root beer and 4 millilitres of Collins mix. The second rat drank 15 millilitres of root beer and virtually no Collins mix.

The experimenters then doubled the 'price' of root beer, and halved the price of the mix, by requiring more or fewer pushes of the lever. The rats were given more 'income' so they could drink the same amount as before if they wished; that is, their 'real income' remained the same.

What would economic theory tell us should happen as the price of one product is raised, and that of a substitute lowered? The rats should demand and consume more of the substitute.

And that is exactly what happened. Neither rat was prepared to 'pay' the increased price for root beer any more, and switched to drinking more Collins mix. The first rat drank 8 millilitres of root beer and 17 millilitres of Collins mix per day, and the second rat drank 9 millilitres of root beer and 25 millilitres of Collins mix per day.

Questions

- 1 **Recall** the initial price of root beer.
- 2 **Recall** the initial price of Collins mix.
- 3 **Recall** what the price of root beer changed to.
- 4 **Recall** what the price of Collins mix changed to.
- 5 **Describe**, under the new pricing policy, how much income the first rat would have needed to continue its original consumption pattern.
- 6 **Describe** how much income the second rat would have needed.
- 7 **Describe** why the researchers gave the rats more income.
- 8 **Describe** how much of their income each rat used.
- 9 **Explain** in economic terms what happened.

CHECK FOR UNDERSTANDING 3.2

- 1 Over time, demand and consumer preferences for particular products may change. **Identify** some products for which demand has increased, and some for which demand has decreased, and explain why these changes have taken place.
- 2 We identify value in terms of price. **Describe** the price of the following items:
 - a swimming pools in winter
 - b diamonds
 - c a day-old loaf of bread.

Continued

Continued

- 3 Illustrate a demand curve for chocolate biscuits from the following demand schedule.

Price per packet (\$)	Quantity demanded (packets per week)
2.00	1700
2.20	1200
2.40	800
2.60	500
2.80	300
3.00	200

3.2.2 Factors determining demand

KEY IDEA

The quantity of a commodity demanded depends on, or is a function of, many factors.

The most important of these are:

- the price of the commodity
- the prices of related commodities
- buyers' incomes
- buyers' tastes
- population changes
- buyers' expectations for the future.

As we have seen at 3.2.1, if the price of a commodity changes, the demand for it will change. It will expand or contract to different positions along the demand curve, as shown in Figure 3.7. As long as all the other factors influencing demand remain constant, the curve itself will not shift. But if any of these other factors alter, they will cause shifts in the demand curve.

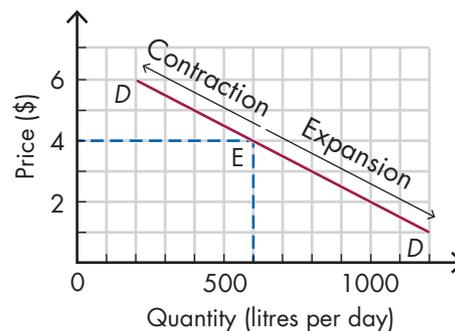


FIGURE 3.7 The effect of a change in price on the quantity demanded

Changes in the conditions influencing demand can cause more of a commodity to be demanded at the same price (demand increases) or they can cause less of a commodity to be demanded at the same price (demand decreases). These changes will be represented by a shift of the demand curve either to the right or to the left, as shown in Figure 3.8.

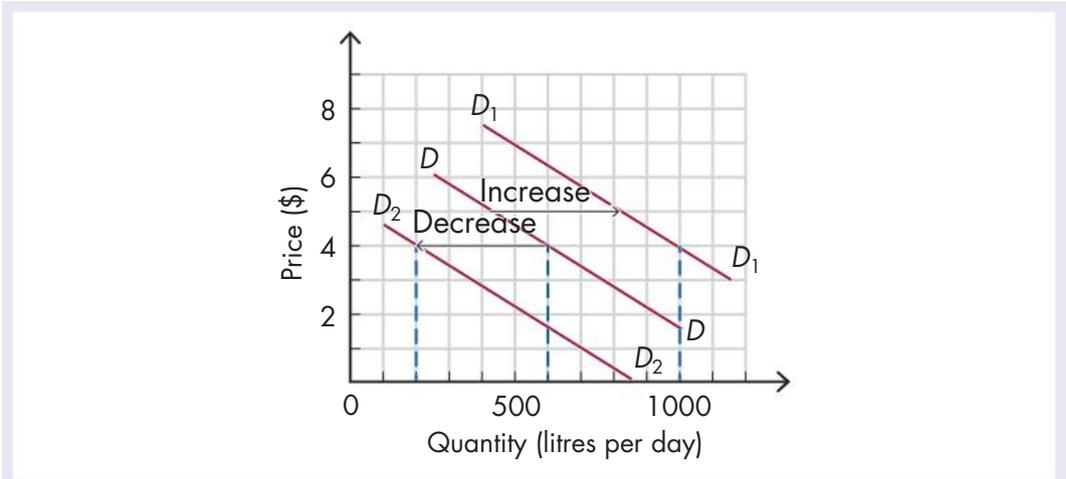


FIGURE 3.8 The effect of a change in conditions influencing demand

Some shifts of the demand curve are caused by changes in the prices of related commodities. Since all goods are really competing with each other for people’s expenditure, they are all substitutes for each other to some extent. But some goods are particularly close substitutes; for example, butter and margarine. What will happen to the demand for butter if the price of margarine goes down? The demand for butter will decrease (and the demand for margarine will increase).



FIGURE 3.9 Margarine and butter are close substitutes.

Goods are also related in other ways. Some goods are complementary – they go together, such as pens and paper, cars and petrol.

What will happen to the demand for cars if the price of petrol goes up? This time they move together – the demand for both will decrease.



FIGURE 3.10 Petrol and cars are complementary goods.

Any change in income will drive people to demand more or less of a particular commodity than they previously demanded. As their income increases, they are able to spend more on all goods; in particular, they are likely to spend more on luxury or semi-luxury items rather than on necessities. What will happen to the demand for swimming pools as incomes rise? Ice cream? What about bread?

Also, people's tastes change over time. Changes in social status, fashions, diet or season can cause increases or decreases in demand for certain commodities. Can you think of examples to illustrate all of these?

In addition, demand will change in the longer term, due to changes in the age and sex distribution of the population. This is particularly important for a country like Australia, which has a steadily ageing population. What are some of the changes this could make to demand and the composition of output?

Changes in expectations held by buyers concerning future price, levels of demand and levels of economic activity will also cause the demand for various commodities to change. What might happen to the present demand for cars if further price rises are expected after a prolonged period of inflation?

ECONOMICS IN ACTION



Hypothesising about streaming services

The growth of streaming services such as Netflix in Australia gives us the chance to investigate factors determining demand for new streaming services.

Topic: Factors that influence demand

Objectives: To investigate demand for streaming services and the influence of income on that demand

Hypothesis: Demand for streaming services will increase with income.

Data: Data gathering and evaluation would be best carried out in pairs or small groups.

Continued

Continued



FIGURE 3.12 The growth of streaming services allows us to investigate factors determining demand.

You will need to gather data on streaming services' costs to the consumer. You will also need specific data on households: their income and their demand for streaming services. An online survey would probably be the best way to gather this data.

The main question you would need to ask is whether, given the price of streaming services, they have purchased or would be likely to purchase such services. Other questions could include the following.

- 1 Would their decision change if the price were higher or lower?
- 2 How many streaming services do they currently subscribe to, if any?
- 3 What type of programs do they stream now, if any?

Other factors to consider that might influence demand for streaming services are age, sex, activities other than watching television, and future expectations on price.

Testing: The above data can be used to test the hypothesis. You may find that the best way to see the data clearly is in graphical form. The most important graph would show the number of positive responses on one axis according to different income groups on the other axis. Does demand vary with income? What other factors are important?

Conclusions: Can the hypothesis be confirmed and can generalisations be drawn? Or, is it rejected? Is further investigation needed?

Presentation: The pair or group could prepare a chart that summarises the inquiry process and the findings. Each individual could also prepare a more detailed written report.

CHECK FOR UNDERSTANDING 3.3

- 1 **Recall** the factors that cause a change in demand.
- 2 **Explain** which factor causes an expansion or contraction in demand and why.
- 3 **Explain** which factors cause an increase or decrease in demand and why.
- 4 **Describe** the difference between an increase/decrease in demand and an expansion/contraction in demand.

Continued

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- 5 **Explain** some of the things that might have happened to cause the situation shown in Figure 3.11 in a market for meat pies.

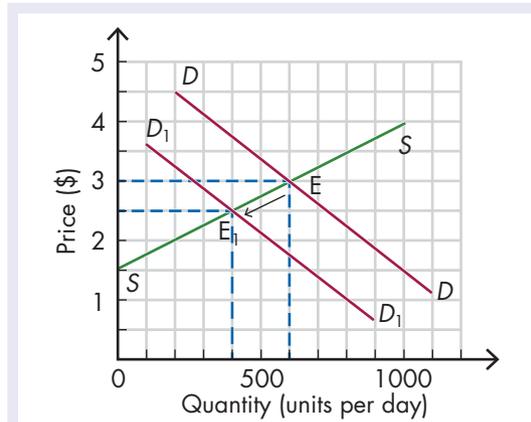


FIGURE 3.11 A market for meat pies

3.3 Theory of supply

CONCEPTS



Law of supply: the proposition that the quantity supplied of a good or service varies positively with the price of the good or service

Supply: the quantity of a commodity that will be offered for sale in a market over a given time at a given price

Marginal producer: a firm whose income just covers costs

KEY IDEA

Producers supply goods to the market to meet demand for those goods.

3.3.1 Supply

The **supply** of a commodity is the quantity that will be offered for sale in a market over a given time at a given price. The desire of a producer to supply a commodity is usually referred to as the 'propensity to sell'. As we might expect, the actual quantity each producer will offer for sale will depend on the price.

KEY IDEA

The **law of supply** tells us that more of a commodity will be supplied by producers at a higher price than will be supplied at a lower price.

Commodities are supplied by producers at a higher price because different firms operate with different costs of production, and each wishes to operate at a profit. If ice cream sells at \$4 per litre, then a firm whose costs of production are \$3 per litre will make \$1 per litre profit. A firm whose costs are \$4 per litre will just cover costs, and this firm would be known as a **marginal producer**. Another firm may be able to produce at \$5 per litre, but this would cause it to make a loss, so it is unlikely that it would actually decide to produce this product while the price remains at \$4 per litre. It would, of course, only take a fall in price of more than \$1 to force the second firm out of production, and the total supply being offered would decline. If the price should rise to \$5 per litre, then it would become worthwhile for the third firm to begin production. It would then be the marginal firm, and supply would be greater by the level of its output.

In a similar way to the law of demand (see Figure 3.5), the law of supply can be illustrated in a schedule, as shown in Figure 3.13.

FIGURE 3.13 A supply schedule for ice cream

Price per litre (\$)	Quantity supplied (litres per day)
1	0
2	200
3	400
4	600
5	800
6	1000

This schedule shows that as prices increase, quantities supplied by producers also increase – a direct relationship. As prices fall, so too do quantities supplied. In fact, at a price of \$1 per litre, no producer is willing to supply ice cream. This would indicate that no firm can produce ice cream for \$1 per litre or less. Such information can again be shown in graphical form, as a supply curve (see Figure 3.14).

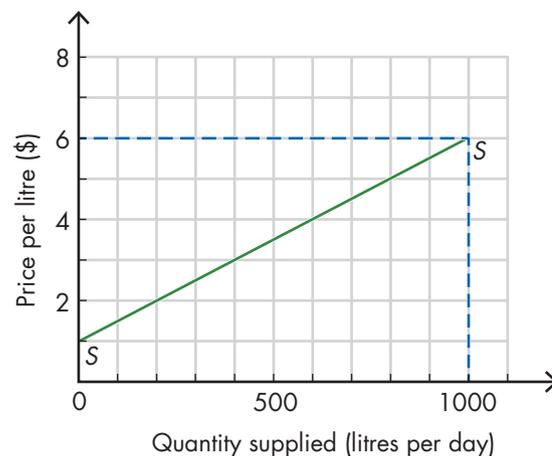


FIGURE 3.14 A supply curve for ice cream

The supply curve illustrates the law of supply and the propensity to sell. The higher the price, the more ice cream people will try to sell, as they hope to make more profit.

CHECK FOR UNDERSTANDING 3.4

- 1 Illustrate a supply curve for chocolate biscuits from the following demand schedule.

Price per packet (\$)	Quantity supplied (packets per day)
1.0	300
1.2	500
1.4	800
1.6	1200
1.8	1700
2.0	2300

- 2 **Explain** the meaning of the term 'supply'.
- 3 **Describe** how beverage producers ensure an adequate supply of drinks for the Christmas period.
- 4 **Recall** the law of supply.
- 5 **Explain** what a marginal producer might need to do in order to stay in business.

3.4 Equilibrium market price

CONCEPTS



Equilibrium market price: a price from which there is no tendency to change; a price just high enough for sellers and just low enough for buyers, at which supply and demand are equal

Invisible hand: the unobservable market force that allocates resources based on consumers acting in their self-interest, reaching equilibrium automatically

KEY IDEA

The market or price mechanism achieves balance between the demand of consumers and the supply of producers.

We have seen that:

- if the price of something goes down, people will try to buy more; but, at the same time, sellers will not try to sell as much as they would if the price were higher
- if the price of something goes up, people will not want to buy as much, while sellers will want to sell more.

It seems as though buyers and sellers may never get together, but fortunately they do. There is a 'right price' – a price just high enough for sellers and just low enough for buyers, so that

the buyers want to buy exactly the quantity that the sellers want to sell. This is called the **equilibrium market price**.

The equilibrium market price is the price at which supply and demand are equal.

By combining the supply and demand schedules (see Figures 3.5 and 3.13), we can see which ice cream price will create this equilibrium position (see Figure 3.15).

FIGURE 3.15 The relationship between supply and demand at varying price levels

Price per unit (\$ per litre)	Quantity demanded (litres per day)	Quantity supplied (litres per day)	Resultant situation in market
1	1200	0	shortage
2	1000	200	shortage
3	800	400	shortage
4	600	600	equilibrium
5	400	800	surplus
6	200	1000	surplus

The equilibrium market price is \$4 per litre, at which 600 litres a day will be demanded and 600 litres will be supplied. This is the only price that can exist for long in our ice cream market. At any higher price (e.g. \$5 per litre), a greater quantity will be offered for sale than will be demanded. This would result in a surplus of ice cream and create a downward pressure on price.

If the price were too low (e.g. \$3 per litre), demand would exceed supply, and there would be a shortage. Buyers would exert an upward pressure on prices.

Only at the equilibrium market price of \$4 does the quantity supplied by sellers exactly equal the quantity demanded by buyers. At this equilibrium market price, everyone who wants to sell can find a buyer, and everyone who wants to buy at that price will find a seller.

This equilibrium market price and the relationship between supply and demand at various price levels can also be readily seen in a graph combining the supply and demand curves, as shown in Figure 3.16.

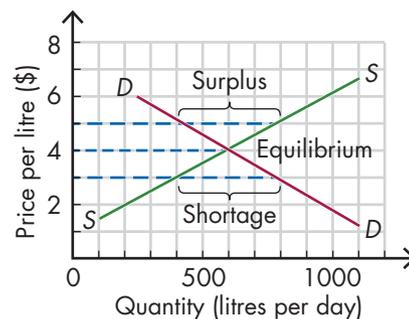


FIGURE 3.16 A market for ice cream

It is clear from Figure 3.16 that only the price of \$4 per litre can exist for any length of time. As long as conditions do not change, there will be no tendency to change from this equilibrium situation.

However, at any lower price, consumers would be trying to buy more ice cream than suppliers would make available for sale. There would be a shortage. What quantity would be demanded at \$3 per litre? What quantity would be supplied? How much in litres would the shortage be? With such a shortage, some buyers would not be able to get any ice cream. To get some of the scarce ice cream, these unsatisfied buyers would start offering more money, and this would push the price up.

If the price were too high (e.g. \$5 per litre), sellers would be offering more ice cream than people would be willing to buy. There would be a surplus. How much would this amount to? With such a surplus, some sellers would not be able to get rid of their ice cream unless they offered it at a lower price. This would push the price down.

The price would be pushed down to the equilibrium level, where everyone who wanted to sell at that price would find a buyer, and every buyer willing to pay that price would find a seller.

CHECK FOR UNDERSTANDING 3.5

- 1 **Explain** how the equilibrium market price is established under the theoretical model of the market.
- 2 On graph paper or using Excel, illustrate the following supply and demand schedules. Let each interval on the price axis represent 20 cents and each interval on the quantity axis represent 200 bottles.

Price per bottle (\$)	Demand (bottles)	Supply (bottles)
3.40	400	5900
3.20	500	4900
3.00	700	4000
2.80	1000	3200
2.60	1400	2500
2.40	1900	1900
2.20	2500	1400
2.00	3200	1000
1.80	4000	700
1.60	4900	500
1.40	5900	400

- 3
 - a In a free market situation, what would be the equilibrium market price?
 - b If a new bottle-filling machine is installed that decreases cost, and supply increases by 200 bottles at each price level, what will be the new equilibrium market price?

3.4.1 Changes in equilibrium situation

Suppose the ice cream market is in equilibrium, with the normal price standing at \$4 per litre, and the quantity sold in the market is 600 litres per day. Then, suppose that a government health department report is published, which strongly recommends the consumption of ice cream for health reasons. This report causes many people to want to eat more ice cream.

The propensity to buy increases. Demand may increase to 1200 litres a day, creating a temporary shortage. Disappointed buyers willing to pay extra will force the price up. But as the price goes up, the rationing function of price will force some buyers out of the market. At the same time, the production-motivating function of price will induce producers to increase the quantity supplied. The price will continue to rise until a new equilibrium is reached. Perhaps the equilibrium market price is \$6 per litre, with a quantity of 1000 litres being sold every day in the market. These changes are shown in Figure 3.17.

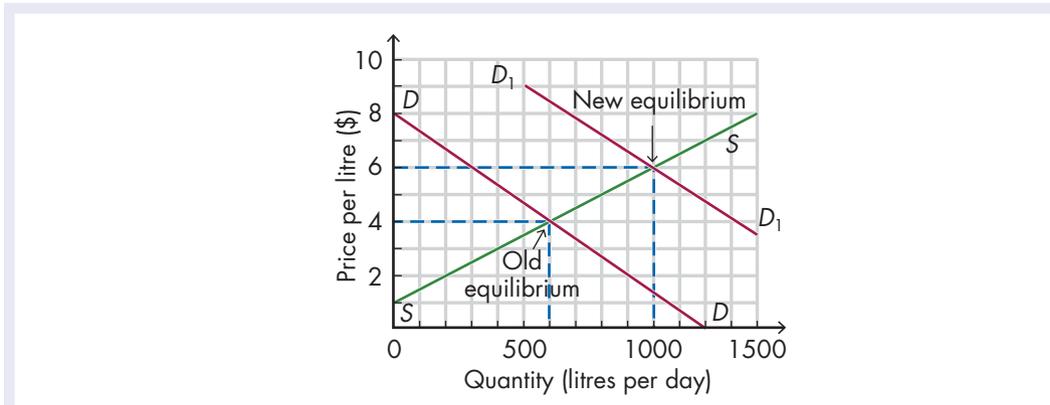


FIGURE 3.17 A market for ice cream – a new equilibrium market price

Through such a process, the market system directs more of society's scarce resources into ice cream production. This happens automatically as the decisions of people are carried out, as if under the guidance of an **invisible hand**.

The concept of the invisible hand was first developed by Adam Smith, an economist regarded as the father of capitalism (see Chapter 1 at 1.2.1). According to this concept, it is argued that the economy will work comparatively well if people are left to trade freely, as market participants would compete with each other. Smith believed that it was unnecessary for the government to intervene and regulate the marketplace.

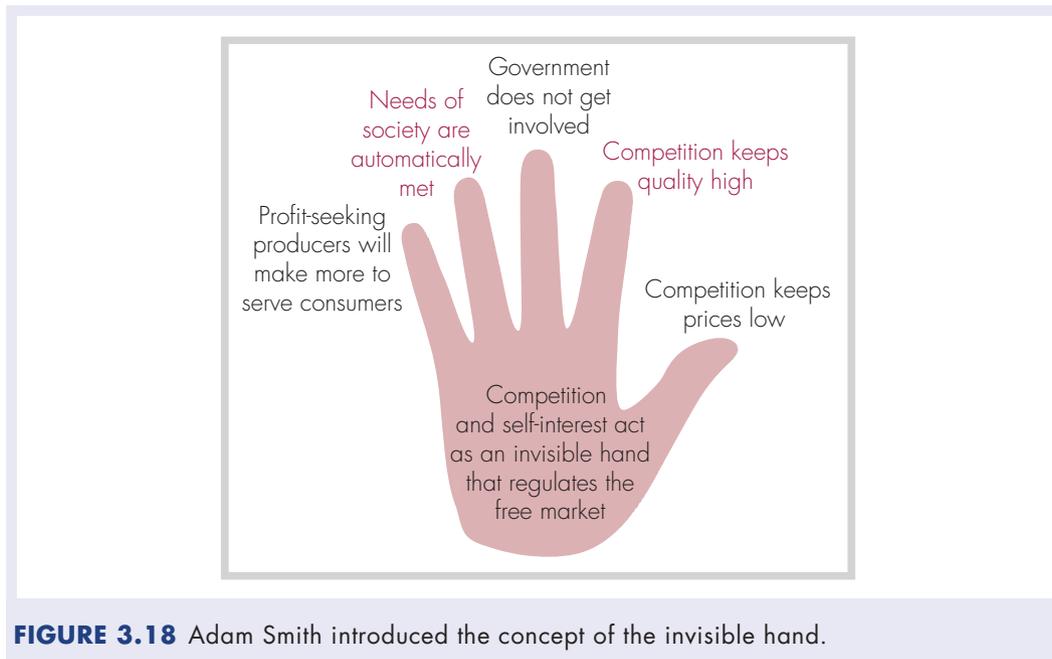


FIGURE 3.18 Adam Smith introduced the concept of the invisible hand.

CHECK FOR UNDERSTANDING 3.6

- 1 **Describe** the effect on the demand for fast-food hamburgers of each of the following. Draw diagrams to show this effect.
 - a increased population in the 12–18 age group in the area
 - b reduction of fat content in hamburgers
 - c a pay rise for all workers in the industry
 - d a fall in the price of takeaway chicken dinners
 - e higher prices for restaurant meals
- 2 Draw diagrams to show how the market changes in the situations listed below.
 - a the effect on almonds if peanuts and cashews are in short supply
 - b the effect on vegetables if a flood destroys local market gardens
 - c the effect on petrol if LPG gas becomes cheaper
- 3 Discuss the impact of market changes on a business familiar to you; for example, a school canteen, family business or corner store.
- 4 **Explain** why some products disappear from the market. Make a case study of one of these products; for example, audio cassette tapes, typewriters or leaded petrol.

3.5 The stock market

CONCEPTS



Australian Securities Exchange (ASX):

a national business that operates the stock market for the trading of shares and other securities

Dividend: a payment made by a firm to its shareholders for providing capital; a distribution of a firm's profits to its shareholders

Float: the initial raising of capital for a firm by selling shares in the primary market of the stock market

Primary market: the new-issue market where companies are first floated; their shares are sold by stockbrokers (or a nominated adviser) on behalf of the company

Secondary market: the market in which shares in existing companies are bought and sold by investors (often through

stockbrokers, but individuals can also buy and sell their own shares through various online trading accounts, such as CommSec)

Share: part ownership in a company; a share (commonly referred to as a 'stock') is a type of security that indicates the holder has proportionate ownership in the issuing company

Stock market: the market that involves an auction of securities such as shares, debentures and bonds

Stockbroker: a member or agent of the Australian Securities Exchange, who is authorised to buy and sell securities for investors in the stock market

Term deposit: a fixed-term investment that is a type of savings account which pays a defined amount of interest over a set period (the 'term')

KEY IDEA

The stock market is responsive to both domestic and international influences. Prices of shares change regularly in the stock market.

One very important market in Australia is the **stock market**. For the rest of this chapter, we will investigate how the price mechanism operates within this market.

The **Australian Securities Exchange (ASX)** operates the stock market for the trading of **shares** and other securities.

Stock market listing – where a company’s shares are on the ‘list’ of stock that is traded – is a way of raising finance by offering shares in the company to potential investors. Most businesses are not listed on the stock market. It is only large companies – whose need for capital is often quite large – that are listed.

3.5.1 The market for stocks

The stock market operates like any market:

- there are buyers, who are there to buy a good – in this case, one or more shares in a company, for the purpose of investment, and
- there are sellers, who are there to raise money for a business.

In the **primary market**, buyers purchase shares in a company directly from the company itself. This is known as a **float**. However, the great majority of trading at the stock market takes place in the **secondary market**. Here, buyers purchase shares in a company from another person, or another company.

Demand for shares

Shares are purchased by a range of people and companies for the purpose of investment, in the hope that they will receive a **dividend** for each share they own and also make a capital gain (an increase in the sale price of that share). Almost all shares in major companies in Australia are purchased through the ASX.

Around 35 per cent of the Australian adult population are shareholders. This equates to approximately nine million Australians owning investments either directly or indirectly (e.g. held through their superannuation fund). Many individuals purchase shares through a **stockbroker** (a member or agent of the ASX, who is authorised to buy and sell securities for investors in the stock market). There are also many ‘mum and dad investors’ (small-scale, non-professional investors), who purchased shares when Qantas, Telstra and the Commonwealth Bank of Australia were privatised by the federal government.

Businesses purchasing shares in Australian companies may be either domestic companies or overseas companies. If a business wants to purchase shares in another company that would give the business a controlling interest in that company, it must follow rules set by ASIC (Australian Securities Investment Commission).

Some companies are investment companies. They purchase shares on behalf of individuals who have chosen to pool their financial resources, giving them the ability to purchase a greater number of shares as a whole and a wider range of shares, thus reducing the risk of losing all their money if one company collapses. Examples of such companies are Citibank, National Australia Bank, Macquarie Bank, MLC and Colonial First State, which operate managed funds investments.

Almost every superannuation fund in Australia invests in the stock market. As nearly every working Australian has a superannuation fund, that means that nearly every Australian with a job has an interest in the stock market and its performance. Superannuation funds may be small or extremely large. An example is the 2021 merger of QSuper and Sunsuper to form the newly titled Australian Retirement Trust, which invests more than \$200 billion on behalf of its members.

The demand curve for the purchase of shares can be drawn the same way as for any other product; that is, it is a demand curve that slopes downward to the right, as shown as in Figure 3.19.

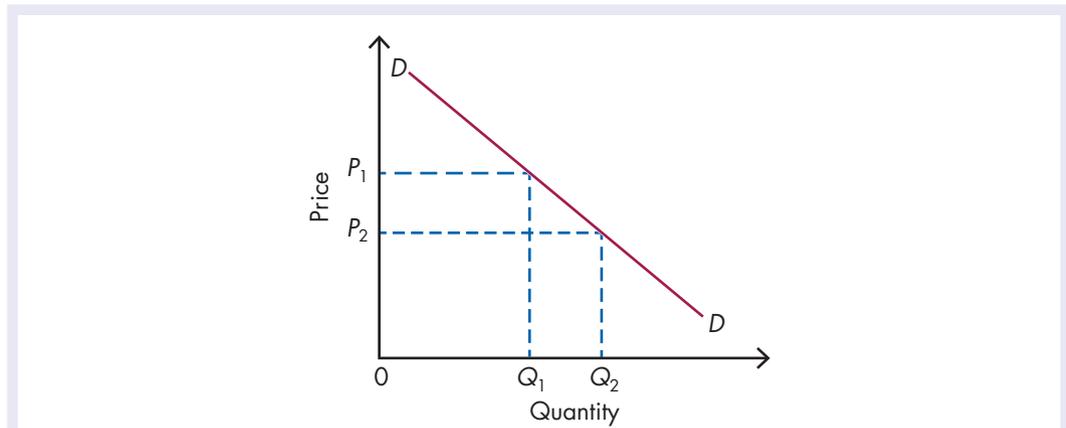


FIGURE 3.19 A typical demand curve for shares

If the price of a share decreases, then investors, *ceteris paribus*, will be encouraged to purchase that share, as its potential return is higher when bought at a lower price.

Supply of shares

The supply of shares on the market comes from investors who own existing shares and have decided they wish to sell them for a variety of reasons (secondary market), and from companies listing on the stock market for the first time (primary market). This makes the supply of shares highly variable.

The supply curve for shares is shown in Figure 3.20.

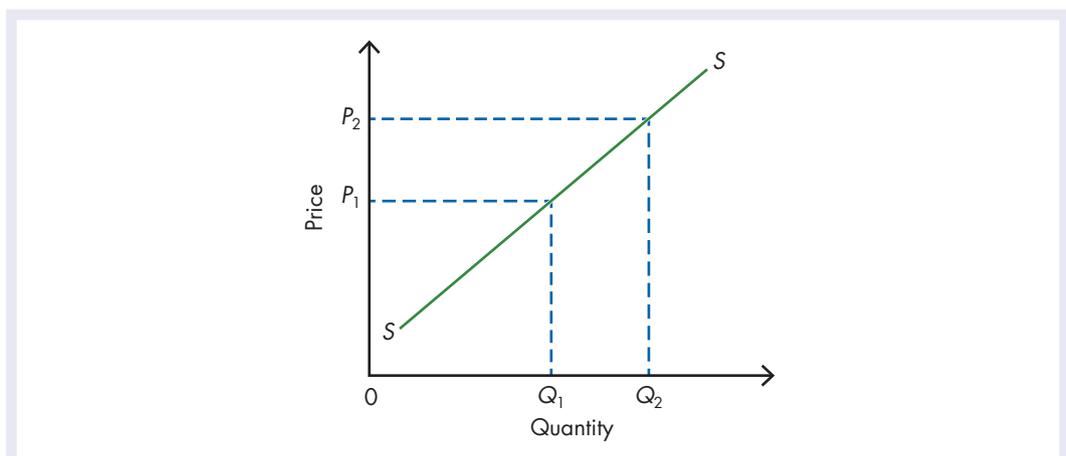


FIGURE 3.20 A supply curve for shares

- There are numerous reasons why investors might wish to sell shares. These include:
- the desire to ‘cash in’ on an investment because of a need to access the capital invested, perhaps for a major purchase such as a car or property
 - a large decrease in the market caused by a decline in economic conditions and a lower consumer expectation for the future, perhaps during a recession, to avoid a larger capital loss
 - a rising interest rate, making **term deposits** more attractive to the investor.

Equilibrium in the stock market

The price of shares is constantly changing – from minute to minute in some cases, as more buyers and sellers enter the market, and as some buyers and sellers drop out of the market. The equilibrium market price for shares in any company on the stock market is also constantly changing. When there is an excess of supply over demand for the shares, the price will fall. Conversely, if there is an excess of demand over supply for the shares, the price will rise: see Figure 3.21.

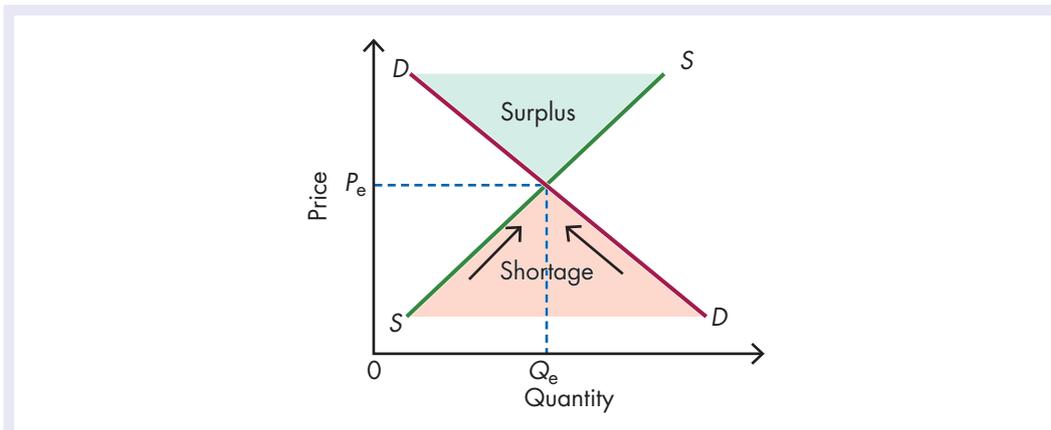


FIGURE 3.21 Equilibrium market price and quantity in the stock market

The stock market is very responsive to financial news, such as announcements concerning the inflation rate and the balance of payments, the release of budget plans, and changes in interest rates in the domestic and overseas economies.

Overseas events – such as variations in interest rates in the USA or changes in the exchange rate in Indonesia and Thailand, political factors (e.g. a change of government or new legislation), climatic influences (e.g. drought) or war (e.g. in the Middle East) – can also severely influence prices on the stock market in Australia.

If an investor understands the effect that global and local events may have on the stock market, there is a better chance of the investor being able to understand and predict price movements, and perhaps take advantage of rising or falling markets.

ECONOMICS CHALLENGE



Explore the stock market and how it operates. Visit the ASX website, navigate to the ‘Get the Basics’ section and watch the video tutorials provided.



Weblink
Get the Basics



Worksheet
3.1 Effect of
changes in price
and quantity

ECONOMICS IN ACTION



A change in the price of shares on the stock market depends on the supply of and demand for shares.

For example, look at the graph in Figure 3.22a, which demonstrates the market for shares in a particular oil-drilling firm.

- The supply curve is sloping upward to the right because the higher the price of the shares, the more likely it is that shareholders will be prepared to sell and thereby increase the supply of shares on the market.
- The demand curve is sloping downward to the right because the higher the price of the shares, the less likely it is that investors will be prepared to demand or buy shares from the market.
- The point where the two intersect is where demand equals supply and is called 'equilibrium'.

If the demand for, or supply of, shares from the firm changes, then the price of those shares will change.

The graph in Figure 3.21b shows that there has been an increase in the supply of shares from the oil-drilling firm, from S_1 to S_2 , perhaps because:

- investors have responded to a drop in profits of the firm, or
- the directors have floated a new issue of shares, or
- the current shareholders have been issued with bonus shares.

This means that more shares are available on the market. As this increase in supply has not been matched by an increase in demand, there is an oversupply and the price has been forced downwards from P_1 to P_2 .

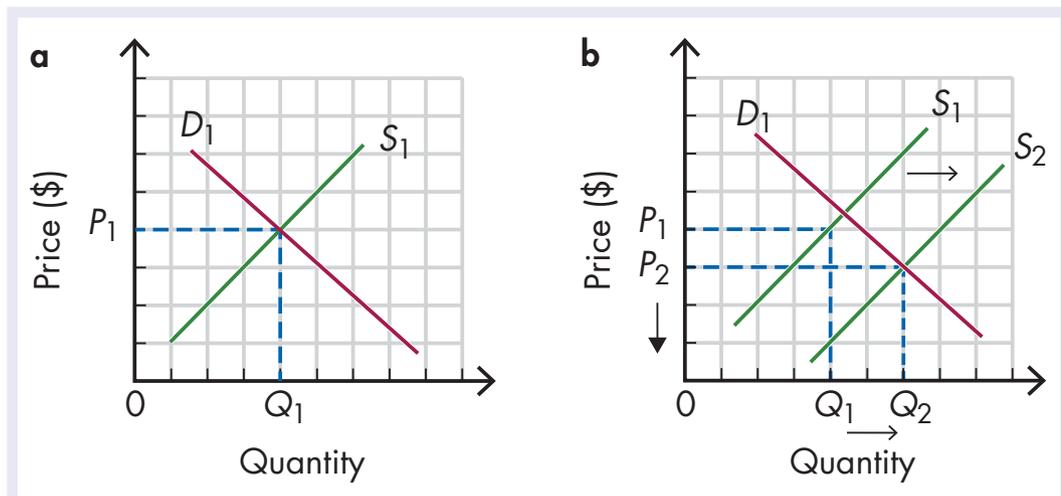


FIGURE 3.22 The effect of changes in price and quantity of shares

It may be useful to review the theory of supply and demand before you attempt the following questions.

Continued

Continued

Questions

- 1 Demonstrate your understanding of the theory of supply and demand by applying it to the following situation. What would happen to the equilibrium market price of shares of an oil-drilling firm if investors speculated that the firm would discover a large deposit of oil? Illustrate a fully labelled diagram and **explain** the new equilibrium process.
- 2 Predict what would happen if, to accommodate this discovery, the directors of the firm decided to issue more shares to raise investment capital.
- 3 Research reports in online news or stockbroking publications regarding changing prices of shares for three petroleum exploration firms (e.g. Santos Ltd, Woodside Petroleum Ltd and Cooper Energy NL). Determine the dollar profit for each firm over the past two years. **Analyse** each situation to determine the causes of the change, and illustrate the change on a supply and demand diagram.

3.5.2 Changes in the market

KEY IDEA

Market prices rise and fall in accordance with the economic prospects of each company and the economy.

Share prices change constantly. Stock markets experience considerable volatility (rapid and unpredictable changes) over time as they respond to events. Such volatility is caused by shifts in the demand curve or the supply curve, or both.

ECONOMICS IN ACTION



The share price of almost every company listed on the ASX changes every day – probably many times every day. Share prices are shown ‘live’ on the ASX website. On the home page, there is a section called ‘S&P ASX200 TOP 5’. Select five of the companies in this section, and for each day in a one-week period (Monday to Friday), note the price of a share in each company. **Justify** the reason why the price increased, decreased or stayed the same, and note this beside each entry.



Movements in the demand for shares

Seeking to make a return on their investment, shareholders may change their demand for shares frequently or infrequently, depending on how they perceive the market to be.

KEY IDEA

Consumer expectations for the future and confidence levels are probably the largest factors affecting demand.

If investors believe that future conditions are likely to be good, the demand for shares will probably increase, as they believe that dividends and the price of shares may rise, thus enhancing the return on their investment. The opposite will occur if consumer confidence levels fall.

Factors affecting one company may influence a change in demand for that company's shares. For example, announcements (or merely rumours) relating to a takeover or merger of that company by or with another company will mean an increased demand for the target company's shares because investors will realise that the purchasing company will need to procure. A quick purchase could lead to a good return for the savvy investor.

Term deposits and other investments compete with the stock market for investors' attention. If interest rates were to decrease, then it may be that investors would prefer to invest in the stock market instead, thus increasing the demand for shares. In addition, lower interest rates may encourage companies to invest, and they will need to attract more capital to do so, perhaps by issuing more shares to investors. An increase in interest rates would cause the opposite effects.

A movement in the exchange rate of the Australian dollar may also cause a change of demand for shares. A lowering of the exchange rate may encourage more overseas investors to invest in the Australian stock market, as they will be able to gain more shares for the same amount of their own currency. A rise in the exchange rate may have the opposite effect.

Movements in the supply of shares

For the level of supply to change, existing shareholders need to offer more shares for sale. The factors here are very similar to those that affected demand. If shareholders are to sell, they will want to make a capital gain if possible, or at least minimise their losses.

If there is a loss of confidence in economic conditions, then shareholders may want to sell their shares, shifting supply to the right, creating a surplus and causing a decrease in price.

In the event of a takeover bid for the company, shareholders will be keen to offer their shares for sale, as the price will almost certainly rise, and they will make a financial gain if it does.

If interest rates change, shareholders may see an alternative investment opportunity as more desirable, and seek to sell their shares in favour of such an opportunity.

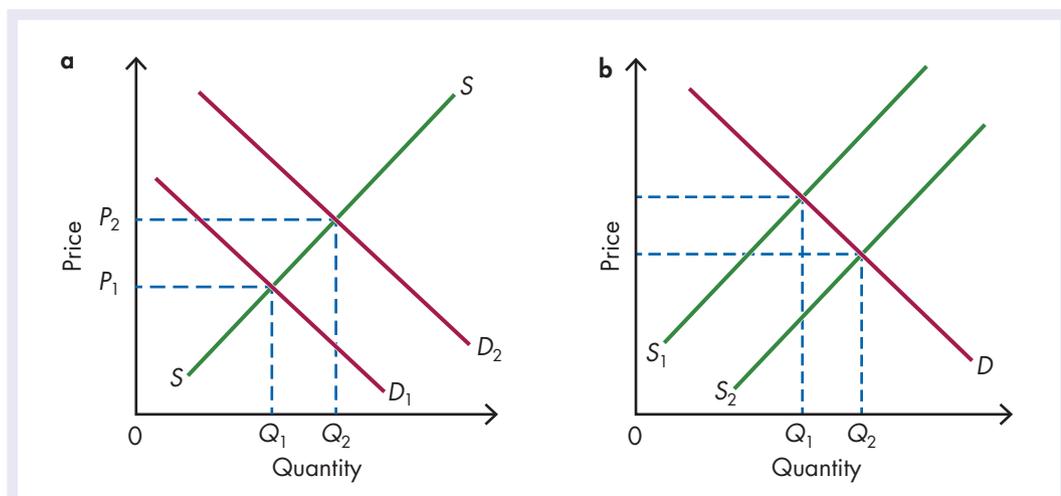


FIGURE 3.23 Movements in (a) the demand for shares and (b) the supply of shares

ECONOMICS CHALLENGE



ASX Sharemarket Game

Establish a syndicate in the ASX Sharemarket Game.

- 1 Establish a share portfolio and trade in the market.
- 2 Keep track of your share performance, and make a judgement as to the factors that influence the prices. Record this information in a trading log for the duration of the game.
- 3 At the end of the game, write a reflective review as to the effectiveness of your decision-making strategies.



Weblink
ASX Sharemarket
Game

CHECK FOR UNDERSTANDING 3.7

- 1 **Recall** what is meant by the 'stock market'.
- 2 **Explain** the difference between the primary market and the secondary market on the stock market.
- 3 **Explain** why investors purchase shares.
- 4 **Describe** the factors that cause a change in the demand for shares. Give one specific example.
- 5 **Describe** the factors that cause a change in the supply of shares. Give one specific example.
- 6 If ABC Petrol Ltd made a takeover bid for XYZ Petrol Ltd, **explain** what you would expect the outcomes to be in terms of the effects on the share price of XYZ petrol. Illustrate this using supply and demand diagrams.

R3.1 Terminology

Select the correct term from the list below that describes each statement.

- | | |
|-------------------------|----------------------|
| A supply | H float |
| B invisible hand | I propensity |
| C stock market | J equilibrium |
| D share | K utility |
| E price | L demand |
| F primary market | M market |
| G stockbroker | |
- 1 a term used to describe a person's tendency or desire to act in a certain way
 - 2 part ownership in a company
 - 3 satisfaction gained by consumption of goods and services
 - 4 a place or situation where buyers and sellers interact for purposes of trade or exchange
 - 5 the new-issue market where companies are first floated; their shares are sold by stockbrokers (or a nominated adviser) on behalf of the company
 - 6 the market that involves an auction of securities such as shares, debentures and bonds
 - 7 the quantity of a commodity that will be offered for sale in a market over a given time at a given price
 - 8 a balanced situation from which there is no tendency to change
 - 9 the quantity of a commodity that will be purchased in a market over a given time at a given price
 - 10 the unobservable market force that allocates resources based on consumers acting in their self-interest, reaching equilibrium automatically
 - 11 the initial raising of capital for a firm by selling shares in the primary market of the stock market
 - 12 the sum of money paid for goods or services in a market
 - 13 a member or agent of the Australian Securities Exchange, who is authorised to buy and sell securities for investors in the stock market

R3.2 Multiple-choice questions

Select the correct response to each of the following.

- 1 Demand is measured in terms of:
 - A** desire for a commodity.
 - B** desire backed by the ability to purchase.
 - C** need for a commodity.
 - D** wants and income.
- 2 The law of diminishing marginal utility explains why we get:
 - A** more satisfaction from each extra unit we consume of a commodity.
 - B** more satisfaction from chocolates than from a bread roll.
 - C** less satisfaction from each extra unit we consume of a commodity.
 - D** less satisfaction from chocolates than from a bread roll.

- 3** A marginal producer is one who:
- A** is just able to cover costs.
 - B** runs the firm at a loss.
 - C** makes super-normal profits.
 - D** purchases in a poor location.
- 4** The law of supply tells us that:
- A** more of a commodity will be supplied at a lower price than at a higher price.
 - B** more of a commodity will be supplied at a higher price than at a lower price.
 - C** less of a commodity will be supplied at a higher price than at a lower price.
 - D** less of a commodity will be supplied at a moderate price than at a lower price.
- 5** If the quantity demanded of a commodity is higher than the quantity supplied, the resultant situation in the market will be:
- A** equilibrium.
 - B** a surplus.
 - C** a propensity to buy.
 - D** a shortage.
- 6** Changes in the quantity demanded may be brought about by:
- A** the prices of related commodities.
 - B** the costs of production.
 - C** the effects of nature.
 - D** future expectations of suppliers.
- 7** Changes in the quantity supplied may be brought about by:
- A** the prices of related commodities.
 - B** buyers' tastes.
 - C** the effects of nature.
 - D** future expectations of buyers.
- 8** Which of the following would not be regarded as a function of the price mechanism in a perfectly competitive market situation?
- A** production motivation
 - B** rationing
 - C** resource allocation
 - D** restriction of entry into the market
- 9** If there is a decrease in demand, there will be a:
- A** shift to the left of the original demand curve.
 - B** shift to the right of the original demand curve.
 - C** movement along the demand curve from left to right.
 - D** movement along the demand curve from right to left.

- 10 What would be the effect of a general increase in wages on supply and demand curves for most goods?
- A Supply would move to the left and demand would shift to the right.
 - B Supply would move to the right and demand would shift to the left.
 - C Both demand and supply would shift to the right.
 - D Both demand and supply would shift to the left.
- 11 An oil spill near a beach will most likely cause which of the following changes in demand for hamburgers at a beach café?
- A a shift in the demand curve to the right
 - B a shift in the demand curve to the left
 - C a movement downwards along the demand curve
 - D a movement upwards along the demand curve
- 12 Which of the following is the most likely outcome of a fall in the price of butter?
- A an increase in the supply of margarine
 - B an increase in the demand for margarine
 - C an increase in the supply of milk
 - D a decrease in the supply of milk
- 13 The price mechanism:
- A operates to meet all the needs of producers.
 - B is a means of ensuring consumers obtain all that they want.
 - C ensures all people are employed.
 - D allocates resources on the basis of the free movement of prices.
- 14 The release of statistics showing that the economy is experiencing strong growth in employment and low inflation could be expected to:
- A boost share prices.
 - B decrease share prices.
 - C have no impact on share prices.
 - D encourage shareholders to sell their shares.
- 15 The ASX is:
- A a financial intermediary for companies.
 - B an issuer of new shares.
 - C a marketplace for banks.
 - D a marketplace for buyers and sellers of shares and other investments.

R 3.3 Short response questions

- 1 Define 'supply' and illustrate your understanding with a diagram.
- 2 **Explain** why the supply curve is usually upward sloping to the right.
- 3 **Describe** the difference between an increase in quantity demanded and an increase in demand.
- 4 **Describe** three events that could cause a supply curve to shift to the right.
- 5 Define 'market equilibrium' and show this using a diagram.

- 6 Draw labelled diagrams to show the following:
- the effect on equilibrium if there is a decrease in demand for a product
 - the effect on equilibrium if there is an increase in supply
 - the effect on equilibrium if a company increases its price for its product.
- 7 **Describe** the effect on the demand for takeaway pizzas of each of the following:
- improved quality of pizzas
 - pizzas shown to be a healthy food to eat
 - a decrease in price for Asian takeaway in the same area
 - pizzas delivered by drone, reducing delivery time.
- 8 **Explain** three factors a person might consider when determining whether to buy shares in a company.
- 9 Both demand and supply factors affect the price of a share. **Recall** examples of both.
- 10 **Explain** how an upswing in the economic cycle experienced by Australia might affect the stock market.

R 3.4 Activities

Graphing exercises

- 1 Draw supply and demand curves for motor vehicles based on the following schedules.

Price per vehicle (\$)	Quantity demanded ('000)	Quantity supplied ('000)
16 000	1900	300
20 000	1400	600
24 000	1000	1000
28 000	700	1500
32 000	500	2100

- 2 Explain some of the factors that might have happened to cause the following shift in the supply curve for wheat.



Worksheet
R3.4 Graphing
exercises

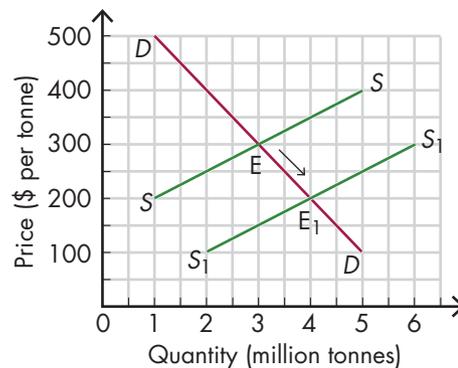


FIGURE 3.24

- 3 Using a supply and demand graph for each, **explain** how each of the following events would affect the share price of a company, and the volume of shares traded.
- Interest rates are raised by the Reserve Bank amid fears of inflation.
 - BHP reports excellent outcomes from explorations for new mineral deposits.
 - Several consumers commence legal action against company RST Ltd for alleged poor manufacturing standards.
 - Industrial troubles in the transport sector cast gloom over Western Railways Ltd's expansion program.



Worksheet
R3.4
Response to stimulus application exercise

Response to stimulus application exercise

Study these supply and demand schedules for bread and answer the questions that follow.

Price (\$)	Quantity demanded (D) ('000)	Quantity supplied (S) ('000)	New quantity demanded (D ₁) ('000)
3.00	20	50	
2.50	25	40	
2.00	30	30	
1.50	35	20	
1.00	40	10	
0.50	45	0	

- In a free market, what will be the equilibrium market price?
- What is the measure of price elasticity of demand in the price range \$2 to \$2.50 as price increases?
- What would be the probable size of the shortage if the government intervened in the market to impose a maximum price of \$1.50 per loaf?
- If doctors found that wheat caused health problems in some people, and the demand for bread decreased by 20 000 loaves at each price level, complete the final column in the table to show the new quantity demanded.
- Graph the figures for D , S and D_1 .
- What will be the new equilibrium market price?

Economics in Action worksheets:

3.1 Effect of changes in price and quantity

Economics Challenge worksheets:

3.1 Economics Challenge

Chapter 3 Review worksheets:

R 3.4 Graphing exercises

R 3.4 Response to stimulus application exercise

 Nelson MindTap

To access resources above, visit cengage.com.au/nelsonmindtap





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4

Elasticity

This chapter examines the price elasticity of demand, the changing nature of price elasticity, and other elasticities.

Focus questions and inquiries

- What is the nature of elasticity in economics?
- Why do economists undertake studies of elasticity?
- How does elasticity change over time?
- How can elasticity influence the extent to which demand changes with an increase in price?

This chapter will examine:

- the price elasticity of demand
- factors affecting the price elasticity of demand
- calculating the price elasticity of demand
- the significance of the price elasticity of demand
- the price elasticity of supply.

4.1 Price elasticity of demand

CONCEPTS



Coefficient: a value that multiplies another value

Elastic demand: where the percentage change in the quantity demanded exceeds the percentage change in price

Elasticity: the relative amount that one variable changes, given a change in another variable

Inelastic demand: where the percentage change in the quantity demanded is less than the percentage change in price

Price elasticity of demand: the responsiveness of the quantity demanded to a change in price

Unit elasticity: where the percentage change in the quantity demanded is the same as the percentage change in price

KEY IDEA

Elasticity measures the degree to which the quantity demanded responds to a price change.

So far, we have seen that price and quantity demanded or supplied are inversely related – when one goes up, the other goes down. But it would also be useful to know just how much the quantity demanded or supplied changes with a given change in price. The tool that is used to measure relative changes between these two variables is called **elasticity**.

Economists seek to understand the extent to which consumers and producers respond to a change in price. While this chapter largely focuses on the price elasticity of demand, there are other elasticities in which economists are interested. These include the price elasticity of supply, the cross elasticity of demand and the income elasticity of demand, all of which are discussed at 4.5.

A general definition of elasticity is the relative amount one variable changes in response to a change in another variable. Here, we are interested in the responsiveness of demand to price changes, or the **price elasticity of demand**. Working with the price elasticity of demand enables us to better understand human behaviour.

KEY IDEA

The price elasticity of demand is defined as the responsiveness of the quantity demanded to a change in price.

Some products are very responsive to price changes, and a small change in price will bring about a large (more than proportional) change in the quantity demanded. Such products are said to have a *price-elastic* demand. The demand for steak, as shown in Figure 4.1, is relatively *elastic* since, although it may represent a significant share of the household food budget, it is not a necessity and substitutes can easily be found, such as chicken or fish. For demand to be price elastic, the **coefficient** of the price elasticity of demand, E , must be greater than one ($E > 1$).

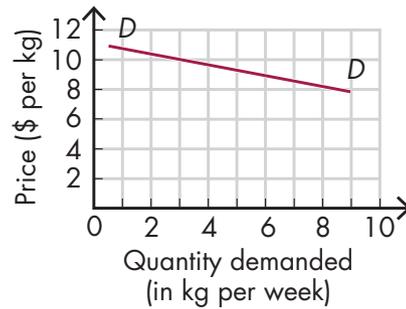


FIGURE 4.1 The elasticity of demand for steak – relatively elastic

Products that respond very little to price changes are said to have a *price-inelastic* demand. A given change in price will be accompanied by a smaller than proportional change in the quantity demanded. The demand for a product such as salt, as shown in Figure 4.2, is relatively *inelastic*, because even though it is a necessity for many people, it represents only a small share of the household food budget and substitution is difficult. For demand to be price inelastic, the coefficient of the price elasticity of demand, E , must be less than one ($E < 1$).

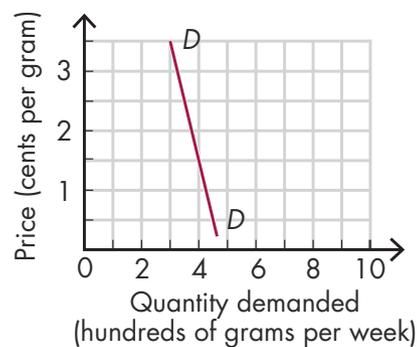


FIGURE 4.2 The elasticity of demand for salt – relatively inelastic

There can also be a situation where the change in the quantity demanded is proportional to the initial change in price. This is called **unit elasticity**.

The two theoretical extremes of elasticity are *infinite elasticity* and *zero elasticity*.

- The demand curve for a product with infinite elasticity would be a horizontal line – where even a very small change in price would cause an infinitely large change in quantity demanded.
- The demand curve for a product with zero elasticity would be a vertical line – where a change in price, no matter how large, would cause no change in the quantity demanded.

Such theoretical extremes could not exist; no product's demand is absolutely elastic or absolutely inelastic. All products are somewhere in between, and we could describe them as *relatively elastic* or *relatively inelastic* – whichever is appropriate.



FIGURE 4.3 Elastic demand and inelastic demand – elasticity measures the degree to which the quantity demanded responds to a price change.

Within a given price range it is possible to give a numerical value to elasticity to decide whether it is elastic or inelastic.

Elasticity can be measured by dividing the proportional change in the quantity demanded by the proportional change in price:

$$\Sigma_p = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}}$$

If you examine Figure 4.4a, you can see that, as the price increases from \$3 to \$4, the quantity demanded decreases from 4 units to 2 units.

The price elasticity of demand can then be measured as $\frac{1}{2} \times \frac{3}{2}$, which equals $\frac{1}{2}$ or 1.5 and therefore is greater than unity. The answer is known as the *elasticity coefficient*.

So, we can say that the demand for that product (at least in that price range) is relatively elastic. In Figure 4.4b, where a proportional change in the quantity demanded results from a change in price, unit elasticity occurs. In Figure 4.4c, where the price change has resulted in a smaller than proportional change in quantity in response to the price change, price elasticity is said to be relatively inelastic.

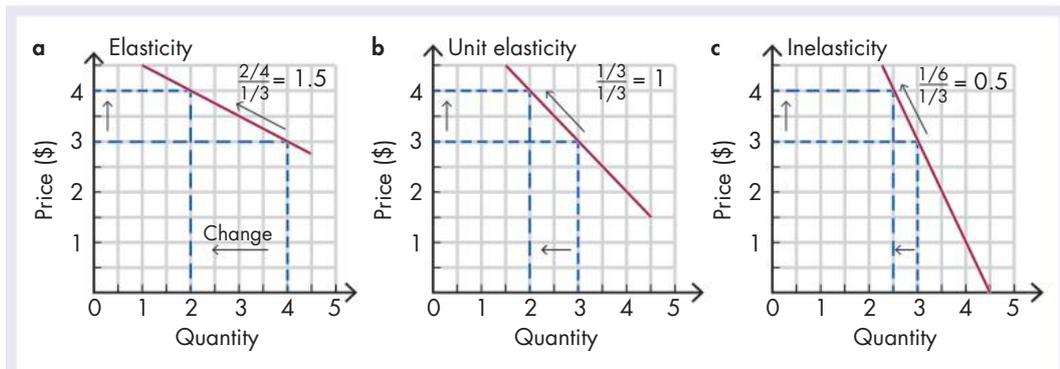


FIGURE 4.4 Price elasticity is the proportional or percentage change (Δ) in quantity, in response to a proportional or percentage change in price.

Do not be misled into believing that we can always tell what elasticity is like by just looking at the slope of the curve, or that we can always describe the demand for a particular product as being elastic or inelastic. Elasticity may vary on the same curve from one price range to another. It all depends on the proportional or relative changes in prices and quantity that occur.

Where:

$$\Delta Q = Q_{\text{final value}} - Q_{\text{initial value}}$$

$$Q = Q_{\text{initial value}}$$

$$\Delta P = P_{\text{final value}} - P_{\text{initial value}}$$

$$P = P_{\text{initial value}}$$

FIGURE 4.5 The price elasticity of demand formula

FIGURE 4.6 Price elasticity of demand – summary

Calculated price elasticity of demand	Classification	Meaning
Price elasticity of demand is greater than 0 but less than 1	Price-inelastic demand	Quantity demanded is relatively unresponsive to price, e.g. goods without substitutes, necessities
Price elasticity of demand is greater than 1 and less than ∞ (infinity)	Price-elastic demand	Quantity demanded is relatively responsive to price, e.g. goods with lots of substitutes, luxury items
Price elasticity of demand = 1	Unit-elastic demand	Percentage change in quantity demanded = percentage change in price

CHECK FOR UNDERSTANDING 4.1

1 In Figure 4.7:

- What is the measure of price elasticity in the price range \$4 to \$5 per unit as price increases?
- What is the measure of price elasticity in the price range \$1 to \$2 per unit as price increases?

FIGURE 4.7 Price elasticity calculations

Continued

Continued

- 2 Explain** what you would expect the price elasticity of demand for the following products to be.
- a** a particular brand of chocolate bar
 - b** petrol
 - c** eggs
 - d** clothing
 - e** entertainment
 - f** sugar
 - g** a fast broadband connection

4.2 Methods for calculating the price elasticity of demand

CONCEPTS



Point elasticity method: measures the degree of elasticity of demand using the coefficient of elasticity

Total revenue method: calculated by multiplying price (P) per unit and quantity (Q) of the good sold

There are two main methods that economists use to calculate the price elasticity of demand:

- the total revenue method
- the point elasticity method.

4.2.1 Total revenue method

The **total revenue method** uses the price and the total amount spent on a product. By calculating the changes in total revenue in response to a price change, the price elasticity can be calculated.

In the example in Figure 4.8, we can see that the moves from a price of \$2 to \$4 and from \$4 to \$6 result in an inelastic price elasticity of demand. In these cases, the total revenue rises when there is a price rise. It could also be a fall in price and a total revenue decrease that result in an inelastic price elasticity of demand.

FIGURE 4.8 Measuring elasticity using the total revenue method

Price	Quantity demanded	Total revenue	Price elasticity of demand
\$2	400	\$800	–
\$4	250	\$1000	inelastic
\$6	200	\$1200	inelastic
\$8	150	\$1200	of unit elasticity
\$10	100	\$1000	elastic
\$12	75	\$900	elastic

As the price moves from \$6 to \$8 in Figure 4.8, there is no change in total revenue, meaning the price elasticity of demand is unit elasticity in this case.

As the price rises further, from \$8 to \$10 and from \$10 to \$12, there is a decrease in total revenue, meaning that demand has become price elastic, as total revenue falls after these price rises.

4.2.2 Point elasticity method

The **point elasticity method** measures the ratio of the percentage change of one of the variables between the two points to the percentage change of the other variable. Thus:

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

The result of this calculation is called the *coefficient of price elasticity of demand*. If it is greater than one, this means the percentage change in quantity is more than the percentage change in price, making the demand elastic. The opposite would see the coefficient being less than one, and hence elasticity being inelastic.

ECONOMICS CHALLENGE



The total revenue method and point elasticity method are two methods of calculating and determining elasticity. Investigate the advantages and disadvantages of each method, using online sources.

Explain which of these methods appears to be the most exact and correct method for an economist to use.

CHECK FOR UNDERSTANDING 4.2

- 1 **Recall** the characteristics of price-inelastic goods.
- 2 **Describe** how you would tell if a good were elastic, inelastic or of unit elasticity, using the total revenue method.
- 3 Assume that at a price of \$4, 50 units of a good are demanded. When the price rises to \$4.20, 45 units are demanded. What is the economic coefficient of demand using the point elasticity method? Is demand elastic, inelastic or of unit elasticity?
- 4 **Explain** why the price elasticity of demand will be elastic, inelastic or of unit elasticity in the following circumstances:
 - a The price of Orchard Jam rises by 10 per cent per jar. The prices of other brands of jam stay the same.
 - b There is a general price rise in all brands of soft drink due to increased costs of sugar.
 - c The price of vertical blinds rises by 10 per cent.
 - d The price of toilet paper rises by 10 cents per roll.
 - e The price of tap water rises by 5 per cent.
 - f The price of a laptop computer rises from \$1500 to \$2000.

4.3 Factors affecting price elasticity of demand

KEY IDEA

Buyers' response to changes in price is affected by factors concerning the goods themselves, the buyers and the prices involved.

There are several factors that are usually acknowledged as having the most influence over price elasticity of demand.

4.3.1 Substitutes

In general, any good that has a close substitute will be relatively elastic. An example would be the demand for different brands of ice cream. If the price of one brand of ice cream increased relative to other brands, it would be expected that demand would be elastic, as consumers switched to other cheaper brands. On the other hand, a good with no close substitute, such as a concert featuring your favourite entertainer, would have an inelastic demand because there is no close substitute.

4.3.2 Complementary goods

In the case of complementary goods, such as electronic devices and the need for electricity, the demand for the cheaper of the two goods – in this case, electricity – is likely to be relatively inelastic, as electronic devices cannot run without being charged by electricity.

4.3.3 Necessities

There are many necessities among the goods consumers purchase. These include milk, bread, accommodation, vegetables and medicines. The demand for these products will be relatively inelastic compared to that of non-essential goods, which people may decide to do without if there is a price increase (e.g. a price increase in cakes and biscuits, which are regarded as non-essentials).

4.3.4 Consumer priorities

Consumers are most likely to purchase items such as salt and pepper, and tea and coffee even if there is a small price increase. However, when a price increase occurs on items that require a larger part of a person's income, such as clothing or entertainment, demand is likely to be more inelastic.

4.3.5 Time

The demand for some products in the short term tends to be less elastic than in the long term, when consumers have had time to adjust to a new consumption pattern. For example, a small increase in the price of a newspaper would make little difference to the demand for that newspaper. Over time, however, consumers find alternative ways to gather their news, such as online sources, and the demand for newspapers becomes more elastic.

4.3.6 Habit-forming or addictive goods

In our community, there are some goods that are habit-forming or addictive. These include cigarettes, alcohol and drugs. Consumers who regularly use these products usually continue with the same habits, even after a price increase. Thus their demand for these products is relatively inelastic.

An example of a good with inelastic price demand is salt. This product has no close substitute, is a minor complementary good to food, is regarded by consumers who purchase it as a necessity, and is relatively cheap. Can you think of another good that meets the same requirements?

Not all goods follow the same rules, however. The demand for Porsche motor cars is relatively inelastic. This is despite them not being a necessity, being relatively expensive and having substitutes available. Why do you think the demand remains relatively inelastic?

CHECK FOR UNDERSTANDING 4.3

- 1 **Explain** the role that price elasticity can play in the seasonal variation in the price of fruit and vegetables.
- 2 **Describe** three factors that affect the price elasticity of demand, and give an example for each.
- 3 **Explain** why the demand for penthouse suites on the *Queen Mary II* ocean liner would be relatively inelastic.

4.4 Applications of price elasticity of demand

4.4.1 Price elasticity of demand and producers

Elasticity of demand affects the amount spent by consumers. This is very important to producers who want to change either the price or quantity supplied of a product.

Elasticity of demand helps us to determine whether total outlay by consumers will increase or decrease when prices change.

If producers knew how consumers would react to changes in price or quantity, they would be able to make better decisions on prices and production to enable them to maximise profits. If a firm is not operating under purely competitive conditions – that is, if it has some monopoly control over its price or output, and demand for its product is inelastic – the firm could increase total receipts (total consumer outlay) by restricting output and increasing price. This would probably mean higher profits because, with lower production, total costs will generally be down.

4.4.2 Price elasticity of demand and taxes

Elasticity is also significant in the effect of taxes imposed by the government, such as the goods and services tax (GST) or customs duty. These have the effect of raising production costs, shifting the supply curve to the left and increasing prices.

Elasticity will affect the extent to which the tax can be passed on to the consumer.

- Where demand for a product is relatively inelastic, the quantity demanded will not fall very much and most (sometimes all) of the tax will be borne by the consumer, with a lesser amount being borne by the suppliers.

- However, where demand for a product is relatively elastic, most of the GST will be borne by the suppliers.

Elasticity of demand must also be considered by the government in determining its own possible revenue from GST. Where demand is very elastic, the higher price caused by the tax may actually cause demand to contract to such an extent that little revenue is received, and increasing the tax further may only result in even less revenue being received. For this reason, the government tends to levy higher taxes on products that exhibit relatively high price inelasticity; for example, alcohol and cigarettes.

The granting of a subsidy has the opposite effect to the imposition of a tax. A subsidy effectively reduces production costs, shifts the supply curve to the right, and reduces the price to the consumer. The more elastic the supply, the greater will be the benefit to consumers. If the supply is inelastic, the subsidy would have to be larger to make much difference to the price and quantity.

4.4.3 Significance

It is evident that elasticity is very significant to consumers, to business and to governments. It greatly influences their choices when they are making economic decisions.

As well as price elasticity of demand, we can also measure cross elasticity of demand, income elasticity of demand and price elasticity of supply, which are discussed at 4.5.



Weblink
State tax elasticities
of revenue bases

Worksheet
4.1 State tax
elasticities of
revenue bases

ECONOMICS IN ACTION



Explore the academic paper titled 'State tax elasticities of revenue bases', and **analyse** the elasticity of stamp duty taxes. **Evaluate** a proposed 20 per cent increase to taxes in the state of Queensland.

CHECK FOR UNDERSTANDING 4.4

- 1 **Describe** why suppliers would want to know the price elasticity of demand for their products.
- 2 **Explain** why the government might be concerned with the price elasticity of demand, and state three examples of this.
- 3 **Identify** why calculating the price elasticity of demand is not undertaken regularly by most consumers.

4.5 Other elasticities

CONCEPTS



Cross elasticity of demand: measures the likely response for the demand of one good to a change in the price of a related good

Price elasticity of supply: the responsiveness of the quantity supplied to a change in price

Income elasticity of demand: the way in which demand changes following an increase in household income

KEY IDEA

Economists refer to several types of elasticity.

Economists refer to three other elasticities:

- income elasticity of demand
- cross elasticity of demand
- price elasticity of supply.

4.5.1 Income elasticity of demand

Income elasticity of demand refers to the way in which demand changes following an increase in household income, and is measured by comparing the percentage change in quantity to the percentage change in income. It is calculated using the following equation:

$$E_y = \frac{\text{the percentage change in quantity}}{\text{the percentage change in income}}$$

Where:

$$\Delta Q = Q_{\text{final value}} - Q_{\text{initial value}}$$

$$Q = Q_{\text{initial value}}$$

$$\Delta Y = Y_{\text{final value}} - Y_{\text{initial value}}$$

$$P = Y_{\text{initial value}}$$

FIGURE 4.9 The income elasticity of demand formula

4.5.2 Cross elasticity of demand

Cross elasticity of demand measures the likely response for the demand of one good, such as strawberries, to a change in the price of a related good, such as cream. The measure will show whether these goods are likely to be substitutes or complements.

4.5.3 Price elasticity of supply

As with demand, we can measure the **price elasticity of supply** by measuring the responsiveness of a quantity supplied to a given change in price.

Again as with demand, the supply of some products is very responsive to price changes. A small change in price will bring about a major change in the quantity that is offered for sale.

For example, as Figure 4.10a shows, the supply of textiles is relatively elastic, because it is fairly easy to increase production in a short time.

Other products respond very little to price changes. For example, the supply of orchids, as shown in Figure 4.10b, is relatively inelastic because of the time and difficulty involved in increasing production.

Again, such a concept will be important to a government considering such things as price control, subsidies, GST or other taxes with the aim of influencing the quantity of a product offered for sale.

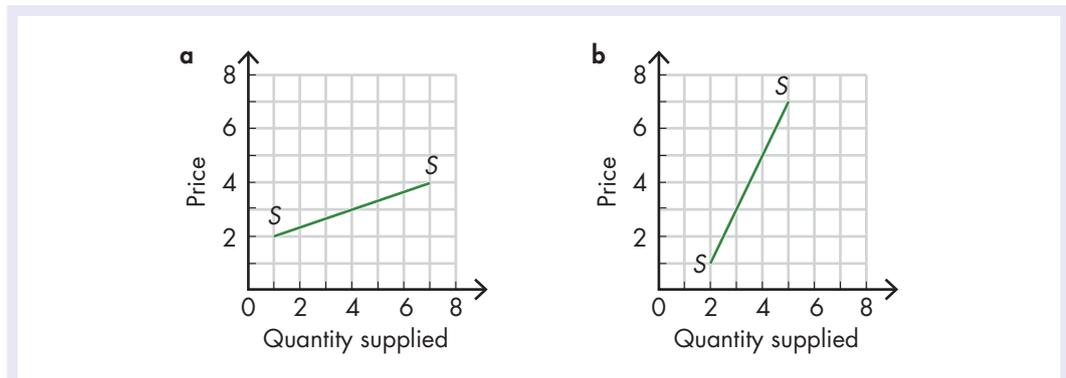


FIGURE 4.10 Elasticity of supply: (a) textiles; and (b) orchids

CHECK FOR UNDERSTANDING 4.5

- 1 **Explain** why the federal treasurer would be interested in the price elasticity of demand for certain products.
- 2 To illustrate other types of elasticity of demand, **explain** the effect of:
 - a income changes on quantity demanded
 - b changes in the price of complementary goods
 - c changes in the price of substitute goods.

ECONOMICS CHALLENGE



Access the 'Price elasticity of demand' quiz. Remember, you must answer each question before progressing to the next question.

R 4.1 Terminology

Select the correct term from the list below that describes each statement.

- | | |
|--------------------------------------|-------------------------------------|
| A unit elasticity | E price elasticity of demand |
| B income elasticity of demand | F cross elasticity of demand |
| C price elasticity of supply | G elasticity |
| D inelastic demand | |
- where the percentage change in the quantity demanded is less than the percentage change in price
 - the relative amount that one variable changes, given a change in another variable
 - the way in which demand changes following an increase in household income
 - measures the likely response for the demand of one good to a change in the price of a related good
 - the responsiveness of the quantity supplied to a change in price
 - the responsiveness of the quantity demanded to a change in price
 - where the percentage change in the quantity demanded is the same as the percentage change in price

R 4.2 Multiple-choice questions

Select the correct response to each of the following:

- Price elasticity of demand may be defined as:
 - the quantity that will be purchased after an increase in price.
 - the quantities that consumers will purchase at various prices.
 - the responsiveness of quantity demanded after a change in price.
 - the responsiveness of demand to a change in the availability of a substitute product.
- If a decrease in price of 10 per cent results in an increase in quantity demanded of 8 per cent, the demand is:
 - elastic.
 - inelastic.
 - of zero elasticity.
 - of unitary elasticity.
- Demand tends to be more elastic for goods that:
 - are basic necessities.
 - are very inexpensive.
 - have a close substitute available.
 - are complementary goods.
- If a price increase of 10 per cent results in a decrease in demand of 12.5 per cent, the coefficient of elasticity is:
 - 0.8.
 - 1.25.
 - 5.0.
 - 0.5.

- 5 If an entrepreneur were planning to decrease the price of a product, the entrepreneur would hope that customers were:
- A irrational.
 - B likely to have a high income elasticity of demand for the product.
 - C on an elastic section of the demand curve for the product.
 - D on an inelastic section of the demand curve for the product.
- 6 When Queensland Rail increases ticket prices, it usually experiences a fall in revenue. This suggests that the demand for public transport:
- A is inelastic.
 - B is elastic.
 - C is of unit elasticity.
 - D has increased.
- 7 Supply for a good is said to be elastic if:
- A quantity changes by a bigger proportion than price.
 - B quantity changes by a smaller proportion than price.
 - C quantity changes by the same proportion as price.
 - D price changes by a smaller proportion than quantity.
- 8 Which of the following tends to be income inelastic?
- A champagne
 - B luxury cars
 - C fillet steak
 - D bread
- 9 If fruit growers take fruit to the market and can sell their entire loads at the going price, as far as they are concerned the demand curve on that day is:
- A perfectly inelastic at the market price.
 - B perfectly elastic at the market price.
 - C unit elastic at the market price.
 - D none of the above.
- 10 To a consumer who uses either butter or margarine, both of these goods will most likely have a demand that is:
- A very price elastic.
 - B very price inelastic.
 - C slightly price elastic.
 - D slightly price inelastic.

R 4.3 Short response questions

- 1 Illustrate a diagram to show the effect of each of the following:
- A elastic demand – show the effect of a price increase on total revenue
 - B inelastic demand – show the effect of a price fall on total revenue
 - C perfectly inelastic demand – show the effect on total revenue of a price increase.

- 2 **Explain** the difference between the following terms:
 - A elastic demand and inelastic demand
 - B perfectly elastic demand and perfectly inelastic demand
 - C substitute and complementary goods.
- 3 Apart from price elasticity of demand, **recall** three other types of elasticities that economists use.
- 4 **Explain** why the demand for milk would be elastic or inelastic.
- 5 **Explain** three factors that affect price elasticity of demand.
- 6 What does a perfectly inelastic demand curve look like? Give an example.
- 7 **Describe** three characteristics of a product that has relatively inelastic demand.
- 8 Using the factors influencing price elasticity of demand, **analyse** the elasticity for holiday resort bookings over a year.
- 9 Why would a business be interested to know if its product was price inelastic?
- 10 **Distinguish** between income elasticity and cross elasticity of demand.

R 4.4 Calculations

- 1 Answer the questions that follow this demand schedule:

Price (\$)	Quantity
20	20
18	30
16	40
14	50
12	60
10	70
8	80
6	90
4	100
2	110

- A Graph the demand curve.
- B Show on the graph what effect a price decrease from \$18 to \$12 would have.
- C **Calculate** the total outlay at each price.
- D Indicate whether demand is elastic, inelastic or of unitary elasticity at each price change.
- E **Calculate** the coefficient of elasticity when price falls from \$10 to \$8.



Worksheet
R4.4
Calculations

2 The following figures represent the demand for seats at a cinema near you at various prices.

A Plot the demand curve from these figures.

B If the owner of the cinema had to hire the same number of staff regardless of numbers attending, would the owner:

- i drop prices from \$10 to \$8? Why?
- ii drop prices from \$4 to \$2? Why?
- iii What can we say about the price elasticity of demand between \$10 and \$8, and between \$4 and \$2?

Price of seats (\$)	Number of seats sold
10	100
8	200
6	400
4	800
2	1000

3 Examine Figure 4.11.

A What is the measure of price elasticity in the price range \$8 to \$10 per unit as the price decreases?

B What is the elasticity in the price range \$2 to \$4 as the price increases?

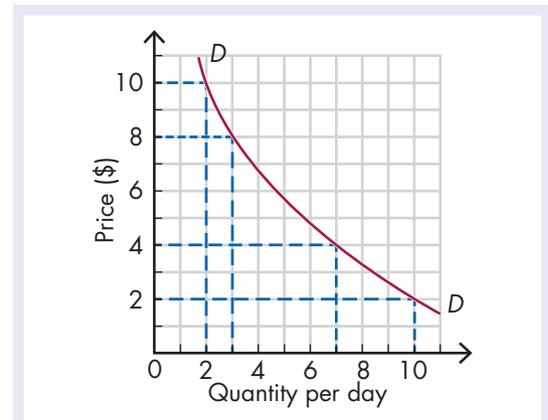


FIGURE 4.11

R 4.5 Inquiry topics

- 1 Why might petrol companies increase the price of fuel around the peak driving periods of Easter and Christmas? How is the concept of elasticity demonstrated if this does occur?
- 2 The government is considering a 'sugar tax' on all items of food that contain a high amount of sugar. Choose three food items: one soft drink, one muesli bar and one other food of your choice. For each item, identify the amount of sugar it contains, and predict the likely impact of the sugar tax.
- 3 The transport company Uber has a policy of price surging during busy times. Investigate what this policy is, and explain how it is linked to the concept of price elasticity of demand.

Economics in Action worksheets:

4.1 State tax elasticities of revenue bases

Chapter 4 Review worksheets:

R 4.4 Calculations

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





UNIT 2

Modified markets



Patrick Cooper/iStock Editorial/Getty Images

5

Market failure

Markets often fail to deliver the most efficient and socially desirable outcomes. Government intervention is therefore necessary to modify markets to address the causes of markets failing and minimise the current and future consequences.

Focus questions and inquiries

- What is a market?
- Can socially desirable market behaviours and outcomes be achieved?
- How are market structures related to outcomes?
- What are the characteristics of a perfectly competitive market system?
- Why do economists, business people and governments present competition as the key element in successful markets?
- What types of failure can be identified in contemporary markets?

This chapter will examine:

- the nature and purpose of markets
- types of efficiency and how they are achieved
- the benefits of competition
- a range of market structures, from competitive to monopolistic
- forms of market failure and their effects.

5.1 The nature and purpose of markets

CONCEPTS



Consumer sovereignty: the theory that consumer preferences will determine the production of goods and services

Market: a place or situation where buyers and sellers interact for purposes of trade or exchange

Market failure: the inability of the market to determine the use and allocation of resources in the way society most desires because certain conditions are lacking; for example, limited market power, externalities and public goods

Market power: the ability to control and influence the market in one's own self-interest

Physical market: a place where buyers and sellers actually meet to exchange goods and services

Price signals: the messages that market prices provide to producers and consumers about what to produce, how to produce it and who to distribute the outputs to

Virtual market: a non-physical market where exchanges occur through digital interactions

KEY IDEA

Markets are where we buy and sell products. They exist whenever two or more parties interact with the aim of exchanging goods, services or information. The potential buyers and sellers may interact directly or through intermediaries.

Markets operating optimally will produce the most efficient solutions to the economic problem. Optimal operation involves:

- allocating the available resources to their most productive use, and
- producing the goods and services most valued by consumers in the least costly ways.

The finished products should be distributed in ways that best satisfy the wants of consumers.

It is generally the case that more competitive markets provide the best outcomes: see 5.4. Markets dominated by a few large firms can provide high levels of efficiency and customer satisfaction. However, markets often fail to operate efficiently and frequently under-deliver. There are a wide range of reasons for **market failure**: see 5.5.

We have seen in Chapter 2 how the circular flow of income model simulates the flow of goods and services and money between the various sectors of the economy. These sectors are linked by markets of various types. Markets connect buyers and sellers, and allow the outputs of the production process to be traded or exchanged.

As we saw in Chapter 3, there are markets for almost everything that flows through our economy, including:

- **labour markets**, where labour is exchanged for money in the form of wages and salaries
- **goods and services markets** (including virtual markets, which are becoming increasingly important in modern economies), where goods and services are exchanged for money
- **financial or capital markets**, where access to funds is arranged in exchange for interest
- **stock markets**, where shares in publicly listed companies are traded.



FIGURE 5.1 Markets solve the economic problem. **a** The consumer is able to satisfy wants by purchasing a good or service at the market price. **b** The producer is able to generate profits by selling the goods or services they produce at the market price.

In market economies, the price mechanism is central to solving the economic problem.

- The demand curve indicates the value that consumers place on a good or service.
- The supply curve indicates the costs of production, including normal profit.
- The price mechanism determines the level of output, the price and who is the successful buyer.

The price of inputs and finished goods is a signal to both buyers and sellers in a market.

Price signals guide the decision-making processes in a market economy. They match output from producers with consumer demand, and they ration scarce resources and the products made from them. Through changes in demand and supply, prices tell producers and consumers that they need to adjust their economic behaviour in response to changing market conditions.

Traditional economic models assume that more competitive markets will allocate the economy's resources and produce in a way that most efficiently satisfies consumer wants.

Later sections of this chapter will explore how highly concentrated market structures can produce high levels of technical, productive and dynamic efficiency, and create high levels of customer satisfaction. However, concentration of **market power** often leads to abuses of that power. This can result in markets failing to deliver efficiency and **consumer sovereignty**, leading to a decrease in community welfare.

5.1.1 Types of markets

KEY IDEA

A modern economy is built around many different types of markets. There are both physical and virtual markets. Markets may be for raw materials, labour, intermediate goods or final consumer goods. The products offered for sale may be knowledge-based products, financial products, or goods and services.

Markets connect buyers who have the ability and willingness to purchase with sellers who have a supply and are willing to sell. The price mechanism determines a price and quantity that best matches demand and supply in the market, and consumers buy the product, satisfying one of their wants.

Markets can be broadly categorised as *factor markets* or *product markets*.

Factor markets

The factors of production (land, labour, capital and enterprise) are bought and sold in factor markets. Factor markets also provide producers with information about how to produce. The interaction of demand and supply in these markets indicates the prices of land, labour, capital and enterprise. This helps producers choose the most cost-effective way to produce. The prices paid for the factors of production help determine who receives the goods and services sold in product markets.

- Those who supply land, labour, capital or enterprise that are in high demand will earn high incomes. They will have greater buying power and so will be able to afford scarce or luxury goods and services.
- Those who produce goods and services that are in high demand will also generally be rewarded with higher returns.

Product markets

Price signals in product markets provide information about the fundamental economic questions of what and how much to produce, how to produce and for whom to produce. Producers discover what quantities of the product are demanded by consumers and at what price. This helps them to make decisions about future production levels.

Product markets are usually for a particular good or service, but they vary greatly in their size and reach. Markets can be local (e.g. a local farmers' market), regional (e.g. the state electricity market), national (e.g. the Australian grocery market) or international (e.g. the global market for iron ore).

Price information from markets decides the share of total output that an individual can demand.

There needs to be more than one buyer and seller for a market to be competitive. The price mechanism cannot operate without:

- a large number of producers competing for the use of the factors of production, and
- a large number of consumers competing for the limited quantity of products offered by competing producers.

Non-competitive markets do not provide the price signals that consumers and producers receive in a competitive market.

ECONOMICS IN ACTION



Select three goods or services that you have used recently and **analyse** the market in which they were traded. Include at least one purchased on an electronic device, connecting to a seller via the Internet. It does not matter whether the products were purchased by you or someone else.

Compare the markets for the three products using the following criteria:

- **Wants satisfied:** What utility does this product have for you?
 - **Physical or virtual market:** Did the purchaser actually meet the seller?
 - **Reach:** Was it a local, regional, national or international market?
 - **Suppliers:** Are there alternative suppliers of that exact product?
 - **Substitutes:** How many other similar products are available as an alternative?
 - **Price determination:** Was the price set by the seller or negotiated?
 - **Knowledge of product:** What information sources informed you about the features of the product, its quality, availability and price?
-

Physical markets

In **physical markets** the buyers and sellers can actually meet each other face to face. The buyers can examine the product, ask for information about it, purchase the product and, in most cases, take it with them. If a service is being purchased, it is usually provided to the consumer at the time and place of purchase. Shopping centres, retail stores, medical centres, educational institutions, sporting and entertainment venues, restaurants and vehicle repairers are examples of physical markets.

Virtual markets

Virtual markets are situations in which goods and services are exchanged without the buyers and sellers meeting or needing to be in the same place to physically interact. Sellers display their wares using online platforms. Buyers interact with them via telephone, email, online stores or other electronic means. The transaction is completed online or by telephone. Buyers order what they want and pay for it electronically, using electronic transfers of money. Sellers arrange for the goods to be delivered by postal or courier services, usually for a fee.

Virtual markets are reducing the importance of physical markets in many areas of economic activity. The nature of retailing is being reshaped by online purchases of products such as clothing, footwear, white goods, computers, travel products and accommodation. Some educational courses and medical services are now delivered through virtual markets.

Virtual markets vary in scale and reach. Individuals may deliver a single product or service from their own home. Householders can outsource everyday tasks using online marketplaces, and firms can hire virtual assistants as specific needs arise. Residential property owners can use online marketplaces such as Airbnb to connect with local, national or global travellers wishing to rent accommodation. LinkedIn and Seek provide marketplaces that link employers with potential employees. E-commerce websites allow businesses such as Amazon to operate globally without needing any actual stores that buyers can visit.

The diverse range of goods and services demanded in modern economies, and the variety of ways consumers choose to access them, are reflected in the different markets that have developed to meet this demand.

- Some markets sell intermediate goods rather than finished products. Intermediate goods are the raw materials and manufactured parts that are required for the production of final goods which are products in a state ready for sale.
- Knowledge markets involve the exchange of information and knowledge-based products.
- There are many types of financial markets, largely distinguished by the type of financial asset being traded. Banks and non-bank financial institutions (NBFIs) lend money to the household and business sectors, and take deposits from them in loan markets. Equities (shares of businesses) are bought and sold in stock markets, national currencies in foreign exchange markets, and fixed-term securities in bond markets.
- Illegal goods such as weapons, drugs and counterfeit passports are traded in black markets.

CHECK FOR UNDERSTANDING 5.1

- 1 The term 'consumer sovereignty' suggests that consumers rule. **Describe** the ways in which consumers determine what happens in markets.
- 2 **Describe** the outcomes an efficient market would deliver.
- 3 **Distinguish** between physical and virtual markets.

5.2 Efficiency

KEY IDEA

The objective of economic systems – to achieve optimal satisfaction of wants – necessitates that the goods and services most valued by consumers are produced in the least costly ways. This involves allocating productive resources to their optimum use and combining them in the most productive ways. The finished products should be distributed in ways that best satisfy the wants of consumers. Markets operating optimally will produce the most efficient solutions to the economic problem.

CONCEPTS



Allocative efficiency: occurs where a country's productive resources are used in the economy in combinations that generate the maximum benefits for consumers and the country

Diseconomies of scale: occur when a firm grows so large that the costs per unit increase; this happens when economies of scale no longer function for a firm

Dynamic efficiency: the ability of an economy to respond to changing consumer demands by reallocating resources to new industries or production processes

Economies of scale: the cost-saving advantages that a firm gains by increasing its scale of production

Efficiency: using the least amount of resources to produce the goods and services that people value the most; how cheaply and productively firms can combine land, labour, capital and enterprise resources to maximise output while generating profits

Industry: a collection of firms that produce the same type of product

Law of diminishing marginal productivity: the proposition that once the most efficient level of production has been reached, adding an extra factor of production (such as a new employee) will cause a relatively smaller increase in output than that gained from each

existing factor of production; the marginal productivity will decrease; also called the principle of diminishing returns

Marginal cost: the addition to total cost that occurs when one more unit of output is produced and sold

Optimal outcome: the best or most favourable outcome under a particular set of circumstances

Pareto efficiency: when the allocation of resources is optimal; one person cannot be made better off without making another person worse off

Productive efficiency: the ability of an economy to achieve the maximum quantity of output from a given quantity of productive resources

Productivity: a measure of the efficiency of production, expressed in terms of the rate of output per unit of inputs

Specialisation: the use of the factors of production to perform narrowly defined, specific functions, such as assigning specific production tasks to a worker

Super-normal profits: the excess profits a firm makes above the normal level of profit in a market

Technical efficiency: the ability of a firm to produce the maximum output from the minimum quantity of inputs, such as labour, capital and technology



Before learning more about efficiency, pause to consider your prior understanding and what aspects of efficiency you need to gain knowledge of. A useful way to approach this is to describe:

- what efficient production might 'look' like
- what it might feel like to be part of an efficient production process (as a business owner, worker or consumer).

Efficiency maximises consumer satisfaction and business profits. It promotes economic growth through the more productive use of resources and the development of innovative products and processes. Economists highlight three types of efficiency: allocative, productive and dynamic efficiency.

Perfectly competitive markets, which have large numbers of buyers competing for goods and services supplied by large numbers of suppliers, will generally be more efficient. (Later in this chapter, we will look at less competitive market structures, including oligopoly and monopoly: see 5.3.) An examination of why perfectly competitive markets, and the firms that operate in them, are claimed by business people, economists and governments to be more efficient is essential to understanding the benefits of a perfectly competitive market structure over a less competitive market.

5.2.1 The law of diminishing marginal productivity

KEY IDEA

Increasing the amount of any one resource (e.g. labour) will not necessarily result in an increase in production.

The **law of diminishing marginal productivity**, often called the principle of diminishing returns, is an important starting point to any understanding of how production might be made more efficient. As more and more units of a variable factor of production (e.g. labour) are added to a fixed factor of production (e.g. land), a point will eventually be reached at which the output resulting from each additional unit of the variable factor will start to decline.

We can see this law or principle in operation by analysing the amounts of wheat that can be grown on a particular parcel of land by using more and more labour, together with a constant supply of capital and a given technology.

Let us assume we have one farmer working on 1 hectare of land. They can produce 20 tonnes of wheat per year. Comparisons with neighbouring farmers indicate that they are not operating at the most efficient level. So, they decide to hire another worker.

Working together, each doing jobs for which they are suited, the two people are able to increase production to 45 tonnes per year. The extra worker has caused production to increase by 25 tonnes per year. The extra output produced by the one extra unit of the variable factor, labour, is called the *marginal product*.

Increasing the labour intensiveness of operations by employing more people will allow further specialisation in the work, and may give even greater returns. A third worker may

add 35 tonnes of marginal product, increasing output to 80 tonnes. A fourth may add 50 tonnes of marginal product, increasing production to 130 tonnes.

Things look rosy, but the farmer must decide how many extra workers to employ. Will they continue getting increasing returns from every extra worker they employ? Clearly, the answer is 'no'. Employing a fifth worker produces a rise in total output to 160 tonnes. The marginal product, however, is only 30 tonnes, so we are now at the point of diminishing returns. A sixth worker may also increase total output, perhaps to 180 tonnes, and a seventh to 190 tonnes; but the marginal product will continue to decrease, until the addition of a further worker may actually result in reduced output. This would be due to the 'crowding effect' – a situation in which the farm has so many workers in relation to the land (and any other fixed factors) that they actually get in each other's way. Any extra workers would reduce overall efficiency.

FIGURE 5.2 Wheat production per worker on 1 hectare of land

No. of workers	Total output (tonnes of wheat)	Marginal product (tonnes of wheat)	Returns
0	0	0	Increasing returns
1	20	20	
2	45	25	
3	80	35	
4	130	50	Optimum returns
5	160	30	Diminishing returns
6	180	20	
7	190	10	
8	185	−5	

5.2.2 Productive efficiency

KEY IDEA

Resources are being used in the most efficient ways when a firm's average costs are equal to its **marginal costs**, resulting in goods and services being produced at the lowest cost.

Productive efficiency occurs in an economy, **industry** or firm when resources are used in a way that achieves the maximum quantity of output from a given quantity of productive resources. Resources are being used in the most efficient ways and nothing is being wasted. This will result in goods and services being produced at the lowest cost. Productive efficiency is said to occur on the *production possibility frontier* (see Chapter 1 at 1.1.3).

ECONOMICS IN ACTION



Worksheet
5.1 Production
possibility
graph

Draw a production possibility graph to illustrate the concept of productive efficiency for an economy.

- 1 Label the horizontal axis 'Goods' and the vertical axis 'Services'.
- 2 Draw a curve showing different outputs of goods and services.
- 3 Mark two points of possible production illustrating inefficient production and three combinations of goods and services being efficiently produced.
- 4 **Justify** your judgement that the two points are productively inefficient and the three points are productively efficient.
- 5 **Explain** why any three efficient points indicate an optimum combination of goods and services.

To remain competitive, a firm must be producing at its lowest total cost. Even if some short-term increase in demand occurred and the firm responded by increasing production beyond its most efficient level, competition from other suppliers would force it back to the productively efficient level of production.

All firms in perfectly competitive markets will be forced to be productively efficient in the long run.

Productivity

To minimise costs and maximise output from a given level of productive inputs (i.e. achieve productive efficiency) firms must gain maximum **productivity**. Productivity focuses on the volume of output produced from a given amount of inputs, and should not be confused with production, which is the total amount of goods and services produced, regardless of how efficiently this was done. A firm's costs are inversely related to its productivity – improving productivity reduces costs.

Statistical measurement of productivity can be at two levels. It may involve all factors of production, referred to as *multifactor productivity* (MFP), which would be measured by using this formula:

$$\text{MFP} = \frac{\text{output}}{\text{all inputs}}$$

Otherwise it will focus on improvement in any one of the factors of production, referred to as *single factor productivity* (SFP). Output per worker per unit of time is an example of useful SFP data.

ECONOMICS IN ACTION



Worksheet
5.2 Productivity
data

Productivity data

Use the Internet to discover what productivity data is available to the public.

The Australian Bureau of Statistics (ABS) website provides a range of measures that are regularly updated. Other useful government sources include the Department of Industry, Science and Resources, the Productivity Commission and the Reserve Bank of Australia. By using a search engine, you will also find links to useful non-government sites.

Copy and complete the following table with your findings as to the productivity data you have found:

Source	Factor(s) of production measured	Unit of measurement	Usefulness

The second column will show whether single or multifactor productivity is being measured.

Base your decisions about usefulness on whether the information would be most relevant to decision makers in individual firms, at an industry level or at the level of the whole economy.

Specialisation

KEY IDEA

Specialisation is the use of the factors of production (land, labour, capital and enterprise) to perform narrowly defined, specific functions, to increase a firm's productivity and maximise output.

One of the main ways that firms can increase their productivity is to increase **specialisation** of the factors of production. This involves using land, labour, capital and enterprise in such a way that their roles in the production process are extremely narrow and clearly defined.

Specialisation of land

The specialisation of land or industry involves firms focusing on producing only a narrow range of goods or services, and firms and industries locating in areas where there are complementary businesses and opportunities to minimise production costs.

In urban areas, planning of land use has led to the zoning of land for specialised purposes. Areas are zoned for residential purposes, high-rise development, light industry and heavy industry.

The infrastructure needed to support specialised industrial production is developed in specific locations to support the localisation of industry. Firms and industries choose locations that will minimise their production costs. Key considerations are access to specialised labour, suppliers, raw materials, markets and infrastructure such as communications, transport and financial services.

ECONOMICS IN ACTION



Specialisation of land – Adani's Carmichael coal mine

Explore online news sources about Adani's Carmichael coal mine in Central Queensland.

Analyse the costs and benefits of the mine's approval using a t-table. **Evaluate** Adani's specialisation of land in achieving productive efficiency.

Specialisation of labour

The specialisation of labour, often referred to as 'division of labour', has been a feature of large-scale production since the Industrial Revolution. Rapid advances in technology in recent decades have progressively narrowed workers' roles. The complexity of modern production techniques requires that most individuals become experts at specific tasks to ensure maximum efficiency.

The assembly lines used to manufacture vehicles are prime examples of division of labour. Individual workers have specific tasks to complete as each vehicle body passes. Other clear examples of division of labour are found in the building industry, aircraft and ship manufacturing, and in large hospitals.

While division of labour has resulted in the productivity of each worker increasing significantly, numerous problems have arisen. Some of these are explored in Chapter 7.

SAM PANTHAKY/AFP/Getty Images



FIGURE 5.3 A motor vehicle assembly line

Specialisation of capital

Specialisation in terms of capital usage or large-scale production has developed concurrently with division of labour. Manufacturing firms, extractive industries and agricultural producers have exploited advances in technology to produce high volumes of output at the lowest costs possible. By using highly specialised equipment (capital) to replace costly labour and exploiting the benefits of economies of scale, producers have been able to significantly boost their productive efficiency.

The mining of iron ore and coal, and the large-scale farming of grains and pulses are good examples of highly specialised, capital-intensive production in Australia. Motor vehicles and their components are manufactured in huge volumes in Asia, Europe and the USA using production lines that combine the use of robots and computer-guided machinery with limited amounts of highly specialised labour.



iStock.com/Opla

FIGURE 5.4 Specialisation of capital

Specialisation of enterprise

The specialisation of enterprise is related to the other three types of specialisation examined above. Entrepreneurs today generally develop high levels of knowledge and skills in a narrow area of economic activity. Managers of entertainers or sporting stars, founders of technology start-up companies and craft brewers are all examples.



testing/Shutterstock.com



Tada Images/Shutterstock.com

FIGURE 5.5 The founders of Alibaba and Amazon are examples of entrepreneurs.

Specialisation allows firms to improve their productive efficiency by increasing their productivity. It:

- improves the performance of an economy by improving the efficiency of resource use
- directs the available skills of the community to their most productive uses, and
- allows goods and services to be produced at the lowest cost.

Technical efficiency

Technical efficiency is related to productive efficiency, but is a more narrow and specific concept. Technical efficiency is concerned with maximising the output possible from a given input (such as a particular machine) or a combination of inputs (such as labour and capital). Productive efficiency, on the other hand, is concerned with minimising all costs of producing using the best mix of inputs at the lowest point on the short-run average cost curve.

Economies of scale

KEY IDEA

There are both economies and diseconomies of scale associated with large-scale production.

In the long run, a firm can avoid the limitations of the law of diminishing marginal productivity by expanding its scale of production. As a firm or an industry grows, there are certain benefits to be gained, called **economies of scale**. Economies of scale result in lower costs per unit of output as total output increases.

Economies of scale are broken down into two types: internal and external.

Internal economies of scale

Internal economies of scale are those benefits that are derived by a firm as a result of an increase in the size of its own operations. As a firm grows, it can eliminate much of the wasted capacity that is often found in small-scale enterprises. It is also able to increase the degree of specialisation among its employees. These economies reduce the average costs of the firm in the medium to long term.

External economies of scale

External economies of scale are those benefits that accrue to all firms within an industry and to society as a result of the growth of an industry. For example, the growth of the mining industry throughout Australia has brought with it numerous external economies. Large mining companies have undertaken 'infrastructure' investment in order to achieve high levels of efficiency. This form of investment includes the establishment of shops and facilities, houses, roads, railways, dams and port facilities. While the companies that developed the infrastructure obviously gain from this form of investment, other businesses in the industry and society as a whole also benefit.

Diseconomies of scale

Economists also draw attention to the **diseconomies of scale** in relation to large-scale production. Internal diseconomies occur when the problems arising from increased output levels raise average production costs. With large-scale production, decision making can become fragmented and the communication process within a firm can deteriorate.

Many modern workers across the globe feel individually unimportant in their workplaces, and find their contribution to 'efficient production' is personally unrewarding. This 'de-humanisation' of workers has been apparent in large-scale assembly processes since at least the early 1900s.

Some external diseconomies create widespread social cost. Residents of many major cities in China have experienced dangerous levels of air pollution caused by some forms of large-scale production. The move towards large-scale production since the Industrial Revolution has correlated with resource depletion, loss of habitat and species diversity, rising global pollution levels and rapid global climate change. Whether causal links exist between these environmental challenges and large-scale production will be explored in Chapter 8.

CHECK FOR UNDERSTANDING 5.2

- 1 **Recall** 'economies of scale'.
- 2 **Explain** why the economies of scale attained by major manufacturers are not available to small producers.
- 3 **Recall** two specific examples of internal economies of scale and two external economies of scale.
- 4 Demonstrate your understanding of the law of diminishing marginal productivity by:
 - a **describing** an example from everyday life of this law in operation
 - b **explaining** how this demonstrates the principle of diminishing returns.
- 5 Select a local business with which you are familiar, and **identify** the economies of scale which that business enjoys. Can you **identify** any diseconomies of scale in its production process?

5.2.3 Allocative efficiency

Allocative efficiency is concerned with where the available productive resources of an economy are used. It occurs when resources are allocated to the production of the goods and services that people most want, in the quantities that provide the greatest consumer satisfaction. The market is thus delivering the socially optimal level of output. This means that there is no way that the benefits to consumers or producers can be increased.

Resources are allocated efficiently when the benefit an individual derives from the last item they consumed is just equal to the cost of producing that item:

$$\text{marginal utility} = \text{marginal cost}$$

Only perfectly competitive markets operate in a way that delivers allocative efficiency. To maximise their profits, producers in competitive markets are forced to price their output at the marginal cost of production, so they operate in a way that is consistent with the concept of allocative efficiency. The optimal distribution of resources and the output produced from them is achieved when the marginal cost and market price are at a level that consumers are willing to pay, because it is equivalent to the marginal utility that they gain (see Figures 5.6 and 5.7 on the following page).

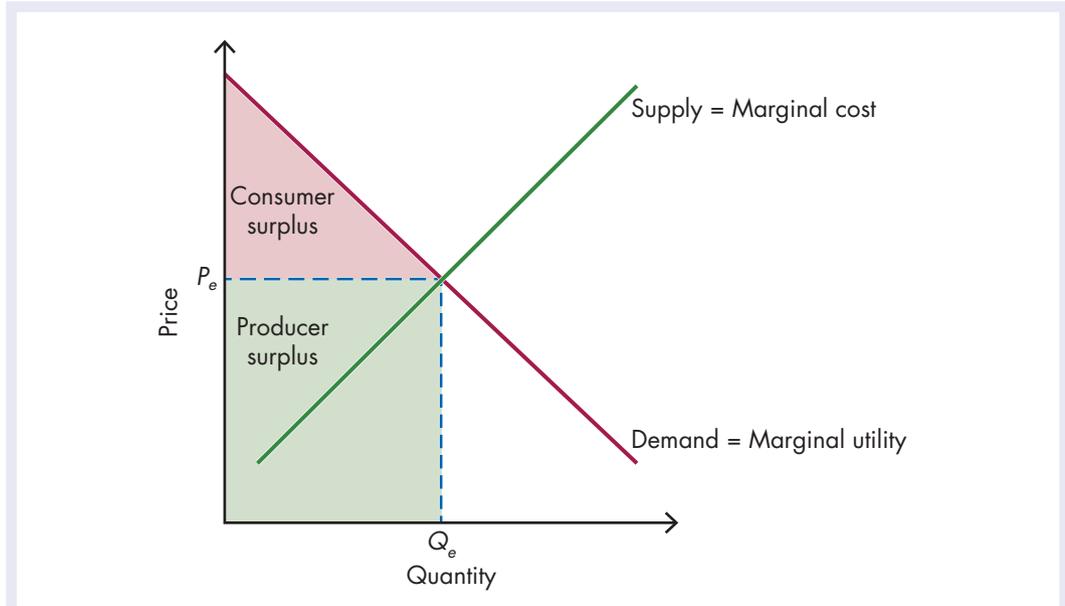


FIGURE 5.6 Pricing at marginal cost

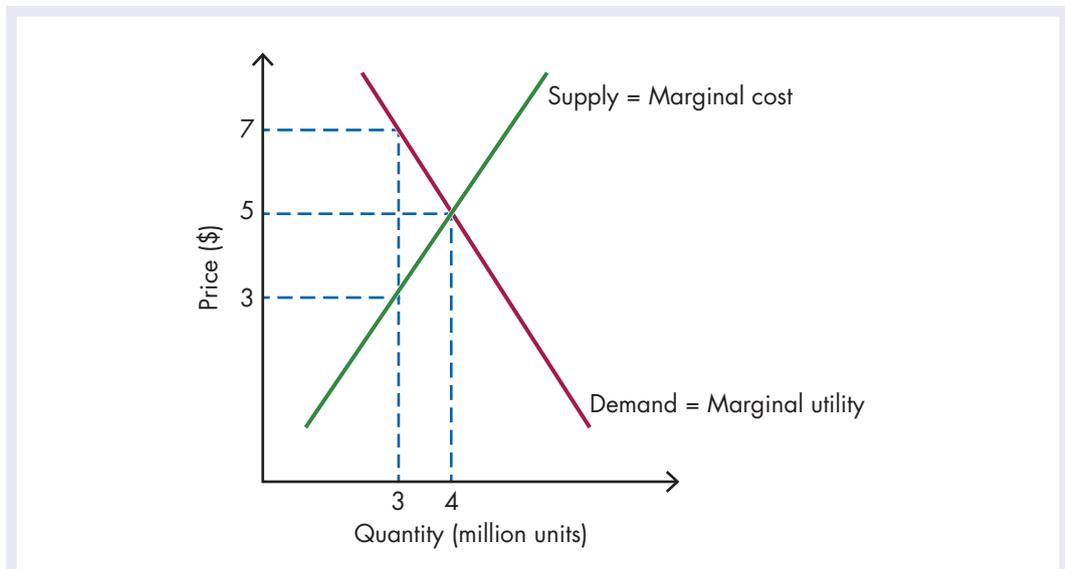


FIGURE 5.7 Allocative efficiency

Pricing at marginal cost implies that costs and benefits are valued at their opportunity costs. Outputs of production are valued according to the willingness of consumers to pay for them – an amount that includes the *consumer surplus*. This is the difference between the price actually paid (the equilibrium market price) and the amount the consumer would have been willing to pay for them, based on the marginal utility of that product to them. The *producer surplus* refers to the difference between the producer's costs of production (including a normal profit) and the (higher) market price that they are able to receive for their production. In the long run, a competitive market will produce Q_e and sell it at P_e , maximising the welfare gained by both consumers and producers.

Allocative efficiency is achieved when marginal benefit (utility) equals marginal cost, and price equals the marginal cost to firms of producing that output. There is no way that any change in the level of output can increase consumer or producer surplus, or welfare.

If the market produced three million units of this good, the marginal cost would be \$3 but consumers would be willing to pay up to \$7 for the good. This would be an inefficient allocation of resources because the marginal benefit to consumers is greater than the marginal cost to producers. Demand is greater than supply, so not all consumers will receive satisfaction. Resources are being under-allocated to this good.

If the price rose to \$5, then output would increase to four million units. Society would benefit from enjoying more of the good, and producers would increase their surplus and welfare. In this example, allocative efficiency occurs where marginal utility equals marginal cost – at an output of four million units.

ECONOMICS IN ACTION



Draw a demand and supply graph combining the key elements of Figures 5.6 and 5.7 to illustrate a situation of allocative *inefficiency* caused by marginal cost being greater than marginal benefit.

5.2.4 Dynamic efficiency

KEY IDEA

The technological change and innovation associated with dynamic efficiency are more likely to come from firms with a high degree of market dominance than from small firms in a perfectly competitive market.

Allocative and productive efficiency were the central concerns of classical economic theories from Adam Smith in the 1770s to John Maynard Keynes in the 1920s and 1930s. The explanations of these key efficiencies provided in this chapter draw on their models of perfectly competitive markets.

The concept of **dynamic efficiency** was given prominence by the writings of Joseph Schumpeter in the 1930s and 1940s. Schumpeter claimed that the models of perfectly competitive markets failed to describe many important aspects of how markets actually work. He saw the static nature of these models (i.e. their assumption that nearly all variables are constant) as their key weakness. Schumpeter saw technological change and progress as the key to understanding the dynamic way that real markets function.

Entrepreneurs were the drivers of new ideas, technologies and ways of producing. They were motivated by the large profits that could be gained by dominating the competition in existing markets or creating temporary monopolies in entirely new markets.

Dynamically efficient firms or economies develop new products and production processes using new ideas and technologies to meet, or even lead changes in, consumer preferences and tastes. The key to dynamic efficiency is *innovation*, not just new inventions. Innovation is the ability to put new ideas, inventions or approaches into action, and to commercially exploit them. Applying these new technologies and ways of organising production reduces production costs and therefore increases productive efficiency. Allocative efficiency will also improve because by developing new products or adapting existing products to changes in consumer preferences, firms are producing the goods and services that consumers value the most.

Classical economic theories assumed that markets dominated by a small number of producers would produce inefficient outcomes, because existing producers were protected from competition by the substantial barriers to new suppliers entering the market. Schumpeter disagreed, making the point that such highly protected firms are more likely to undertake risky and costly innovation, and generate dynamic efficiency. He saw the desire of entrepreneurs for dominance of a new market, and existing firms to dominate their competitors, as the driving forces behind innovation and economic progress. He saw the benefits to society as a secondary motivation.

There is some evidence that large firms with dominant market power – such as Alphabet, Microsoft, Apple and Nike – are global leaders in dynamic efficiency. They can afford expensive and uncertain investment in new technologies or products because they earn **super-normal profits** that can be ‘ploughed back’ into research and development, thus benefiting society in the long run. However, some major innovations have come from technology start-up companies such as PayPal, Facebook, Uber and Airbnb. These might be explained as examples of entrepreneurs seeking super-normal profits from dominance of a new market.

Firms in very competitive markets are unlikely to be dynamically efficient because the normal profits they generate do not allow significant investment in research and the development of new technologies. An additional barrier is the assumption that all firms in perfectly competitive markets have perfect knowledge of the other firms and consumers. If this were the case, then any innovation would be copied by all of their competitors, and its development would not create any lasting competitive gain for the firm.



da-kuk/Getty Images

FIGURE 5.8 Large firms can afford expensive and uncertain investment in new technologies, such as artificial intelligence.

5.2.5 Socially optimal level of output

Productive, allocative and dynamic efficiency are concerned with **optimal outcomes**. Allocative efficiency is achieved at a level of output where price equals marginal cost, so it signals the optimal level of output in the sense that it is the level of output that allocates resources to the production of goods that consumers most desire. If all firms in every market

were achieving allocative efficiency, then the economy would be operating in what economists refer to as **Pareto efficiency**. This is an optimal outcome in the sense that any change in the way goods are allocated to make one person better off would be at the cost of making another person worse off. However, this is a very narrow understanding of efficiency, as it does not consider whether it is socially desirable to distribute the economy's resources in this way. Such a distribution of resources may be unequal or inequitable, or may produce costs for the society that are externalised from the market.

Economists need to examine whether the most efficient firms and markets are producing the most socially desirable outcomes. It may be productively efficient to produce weapons, electricity from coal, or 'fast' foods, but are these efficient allocations of resources? A market that is maximising the output it generates may not be maximising social welfare.

Consider the following questions, some of which are addressed in Chapters 7–9:

- Are all of the new technologies being developed by the most dynamically efficient firms delivering environmentally optimal uses of the planet's resources?
- Are workers' levels of satisfaction, health and wellbeing being factored in to the costing of a dynamic, productively efficient new production process?
- To what extent is consumer demand for 'supersized' meals, greater social media access or the latest models of technological devices created by the product design, marketing and advertising of firms seeking to increase demand and profits?

All of this involves the idea of *social efficiency*. Social efficiency requires consideration of the private and external costs and benefits of producing in certain ways, producing certain types of goods, or producing an extra unit of any good or service.

Social efficiency is not a feature of existing Australian or global markets. Even markets that deliver an optimal level of productive and dynamic efficiency may produce suboptimal and socially undesirable outcomes.

CHECK FOR UNDERSTANDING 5.3

- 1 **Distinguish** between productive and technical efficiency.
- 2 **Distinguish** between allocative and productive efficiency.
- 3 **Explain** why economists say that allocative efficiency is achieved when marginal utility equals marginal cost.
- 4 What (statistical) measure would a business use to indicate each of the following?
 - a how productive its use of labour is
 - b how productive its use of capital is
- 5 **Explain** how emerging artificial intelligence (AI) might contribute to dynamic efficiency.

ECONOMICS CHALLENGE



Environmental economics

Create a research report analysing one current or past climate change policy of the Australian Government in comparison to that of another country. Present an evaluation of this policy and its effectiveness in addressing socially optimal levels of production and/or consumption.

5.3 Market structures

CONCEPTS



Competition: the pressure that market forces place on businesses to reduce prices and improve the quality of their products

Concentration ratio: the percentage of the total sales in a particular market or industry accounted for by the largest four firms in that market or industry

Market power: the ability to control and influence the market in one's own self-interest

Market structure: features of a market that determine the level of competition

Monopolistic competition: the market situation in which a large number of buyers and sellers are exchanging similar but not identical products

Monopoly: the market situation in which one seller sells a product for which there is no close substitute, allowing it to be the price setter

Natural monopoly: arises in a market in which the costs of production are minimised when one firm supplies the market

Oligopoly: the market situation in which a small number of firms are selling similar but not identical products

Perfect competition: a theoretical market structure in which many buyers and sellers trade a homogenous product, there are no barriers to entering the market and all producers are price takers

Product differentiation: when producers try to give a good or service some characteristics that make it seem different from essentially similar products of competitors, to lessen the degree of substitutability and increase brand loyalty

Regulated monopoly: where a government grants exclusive privilege to a private individual or firm to be the sole provider of a good or service

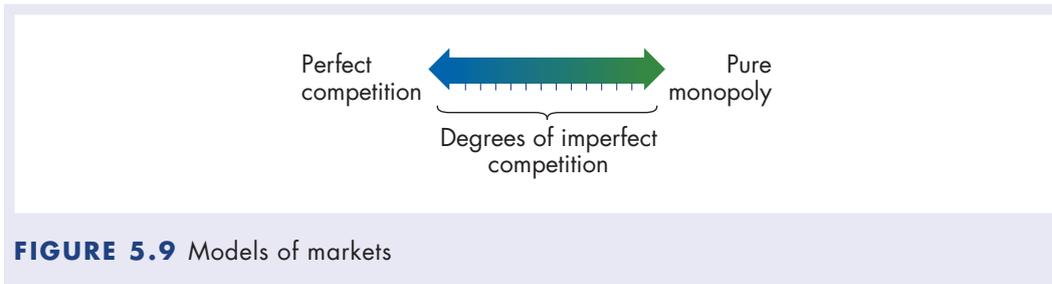
KEY IDEA

Markets are structured in a variety of ways between the extremes of perfect competition and pure monopoly. The size and market power of firms supplying a product influences the behaviour and performance of that market.

Markets vary from industry to industry, and the behaviour and performance of a market is greatly affected by the way that market is structured. Different structures develop for a variety of reasons. The history of each market's development, the nature of the industry and its production processes are key factors. The size of the market, the amount of **competition**, the extent of government regulation and technological innovation are also important.

Economists generally identify five major **market structures** and describe them on a continuum ranging from **perfect competition** to pure **monopoly**: see Figure 5.9.

Perfect (or pure) competition and pure monopoly are simplified, theoretical models that represent the extremes of market behaviour. Few contemporary markets can be described as even approaching perfect competition, and pure monopolies only exist in special situations, such as state-owned utilities. Despite this, economists still find them a useful starting point for analysing and evaluating the performance of real markets.



Perfect competition provides a model of what a market that provides optimal outcomes might look like.

5.3.1 Perfect competition

Adam Smith argued in *An Inquiry into the Nature and Causes of the Wealth of Nations* in 1776 that the best way to increase the wealth of the community, use resources efficiently and deliver consumer sovereignty was through a free market. He claimed that without government interference, the problems of production and distribution could be solved through the interaction of supply and demand in such a market. Since then, economic analysis of real markets has focused on their differences to this 'ideal' type of market.

Perfect competition is a market structure that is assumed to have the following characteristics:

- **A homogeneous product:** All items offered for market exchange by firms in an industry are identical. Products are perfect substitutes for each other.
- **Many buyers and many sellers:** There are so many buyers and sellers that none has the market power to influence the total amount produced or the market price.
- **Perfect knowledge:** Each buyer and seller is fully acquainted with all conditions within the market, including prices, levels of output and the quality of the product.
- **Perfect mobility:** No firm in the industry has any locational advantage over others. Factors of production are free to move throughout the industry.
- **Freedom of entry:** There are no restrictions on the movement of factors of production into or out of the industry.
- **Price equals marginal cost:** The product must be sold at the lowest possible price for firms to remain competitive within the industry.

In a perfectly competitive market, the good or service will be sold at market price; that is, the price determined by the interaction of market supply and demand. This market price is effectively the demand curve for each firm. It is perfectly elastic because all other competing firms produce perfect substitutes. This means that each firm has to sell at the market price, making them price takers. All firms will earn a normal profit.

ECONOMICS IN ACTION



Investigate a market to gain a basic understanding of how it operates. Visit a market if you are able to and observe its conduct in action, and/or use the websites for one of the organisations mentioned below:

- Brisbane Markets (for fresh produce markets)
- Melbourne's Queen Victoria Market
- a local farmers' or produce market
- a livestock auction
- the Sydney Fish Market.



Worksheet
5.3 Investigate
a market

Weblink
Australian
markets
research

Continued

Continued

Consider the following factors:

- the size of the firms operating in this market
- the number of sellers competing in this market
- differences between their products
- the number and nature of buyers
- how the price is being set; look for evidence of price competition, fixed prices, bargaining and/or seller who seems to set prices that others follow.

As you read about the three types of market structure described below – monopolistic competition, oligopoly and monopoly – **evaluate** their similarity to the market you have investigated. Decide which market classification would best describe the conduct of this market.

iStock.com/PurpleImages



FIGURE 5.10 The Sydney Fish Market

5.3.2 Monopolistic competition

While there are few examples of perfect competition, there are many markets in Australia and in other economies that match the characteristics of **monopolistic competition**. The market structure of monopolistic competition has similar features to perfect competition. The distinguishing characteristic of monopolistic competition is that firms offer a similar but not identical product for sale. Restaurants, convenience stores, coffee shops, hairdressers, newsagents, motor mechanics and many independently owned and operated retailers are examples of firms in monopolistic competition.

The following are characteristics of monopolistic competition:

- **A similar product:** Though there may be little or no real difference between the products offered by different firms, consumers believe that some features of the competing products, or their quality, are different.
- **A relatively large number of buyers and many sellers:** Firms are price takers because they have small market shares, leading to limited market power.
- **Good knowledge:** Participants have good but not perfect knowledge of the market.
- **Easy entry and exit to the market:** The costs of entering or leaving the market are limited because the capital required is relatively small.

In the pursuit of increased profits, market share and stability, firms seek some control over the market. They try to convince customers that their product is different or unique. The strategy of **product differentiation** seeks to give the firm **market power**. If the strategy is successful and customers perceive the product to be different, customers will continue to choose the firm's brand over that of a competitor. Once customers develop loyalty to the product, the firm may be able to raise its price without fear of losing its entire market share to a competitor.

The product differentiation strategy is a form of competition that is not based on price. Firms prefer not to compete on price. Price wars make doing business and profit planning difficult. They lead to dissatisfied customers when the war is won and prices are returned to the original levels. They are also an ineffective way of gaining long-term market share, as any firm can follow suit and cut prices.

A better way is adopting a strategy that competitors cannot match. Establishing a brand name is one such strategy. Imagine the competitive advantage that a firm has if it owns a brand name such as Ferrari, Nike, Coca-Cola or McDonald's. Most businesses of the scale that operate in monopolistic competition cannot hope to develop such well-recognised brand names, but there are a number of other ways they can differentiate their products to attract customers. These include better customer service (such as good after-sales service, personal contact, more locations, and courteous, timely service), building prestige through community involvement, providing guarantees, offering a variety of models and undertaking various promotions.



FIGURE 5.11 Ferrari, Nike, Coca-Cola and McDonald's are all examples of businesses that operate in monopolistic competition.

CHECK FOR UNDERSTANDING 5.4

- 1 **Distinguish** between monopolistic competition and perfect competition.
- 2 Why is advertising important in monopolistic competition?
- 3 **Describe** three forms of non-price competition and **explain** how they might increase a firm's market share.
- 4 What freedom does a firm in monopolistic competition have to increase its price? **Explain** your answer.

5.3.3 Oligopoly

Oligopoly is a less competitive market structure in which a few large firms dominate and make super-normal profits. Oligopolies are common in the markets of small- to medium-sized economies such as Australia, and an oligopolistic structure is evident in many key global markets.

The following are characteristics of an oligopoly:

- **Differentiated products:** Similar but not identical products are offered for sale.
- **A few sellers and a large number of buyers:** A few (about three to eight) relatively large firms dominate the market, and there may be market leaders.
- **Substantial knowledge:** Firms will often have a good understanding of the market and the competitive strengths and strategies of rivals, especially if there is collusion.
- **Interdependence of firms:** There is an incentive for firms to match the behaviour of their main competitors, rather than engage in costly competition. Rivals will match most technological breakthroughs and attempts at price competition, reducing the total revenue of all firms.
- **Substantial barriers to entry and exit:** Firms seeking to enter these markets face significant barriers to entry that include the high initial capital costs of establishing a firm of sufficient size to compete.

Global industries such as aircraft, cars, container ships, aluminium, steel, oil and gas, pharmaceuticals, and agricultural chemicals are dominated by a small number of very large firms. The global markets for computers, computer operating systems, software, smartphones and subscription television are also oligopolistic. In Australia, grocery and hardware retailing, mass media and news, movie theatres, take-home alcohol and petroleum retailing are markets dominated by large national brands. Banking, domestic air travel, food processing (including breakfast cereals, dairy products, canned food, biscuits, brewing, confectionery and soft drinks) and the production of chemical fertilisers are also oligopolistic.

A few firms dominate these industries, even though they may produce a variety of brands and many models of any one product. The extent of this domination is measured by the **concentration ratio**. A common measure of the concentration ratio is the percentage of the total output of a market or an industry that is provided by the four largest firms. In oligopolies, the four market leaders produce more than 50 per cent of output, but there are industries in which this exceeds 90 per cent. Australian examples include banking and supermarkets.

Price rigidity is a feature of an oligopolistic market. As with monopolistic competition, there is little incentive for firms in an oligopoly to compete on price to gain additional customers. Rivals would quickly match any price cut. An extensive price war among large firms that each have significant market power would be financially disastrous and would result in little or no gain in market share for any individual firm. A price rise from one firm would probably not be matched by competitors, leading to a loss of sales and market share.

Firms tend to set prices at the level set by the dominant firm, emphasising that the dominant firm is the price maker. Price leadership avoids damaging price competition. Short-term 'sales' or special prices on a limited range of items give an illusion of price competition.

Alternatively, as there are only three or four dominant firms, it is possible for oligopolists to come to an agreed position on fixing prices, market shares and regions. Such collusion among firms to reduce competition is, however, usually illegal.

Product differentiation and advertising play significant roles in the competition between oligopolists for market share. Marketing strategies include product placements in popular movies and television shows, and sponsorship of sporting events. Frequent releases of new 'models', new packaging, customer loyalty programs and extended warranties are all examples of differentiation.

Competition from new entrants is limited because entry to oligopolistic markets is difficult. Barriers include high initial capital costs, and difficulties in gaining access to specialised technologies, suitable locations, intellectual property rights and government approval. Lack of experience of the market, and prolonged and seemingly coordinated price cutting and major advertising spending by market-leading firms add to the difficulties faced by new firms trying to compete with established brand names.

5.3.4 Duopoly

Duopoly is a market structure where two firms dominate. The Latin prefix 'duo' means 'two'.

The following are characteristics of a duopoly:

- **Differentiated products:** Similar but not identical products are offered for sale.
- **Two sellers and a large number of buyers:** Two relatively large firms dominate the market.
- **Substantial knowledge:** Firms will often have a good understanding of the market and the competitive strengths and strategies of rivals, especially if there is collusion between the two firms.
- **Interdependence of firms:** There is an incentive for a firm to match the behaviour of its main competitor, rather than engage in costly competition. Rivals will match most technological breakthroughs and attempts at price competition, reducing the total revenue of both firms.
- **Substantial barriers to entry and exit:** Firms seeking to enter these markets face significant barriers to entry that include the high initial capital costs of establishing a firm of sufficient size to compete.

5.3.5 Monopoly

A monopoly is a market structure in which there is just one seller of a good or service; that is, the total supply of the market comes from a single producer. Monopolies can only exist if there are no close substitutes. A firm that holds a monopoly position has considerable market power. It can search out and set a price that the market will bear and that will maximise its profits.

As noted at 5.3, pure monopolies only exist in special situations, such as state-owned utilities. Monopolies are not a prominent feature of the contemporary Australian economy, but Australia Post, Queensland Rail and Queensland Urban Utilities (water supply and sewerage) are prominent government-owned examples.

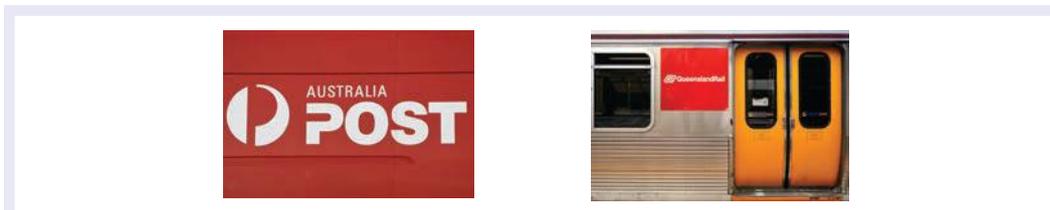


FIGURE 5.12 Australia Post and Queensland Rail are examples of monopolies in Australia.

The monopoly market structure has the following characteristics:

- **Only one seller of the product**
- **A product with no close substitutes**
- **Limited knowledge:** Much of the production and marketing information is not readily available, and it may be protected as being commercially sensitive.
- **The potential to earn super-normal profits:** This is because market power allows control of pricing or output.
- **Significant barriers to entry:** These include high initial capital costs, as well as the market knowledge of the monopolist and its ability to protect its market dominance by developing high levels of technical and dynamic efficiency. These barriers may be insurmountable in the case of government-regulated monopolies.

There are few examples of privately initiated monopolies, because their formation is usually illegal.

Interestingly, monopolies have arisen from government regulation or ownership. They have been established with the support of governments because it is considered that the public interest would be better served by having monopolies that are closely regulated.

Regulated monopolies

A **regulated monopoly** is where a government grants exclusive privilege to a private individual or firm to be the sole provider of a good or service. In recent years, governments have opened many previously regulated monopolies to competition, and encouraged competitors to enter the market. This has often been supported by regulatory change. Examples include the Australian telecommunications market and the supply of energy and water in some state and local markets.

Many formerly government-owned monopolies are now in private hands, including motorways and bridges, ports, airports, power stations and utilities.

ECONOMICS IN ACTION



You are the owner of the only cinema in a large country town. The nearest cinema is 300 kilometres away.

- 1 Is there any substitute for your product?
- 2 In an advertising program, what features of your product would you promote in order to differentiate it from possible substitutes?
- 3 How would you decide what price to charge for tickets? What factors would you take into account?
- 4 Would the demand curve for your product more closely resemble Figure 5.13a or 5.13b? Explain your answer.

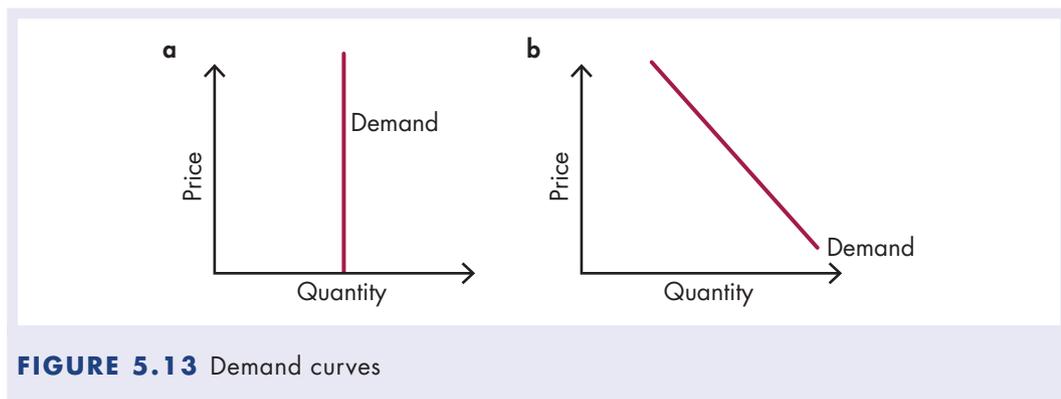


FIGURE 5.13 Demand curves

Natural monopolies

Natural monopolies occur in industries where large and indivisible capital investment is required to produce and deliver goods or services. Provision by more than one firm would usually mean costly duplication. The greater the number of customers that can be served by the one supplier, the lower the unit cost of production due to economies of scale. Therefore, the least costly means of meeting the market demand is through production by a single firm.

Natural monopolies can arise in industries providing railways, telecommunication, gas and oil pipelines, water supply, refuse collection, and electricity generation and supply. Governments have traditionally owned and controlled the enterprises in these industries, which are essential support industries to the rest of the economy. In more recent times, many government-owned monopolies have been sold, entirely or in part, to private interests. This is the process of *privatisation*.

ECONOMICS IN ACTION



Government regulation of natural monopolies

The Australian Competition and Consumer Commission (ACCC) is the national regulator of natural monopoly infrastructure services in the communications, postal services and rail industries. It also has specific regulatory roles in relation to bulk water and bulk wheat port facilities in Australia.

The equivalent to the ACCC in Europe is the European Commission, which received a great deal of media attention after it took action against global technology giant Google. The ABC reported in September 2022 that Europe's General Court largely confirmed the European Commission's decision that 'Google imposed unlawful restrictions on manufacturers of Android mobile devices and mobile network operators in order to consolidate the dominant position of its search engine'. The General Court imposed a fine on Google of €4.125 billion (<https://www.abc.net.au/news/2022-09-14/google-to-pay-billions-after-losing-challenge/101440674>).

Research this decision using news sources, and explain:

- 1 why the behaviour of Google runs counter to the interests of consumers and society, and
- 2 how the actions taken by the European Commission attempt to solve the problem.

A summary of features of the different market structures is given in Figure 5.14.

FIGURE 5.14 Comparison of market structures

Market situation	Firms	Firm's market share	Products	Entry	Access to relevant information	Demand curve	Advertising
Perfect competition	Many	Small	Homogeneous	Easy (no barriers)	Free		No
Monopolistic competition	Many	Small	Some differentiation	Relatively easy (some barriers)	Restricted		Yes
Oligopoly	Few	Large	Differentiated	Difficult (significant barriers)	Substantial		Yes
Duopoly	Two	Very large	Differentiated	Very difficult	Variable		Yes
Monopoly	One	All	No substitute	Very difficult (blocked)	Very limited		Yes

CHECK FOR UNDERSTANDING 5.5

- 1 Test your **recall**. Draw and label a continuum describing the five main types of market structure.
- 2 Where would you locate the following markets on the line you drew in question 1?
 - a apples
 - b new motor vehicles
 - c electricity
 - d petrol
 - e dental services
- 3 **Describe** how real-world markets differ from the characteristics of the model of perfect competition.
 - a Decide what is the (one) key characteristic that distinguishes the behaviour of firms in each of the five market structures.
 - b Summarise this behaviour in a short sentence.
- 4 Choose a good or service produced in your local area. Compare its market to the characteristics of the model of perfect competition. What type of market is in operation here?
- 5 **Distinguish** between monopoly and monopolistic competition.
- 6 **Describe** the incentive for firms to enter an oligopolistic market.
- 7 Do firms compete on both a price and product basis in an oligopoly? **Explain** your answer.
- 8 **Explain** why it is so difficult for a new firm to enter an oligopoly.
- 9 Which firm, if any, is a monopoly in the three scenarios below? Discuss.
 - a Dairy World is the sole producer of ice cream products in Brisbane.
 - b Utopia is the sole producer of ice cream products in Australia.
 - c Good Food is the sole producer of the brand Goodhealth's ice cream products in Australia.
- 10 **Recall** three examples of monopolies you consider 'natural'.
- 11 Normal profit is regarded as a cost of production because it is the return to entrepreneurs for the risks they are taking. **Explain** why oligopolists and monopolists earn an extra (pure) profit that is called 'super-normal' by economists?
- 12 Should the government own and run the following? Discuss in small groups.
 - a water supply
 - b schools
 - c banks
 - d roads

5.4 Which market structure delivers the best outcomes?

KEY IDEA

Greater levels of competition may generally deliver high levels of consumer sovereignty and satisfaction, but the productive and dynamic efficiency of some firms with high levels of market power (and limited competition) and their ability to exploit economies of scale allow them to achieve high levels of efficiency and consumer satisfaction.

Orthodox economic theories, built on the ideas of Adam Smith, hold that the closer a market is to the model of perfect competition, the better the outcomes. Yet many Australian and global markets are oligopolies and some remain monopolies.

The extent of competition in a market often affects the level of economic welfare that one gains from an exchange. For example, if you, as the buyer, had the opportunity to deal with a number of sellers who were competing against each other for your business in the market, you would feel confident that you would be able to get a good deal. You would be confident that you would be able to purchase a quality product at an acceptable price.

Orthodox economic theories hold that competition is an essential ingredient of the effective operation of a market economy. Perfectly competitive markets deliver the greatest efficiency and the greatest consumer satisfaction. So the closer a market is to the model of perfect competition, the better the outcomes.

- Competition promotes efficiency and keeps prices down.
- Competition encourages producers to be innovative. In order to attract customers to their brands and to increase their share of the market, producers are motivated to develop new products, improve the quality of existing products and provide a greater array of product features.
- Competition in markets provides direct benefits to consumers.
- Competition in markets for raw materials and factors of production benefit producers (which, in turn, means that consumers can also benefit).
- Competition helps ensure that quality supplies are delivered on time and at the lowest price.
- Competition in the labour market ensures that wages reflect worker productivity and that services provided by professionals – such as lawyers, financiers and accountants – represent value for money.
- Competition ensures that capital is invested to give the greatest profit return.

As a result of competition, producers, consumers and owners of factors of production benefit; and, for the nation as a whole, there are higher levels of economic activity, increased national income and improved living standards.

Unfortunately, the assumptions on which all of this is based do not match the actual conditions found in many real-world markets. Not all markets are highly competitive, and some of the limitations this places on market outcomes have already been explored at 5.3. There is a degree of government interference in the price mechanism of many markets.

These departures from the model of a perfectly competitive market affect the performance of those markets and their ability to deliver a socially optimal outcome.

Government intervention is aimed at either improving the conduct of a market or improving the outcomes it delivers. Not all markets operating towards the monopoly end of the market structures spectrum produce suboptimal outcomes for their consumers and the

economy. The quality of outcomes delivered by markets of similar structure but in different industries or nations may be quite different, because firms in oligopoly and monopoly can behave in a range of ways. They may collude or actively compete with other firms to protect their market domination.

While it is not possible to claim that any particular market structure delivers the best outcomes, higher levels of competition are generally considered to produce greater benefits than costs, but small firms in highly competitive markets cannot produce all of the types of goods wanted by Australian society. The small size of the Australian market for many types of goods limits the number of firms that can profitably produce them.

5.5 Market failure

CONCEPTS



Asymmetric information: the situation where one party to an economic transaction has more or better knowledge than the other party; consumers are less informed than suppliers in almost all economic transactions

Common property goods: goods or resources for which there are no clearly defined property rights, so no price can be attached to their use (e.g. the ocean, the atmosphere, the wilderness and space)

Deadweight welfare loss: the cost to society created by market inefficiency

Demerit goods: private goods with negative externalities

Externalities: indirect costs and benefits associated with the production and consumption of certain goods and services that the market fails to take into account

Factor mobility: the ability of factors of production to move, usually to an

industry or location where they can operate at a higher level of economic efficiency

Market failure: the inability of the market to determine the use and allocation of resources in the way society most desires, because certain conditions are lacking; for example, limited market power, externalities and public goods

Merit goods: goods or services that are not produced in sufficient quantities by markets because individuals do not value them highly enough to pay for them; private goods with positive externalities

Public goods: goods or services provided by the government sector for societal use and benefit, usually in response to a market unable to supply those goods or services at a reasonable cost

Tragedy of the commons: the overuse or destruction of a common property good because it has no price and so markets do not ration its consumption

KEY IDEA

There are a number of situations where the price mechanism is not able to deliver the socially optimal allocation of resources. The reasons why markets do not always work efficiently and effectively is due to market failure. Market failure can be categorised as partial or complete.

There is some level of government intervention in the free functioning of the price mechanism in every economy in the world. The main justification for this is **market failure**. Interventions are generally attempts to increase the social benefits resulting from the market system by either:

- improving the efficiency of the market
- influencing the nature or price of the goods and services available to consumers, or
- responding to fluctuations in the level of economic growth.

Government intervention may also contribute to market failure.

5.5.1 Partial market failure

KEY IDEA

Markets for many goods and services develop, but fail to deliver the best outcomes, leading to partial market failure.

Partial market failure occurs when private firms partially provide a good or service, but at the wrong price or quantity. Some markets do not allocate resources efficiently, while others distribute output and income in ways that leave numerous members of the community unsatisfied. Many markets fail to produce the desired quantity, type or quality of output, or to do so at the 'right' price. A number of the benefits of competition are lost in markets where monopoly power develops and abuses of it emerge. Some markets fail to maximise community welfare due to structural weaknesses. Instability, especially due to fluctuations in the business cycle, is a feature of all markets.

The following are examples of partial market failure.

Negative externalities

The production or use of many goods and services indirectly causes harmful effects to people who may not be consumers of the good or service. Examples include the pollution involved in generating electricity, the noise from a major sporting or music venue, and the extra traffic congestion resulting from each new car on the road. Negative **externalities** occur when products are sold at prices that do not include the full social cost of their production and consumption. The private cost (purchase price) is less than the social cost because the social cost was externalised from the operation of the price mechanism. The market mechanism fails to compensate the third parties who experience these negative impacts.



FIGURE 5.15 Pollution from generating electricity

iStock.com/AerialPerspective Works

Figure 5.16 illustrates this situation. This graph shows the effect of consuming a good that causes a harmful effect to a third party. In a free market, buyers ignore the social cost to others and demand Q_1 of output. The market mechanism is failing as there is over-consumption, resulting in a loss of welfare to third parties who do not consume the product, but suffer the effects of the negative externalities. The social cost of this level of consumption is greater than the social benefit. This creates a **deadweight welfare loss**, indicated by the shaded area. A socially efficient level of output would be at Q_2 where social benefit equals social cost.

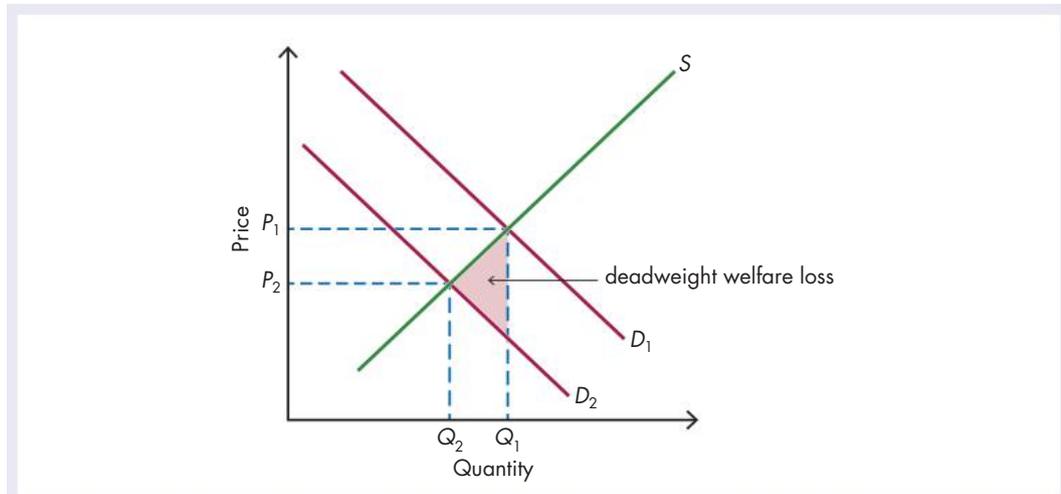


FIGURE 5.16 Negative externalities of over-consumption

In a free market, buyers ignore the social cost to others and buy the product at the private cost (P_1) rather than pay the higher social price (P_2). The market equilibrium (where demand equals supply) is at an output of Q_1 . The market fails to efficiently allocate the resources used to produce this product because at an output of Q_1 , the social cost of production is greater than the social benefit. There is over-production (and over-consumption), producing a deadweight welfare loss, indicated by the shaded area. If the market included the full social cost of production and consumption, then the equilibrium price would be P_2 (the social price) and output would be at Q_2 . There would be no market failure as social cost equals social benefit at Q_2 . See Figure 5.17.

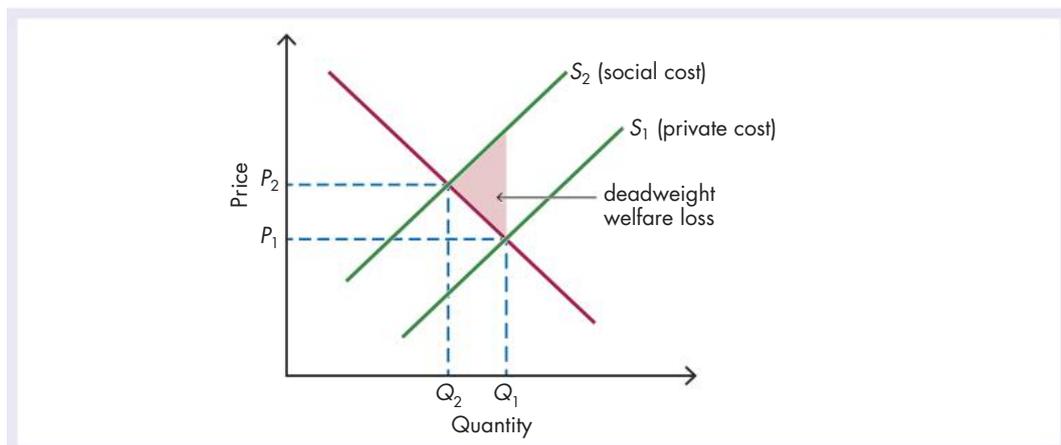


FIGURE 5.17 Negative externalities of over-production

Tragedy of the commons

Governments are pressured to intervene in markets to help address problems resulting from the negative externalities created by the inefficient allocation of **common property goods**, such as environmental resources. These include resource depletion, loss of biodiversity, pollution and enhanced climate change. The ownership of, or property right to, environmental resources is poorly defined, leading to their overuse or degradation. These goods are commonly owned by the community, rather than privately owned. As a result they have no market price to signal their scarcity, so the price mechanism cannot effectively ration their consumption.

Government intervention may take the form of taxes on the use of resources, or regulations – supported by financial penalties – for environmental damage created as a by-product of production. This is adding the ‘user pays’ principle to the market pricing of environmental inputs and effects. Alternative approaches include subsidies, tax concessions and bans on the use of environmental resources.



E.J. Jimenez/Moment/Getty Images

FIGURE 5.18 Australia’s Great Barrier Reef illustrates the tragedy of the commons.

The pollution of the waters surrounding Australia’s Great Barrier Reef provides a useful illustration of the **tragedy of the commons** and the effects it can have. An unintended consequence of intensive agriculture, especially sugar cane farming, is that nutrient-rich soil, herbicides and pesticides wash down the rivers of North Queensland. This pollutes the waters that the reef grows in and is one of the major factors contributing to the degradation of its ecosystems. Damage to areas of the reef, and reduction in the population of marine species it supports, has a negative effect on production in a number of industries. If fishermen and women, tourist operators or recreational users had property rights to this natural wonder of the world, then they could (theoretically) sue the sugar cane farmers for the costs that have been passed on to them. If such private property rights existed, then these externalised costs of producing sugar would be included in the cost curves of farmers, and this would either result in higher costs (and presumably lower output) or a change to farming methods or land use.

This tragedy of the commons and the problems that flow from it are addressed in detail in Chapter 8.

Factor immobility

Production is based on specialisation in advanced economies such as Australia, Germany, the USA, Japan and China. Specialisation (discussed at 5.2) enables available skills to be used to full advantage and helps ensure that productive resources are allocated as efficiently as possible. Increased specialisation leads to greater productive efficiency and provides a greater volume of output from a nation’s production process.

Modern economic organisation therefore requires a certain degree of **factor mobility**, whereby capital or labour may be moved from one industry to another, or shifted to a more productive geographical location. For example, if a mine becomes unprofitable to operate, it is usually closed down and the capital equipment is either sold or moved to an alternative location. On an international scale, capital is highly mobile, with large multinational companies shifting investment funds and production facilities from one country to another in an effort to maximise profits. In addition, workers are often prepared to move interstate or even overseas to improve their pay and conditions, do more rewarding work or enhance their career prospects. Natural resources are transported vast distances to where they can be used to generate the greatest profits.

Factor immobility is when a factor of production cannot move to another industry or location. There are occupational and geographical reasons for factor immobility. With regard to labour, workers find that there is no demand for their skills as the nature of production changes. Many manufacturing workers have been made redundant as production has been shifted to cheaper overseas locations or their jobs have been replaced by automation. Their specialised skills may not be employable in industries that are growing in Australia, especially in the rapidly expanding services sector. This structural unemployment wastes scarce human resources and therefore represents market failure.



FIGURE 5.19 Factor immobility

There is a range of reasons for a lack of geographical mobility of labour. People may be unable to move to another area to find work because of the costs involved in selling their home and moving their belongings. Housing or the cost of living may be unaffordable in areas where employment is available. Others may be unwilling to move away from their family and friends. Immigration restrictions, and cultural and language barriers prevent the free movement of workers between countries.

With regard to capital, while capital inputs such as buildings, information technology systems and even machines can be adapted for use in different industries, others are less mobile. Coal-fired power stations, specialised mining equipment and railway infrastructure may only be efficiently employed in the industry they were designed for.

Any occupational or geographical restriction on the free movement of the factors of production reduces allocative and productive efficiency and can cause unemployment.

Information failure

Markets may not provide enough information for consumers to make perfectly informed choices. Economists refer to this as the problem of **asymmetric information**. It is not in the interests of producers to fully inform consumers of the costs and actual benefits they will derive from consumption of a particular good or service. Producers are in business to maximise the profits earned from production, not to educate the consumer or look after their health and the sustainability of natural systems.

You are already familiar with how information failure causes **merit goods** to be under-produced and **public goods** to be unable to attract private suppliers: see Chapter 3 at 3.1. Markets also over-produce many goods that lack merit or have less merit than consumers believe. Examples of **demerit goods** include unhealthy foods, alcohol, tobacco products and many other drugs. The merits of some disposable plastic packaging and shopping bags, agricultural chemicals, biological weapons, nuclear power stations and land mines are also debatable.

Asymmetric information is a major cause of market failure.

Positive externalities

Many goods and services that are beneficial, or judged by governments to be socially desirable, will not be produced by privately owned and profit-seeking firms without government incentives.

Merit goods and services are under-produced by markets because individuals do not value them highly enough to pay for them or because private firms cannot achieve normal profits from producing them. Examples include public hospitals and schools, housing for low-income earners, sewage and waste removal, symphony orchestras, ballet companies, art galleries, libraries and museums. These goods and services are produced either by governments or by private firms receiving government subsidies. Governments assist their production because they have merit – that is, they generate positive externalities for those members of the community who consume them – or benefits to third parties. For example, child immunisation provides future protection against diseases for each child immunised, but it also reduces the chance of major outbreaks of contagious diseases in the community, therefore benefiting people who have never been immunised. With regard to private education, markets develop to provide limited quantities to those consumers who can afford its cost, but public education is provided because of the importance to the society and economy of universal education, and to reduce the social cost of inequality in income distribution.



Billion Photos/Shutterstock.com

FIGURE 5.20 Child immunisation benefits not only the child but also people in the community who have never been immunised.

Figure 5.21 illustrates the failure of markets to produce sufficient quantities of goods such as education, health care or other merit goods. The market produces only the level of these goods that consumers are willing to pay for (Q_1). This level of demand equals the marginal private benefit gained by consumers. There may be social benefits gained by production (and consumption) of more childhood immunisations, further education or more frequent health checks by doctors. Q_2 represents this optimal level of production – the most efficient allocation of resources, delivering the greatest social benefit. Without government intervention, the market will produce at Q_1 , leaving this potential welfare gain ‘on the table’.

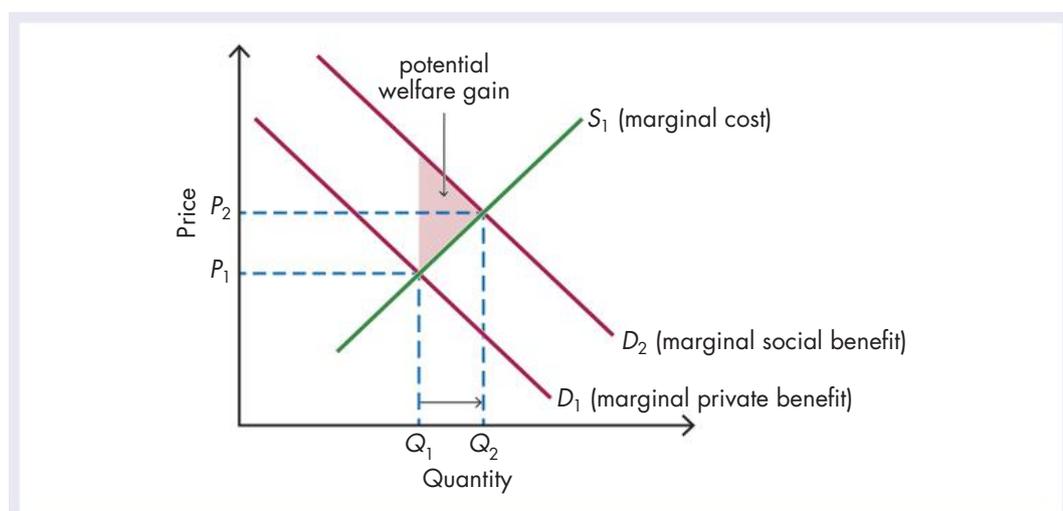


FIGURE 5.21 Positive externalities

Inequality

Markets distribute income and goods and services unequally, raising concerns about equity (fairness). A freely operating price mechanism distributes the outputs of production to those who can afford to purchase them at market prices. The distribution of the income this generates is determined on the basis of marginal costs and the relative marginal productivities of land, labour, capital and enterprise. The effectiveness of competitive markets is determined by their efficiency rather than the equity of the market's distribution of products and factor incomes. Self-interest is the ideological basis of capitalism and the motivating force in market economies. It is not in the nature of markets to consider issues of equality.

Market concentration

Many markets have developed oligopolistic or monopolistic structures. This concentration of market power reduces the level of effective competition between firms and often leads to abuses of that power. This can result in markets failing to deliver efficiency and consumer sovereignty, leading to a reduction in community welfare.

Market instability

Global, national and regional markets are essentially unstable. The level of economic activity is constantly changing.

The business cycle describes the fluctuation in the level of aggregate demand and supply, and the rate of economic growth. In peaks or booms, the prices of inputs and products become relatively high, disadvantaging some producers and consumers whose incomes do not inflate at the same rate as prices. In periods of low economic activity, especially in recessions, unemployment rises and some businesses fail. People may be unable to meet their financial commitments, resulting in rising levels of bankruptcy or the loss of houses and farms. The standard of living of many people fluctuates during peaks and troughs in the business cycle.

5.5.2 Complete market failure

KEY IDEA

Complete market failure occurs when a market does not form. This leaves an unmet desire in the society for a particular good or service because there is no supply of it.

Complete market failure occurs when no resources are used to produce something that benefits society, such as public goods, resulting in no such products being made.

Public goods are not produced by markets because by their nature they are *non-excludable* and *non-rival*.

- **Non-excludable:** Private producers cannot limit usage to those consumers who are able and willing to pay for use of the product. This free riding occurs because there is no clearly defined property right or ownership of public goods. How would a firm exclude non-buyers from using ocean beaches or rivers?
- **Non-rival:** Consumption does not reduce the quantity of the good available for others to consume.

Policing, national defence, border control and quarantine are examples of public goods. Governments need to be involved to ensure the production and maintenance of public goods. They must also manage them to prevent overuse because this would reduce the social benefit or positive externality that people gain from consumption.

CHECK FOR UNDERSTANDING 5.6

- 1 **Classify** each of the following as a public good or a merit good:
 - a highways
 - b national parks
 - c search and rescue helicopters
 - d clean air.
- 2 **Recall** three things you consider merit goods. Do not include any already mentioned in this chapter.
- 3 **Recall** five important environmental resources that are inefficiently allocated due to negative externalities.
- 4 **Explain** the meaning and significance of the word 'commons' in the term 'tragedy of the commons'.
- 5 Can you **describe** free riders, other than sugar cane farmers, on the environmental resources provided by the Great Barrier Reef?

R 5.1 Terminology

Select the correct term from the list below that describes each statement.

- | | |
|------------------------------|-----------------------------------|
| A marginal cost | F merit goods |
| B optimal outcome | G public goods |
| C physical market | H demerit goods |
| D perfect competition | I oligopoly |
| E efficiency | J monopolistic competition |

- 1 using the least amount of resources to produce the goods and services that people value the most
- 2 a place where buyers and sellers actually meet to exchange goods and services
- 3 the best or most favourable outcome under a particular set of circumstances
- 4 the addition to total cost that occurs when one more unit of output is produced and sold
- 5 a theoretical market structure in which many buyers and sellers trade a homogenous product, there are no barriers to entering the market and all producers are price takers
- 6 the market situation in which a large number of buyers and sellers are exchanging similar but not identical products
- 7 the market situation in which a small number of firms are selling similar but not identical products
- 8 goods and services provided by the government sector for societal use and benefit
- 9 goods or services that are not produced in sufficient quantities by markets because individuals do not value them highly enough to pay for them
- 10 private goods with negative externalities

R 5.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 Markets operating efficiently will produce:
 - A** the most efficient solutions to the economic problem.
 - B** efficiency in the production sector.
 - C** efficiency in the financial sector.
 - D** products that provide consumer sovereignty.
- 2 'When the allocation of resources is optimal; one person cannot be made better off without making another person worse off' is a definition of:
 - A** productive efficiency.
 - B** Pareto efficiency.
 - C** specialisation.
 - D** efficiency.

- 3 The term used to describe a country's resources being used in the most productive combinations, which maximise the benefits to the consumer and the society, is:
- A productive efficiency.
 - B technical efficiency.
 - C dynamic efficiency.
 - D allocative efficiency.
- 4 A business that is minimising its production costs is achieving:
- A productive efficiency.
 - B technical efficiency.
 - C dynamic efficiency.
 - D allocative efficiency.
 - E all of the above.
- 5 Allocative efficiency is achieved when:
- A marginal revenue = marginal cost.
 - B average revenue = marginal cost.
 - C marginal utility = marginal cost.
 - D average cost = marginal cost.
- 6 A market in which many producers sell a homogenous product to many buyers at a price determined by the price mechanism is an example of:
- A perfect competition.
 - B monopolistic competition.
 - C oligopoly.
 - D monopoly.
- 7 Restaurants, coffee shops and hairdressers are examples of which type of market structure?
- A perfect competition
 - B monopolistic competition
 - C oligopoly
 - D monopoly
- 8 The best description of the level of market concentration in the Australian banking industry is:
- A perfect competition.
 - B monopolistic competition.
 - C oligopoly.
 - D monopoly.
- 9 A private good with positive externalities is:
- A a public good.
 - B a merit good.
 - C a demerit good.
 - D a common property good.

- 10 The ocean, the atmosphere and space are examples of:
- A public goods.
 - B merit goods.
 - C demerit goods.
 - D common property goods.
- 11 Moving productive inputs to an industry or location where they can operate at a higher level of economic efficiency is an example of:
- A a diseconomy of scale.
 - B an external economy of scale.
 - C an internal economy of scale.
 - D factor mobility.
- 12 Complete market failure is usually associated with:
- A public goods.
 - B merit goods.
 - C private goods.
 - D demerit goods.

R 5.3 Short response questions

- 1 **Recall** five advantages for consumers of buying a product online in a virtual market, rather than from a physical shop. State which advantage is the most important to you and briefly **explain** why.
- 2 Using an example such as the market for smartphones, laptop computers or cars, contrast the nature and operation of markets for final consumer goods and intermediate goods.
- 3 After reviewing Figures 5.6 and 5.7, **explain** why the consumer and producer surplus cannot be increased by producing more in a market that is allocating resources efficiently.
- 4 **Explain** what product differentiation is and why it is used by firms in markets that have limited competition.
- 5 **Explain** why firms in competitive markets are price takers rather than price setters. Contrast this with the situation in a monopoly.
- 6 **Explain** how the excesses of boom and bust cycles in economic growth result in inefficient market outcomes. **Analyse** Australia's GDP over the period 2007 to 2010, identifying the cycles of economic growth.

R 5.4 Inquiry topics

- 1 How can market failure create opportunities for innovation and business?
- 2 Source a current breakdown of the market share of the Australian grocery industry. **Analyse** the data and **evaluate** the market structure of the industry. Hint: base your decision on the degree of market concentration and the nature of competition between the leading firms in the industry.
- 3 Select a market-leading company in a major global market for consumer goods, such as mobile phones, sporting footwear, household appliances or electronic games. To what extent are the new products offered by this company in recent years an example of product differentiation, rather than dynamic efficiency?

Economics in Action worksheets:

- 5.1 Production possibility graph
- 5.2 Productivity data
- 5.3 Investigate a market

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





Russell Kord/Alamy Stock Photo

6

Market modification

This chapter examines the methods available for the government to modify markets and correct market failure, and to help achieve socially desirable outcomes for its citizens.

Focus questions and inquiries

- Why and how do some markets change and modify over time?
- Can and should some markets be modified to correct market failures or reduce their social costs?
- Why is increased competition the key to a successful market economy?
- Can positive and negative externalities be managed through the modification of markets?
- How does the government seek to modify and regulate markets? Why is this necessary?

This chapter will examine:

- the modification of markets to correct market failure
- government measures and strategies
- industry factors that modify markets
- limitations and unintended consequences of attempts to correct market failure.

6.1 Why the need to modify markets?

CONCEPTS



Deregulation: a process of removing a set of government laws and rules imposed on a market

Externalities: indirect costs and benefits associated with the production and consumption of certain goods and services that the market fails to take into account

Full employment: situation where everyone who wants a job, has a job; there will always be some level of unemployment

Market failure: the inability of the market to determine the use and allocation of resources in the way society most desires, because certain conditions are lacking; for example, market power, externalities and public goods

Market sharing: where the market is divided between firms that agree not to compete in each other's areas

Monopoly: the market situation in which one seller sells a product for which there is no close substitute, allowing it to be the price setter

Private goods: goods or services provided by the business sector for use and consumption by individual consumers, usually for personal benefit and utility

Public goods: goods or services provided by the government sector for societal use and benefit, usually in response to a market unable to supply those goods or services at a reasonable cost

Regulation: a process of imposing a set of government laws and rules on a market

Resale price maintenance: where a supplier specifies a minimum price to a reseller, below which goods and services cannot be resold or advertised

KEY IDEA

The government may seek to regulate economic activity by intervening in the operation of the price mechanism and the circular flow.

As noted in Chapter 5, at the heart of the economic theory of markets is the supposition that the consumer is sovereign. Consumers' decisions about how to spend money ultimately determine what goods and services will be produced and, therefore, how production will be distributed. Each dollar spent in the market represents a decision by a consumer. This delivers a clear message to the production sector to produce more of one particular product over an alternative. In this purely competitive free market model, the consumer has complete control over the economic choices of society.

However, as we know, the real world does not work exactly like a model, or in exactly the way Adam Smith (considered the father of economics) described in *The Wealth of Nations* in 1776. He suggested that everyone in society would be better off if the government did not impose any controls on the economy. Personal incentive and the profit motive would automatically guide everyone as though 'by an invisible hand'. Over time, society would make economic choices automatically through the price mechanism, in response to people's demands. But there is something called 'intervention'. Intervention in the price mechanism operates through government measures and the actions of producers. Intervention strategies seek to modify the market in an effort to reduce the chances of **market failure** and achieve positive, socially desirable outcomes.

It is important to note that consumer choices are influenced by producers who send signals to the market through advertising, guarantees, packaging and other types of non-price competition. As you study markets, you will realise that consumer choice is greater in situations where there is a lot of price competition. Conversely, in a situation in which control over the production of a commodity is concentrated in the hands of a few producers, then a higher degree of market or monopoly power exists, which limits consumer sovereignty and choice. As you will read in the next chapter (on market concentration), some producers may attempt to lessen competition by engaging in restrictive trade practices; that is, arrangements or agreements between producers that reduce effective competition. Some examples include **market sharing** (where the market is divided between firms that agree not to compete in each other's areas) and **resale price maintenance** (where the price at which the retailer must sell is set by the supplier).

Consumer choices will also be influenced by the government, which may:

- redistribute income through taxation, social welfare payments and wages policy
- impose taxes on certain commodities
- apply restrictions to advertising
- introduce legislation in relation to how markets will operate
- selectively assist producers of some commodities while restricting others.

Likewise, it is important to recognise how the government provides some essential services itself, rather than relying on the market to supply them; and how taxes and tariffs raise prices while subsidies lower them.

The societal goal for markets is to have them work efficiently and effectively to achieve not just the optimal allocation of resources, but also socially desirable outcomes. In this chapter, we will examine why and how markets are modified, and review some examples of how particular government policies seek to intervene in and modify some key markets.

6.1.1 Correcting market failure

KEY IDEA

The government may seek to reduce the likelihood of market failure and achieve socially desirable outcomes for society by either regulating or deregulating a market.

As noted in Chapter 5, sometimes the free market fails to allocate resources with optimal efficiency. This is due to the existence of external or indirect costs and benefits known as **externalities**. The challenge for governments (and society in general) is deciding whether to:

- live with the consequences of market failure, or
- make a conscious choice to intervene in the market to achieve improved social outcomes.

Consider **private goods** such as alcohol, cigarettes and poker machines, which are all legally available in our community. The production sector that produces these products seeks to maximise its profits by increasing their consumption. However, as a society, we recognise that if individual households over-consume such products, then there will be negative social costs that affect the broader community. Imagine the extreme impact on our society if there were no age restriction on the consumption of the aforementioned products, and children were permitted to consume alcohol, smoke cigarettes and gamble on poker machines. Accordingly, governments will turn to a process of **regulation** as a means of imposing a set of government laws and rules on a market to reduce negative externalities.

Governments will also seek to modify a market to increase positive externalities. In some markets, firms are unable to provide socially desirable goods at a reasonable price. Consider the high-cost examples of health care and education. Firms operating in these

markets require significant profit to compensate for the high capital costs in providing the infrastructure to support their services. Accordingly, if health care and education were left entirely to free market forces, the result would be that significant sections of the population would be unable to afford and access these services. Imagine the long-term implications for economic growth if large proportions of the population cannot access adequate health care and education. So, in response, governments provide **public goods**.

Examples include hospitals, schools, universities, parks, ports and infrastructure such as water, sewerage and transport networks. These goods are funded largely by a government’s taxation system and, in some cases, by ongoing direct access charges to the community who use the public goods. In some instances, the government may be the only provider of a good or service, thus creating a **monopoly** that would then limit the opportunity for the business sector to effectively compete in a market. This sort of monopoly is largely accepted by society due to the improved social outcomes that generally flow from universal access to public goods at a reasonable cost. However, there are instances where a policy of **deregulation** is adopted by a government that is seeking to open up a market to greater competition and thereby reduce the prospect of market failure.

Australian government policy since the 1980s has been one of deregulation. Industries that have been subject to deregulation to help achieve optimal efficiency include the banking, airline, telecommunications, media, and electricity, gas and water industries. Today, regulatory proposals that seek to restrict competition need to be justified by demonstrating that they are in the public interest and will lead to an increase in socially desirable outcomes.

FIGURE 6.1 A summary of the differences between private goods and public goods

Private goods	Public goods
<p>Rivalrous Meaning the good or service provides satisfaction to one person only</p>	<p>Non-rivalrous Meaning the good or service provides satisfaction to all</p>
<p>Excludable Meaning the person can exclude someone from its use (e.g. you can exclude another person from using your phone)</p>	<p>Non-excludable Meaning any person can use the good or service</p>
<p>Provided by the private sector (generally), e.g. cars, computers or phones</p>	<p>Provided by the government (generally), e.g. hospitals, universities or infrastructure</p>

CHECK FOR UNDERSTANDING 6.1

- 1 Using real-life examples, **distinguish** between ‘positive externalities’ and ‘negative externalities’.
- 2 **Explain** the role of government intervention in modifying markets to achieve socially desirable outcomes.
- 3 **Distinguish** between ‘public goods’ and ‘private goods’ by providing examples of each.
- 4 Contrast the effects of market concentration with the effects of a competitive market environment on consumer choice and market efficiency.

Continued

Continued

- 5 Explain**, using examples:
- under what circumstances might a particular market require regulation
 - under what circumstances might there be a need for deregulation of a particular market.

6.1.2 Improving distribution of income and wealth

KEY IDEA

The government may seek to intervene in and modify markets when there is growing inequality in personal wealth and income among the population.

An outcome of the market system is the simple fact that income and wealth are distributed unequally. When a private good is traded, there will always be a section of the population that is unable or unwilling to pay the market price. Accordingly, some households will effectively be excluded from using and consuming certain goods and services.

The fact that some households are excluded from participating in some markets relates to how the price mechanism operates alongside control and ownership of the four factors of production (land, labour, capital and enterprise): see 1.1.3. As you will recall from the circular flow of income model, which we first encountered in Chapter 2, the household sector provides labour to the production sector, in return for income (in the form of wages), which is then utilised by the household sector to expend on goods and services created by the production sector: see Figure 6.2.

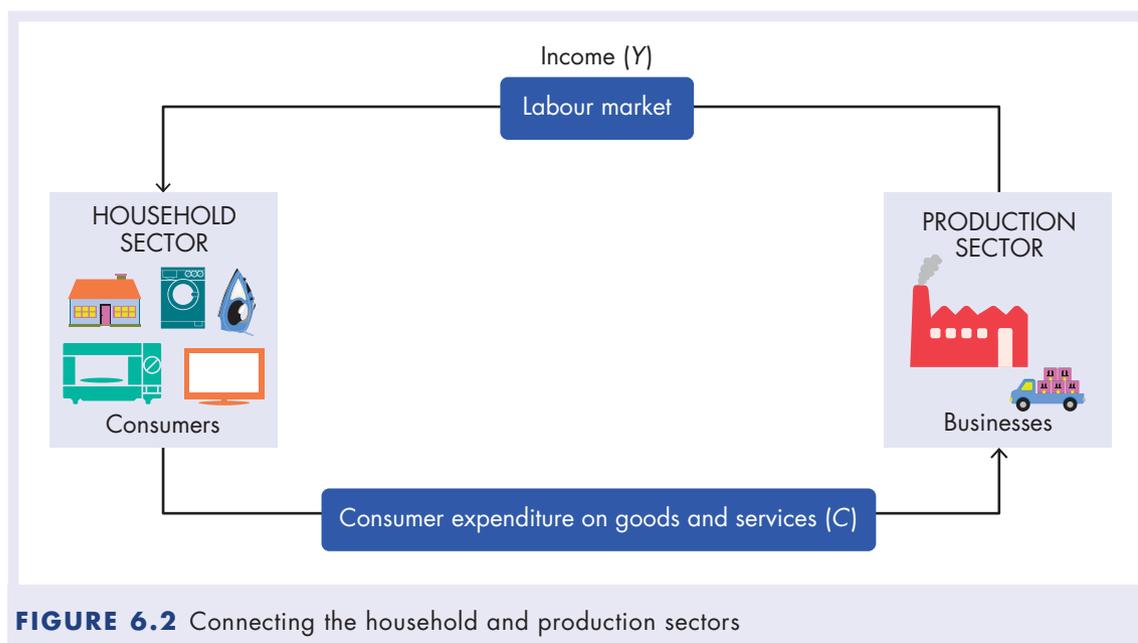


FIGURE 6.2 Connecting the household and production sectors

The labour market is a critical feature of every economy and is often viewed as another commodity in the marketplace. As such, labour can be traded in accordance with the price mechanism principles of supply and demand, which leads to certain types of labour

(occupations) being able to command a higher price (i.e. higher wages) than others. Consequentially, individual household expenditure and participation in the goods and services market will be limited by a household's ability to generate income from the labour it offers to the production sector.

The demand for labour is a derived demand, in that the demand for goods and services determines the demand for labour. Figure 6.3 shows the main factors that determine the demand for labour.

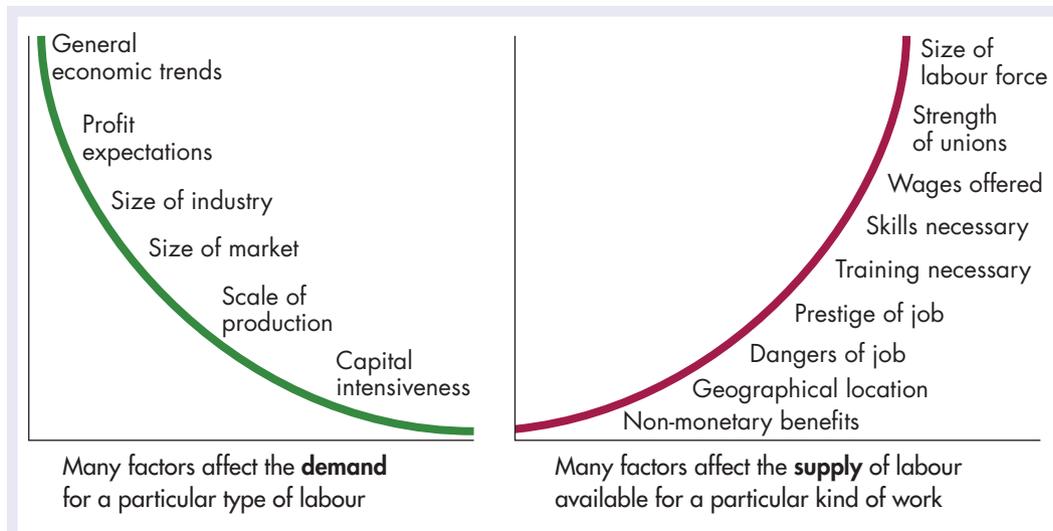


FIGURE 6.3 Factors affecting demand and supply of labour

In addition to these factors, technological change and structural change – in firms, industries and the economy as a whole – also determine the demand for labour. Technological change can result in a decrease in demand for labour, as it may result in fewer workers being required to complete a task. Structural change refers to movement of resources to faster growing sectors of the economy from slower growing sectors. Structural adjustment will result in a decrease in demand for labour in some industries (the slow-growing ones) and an increase in demand for labour in the fast-growing industries. Changes in the factors determining demand will cause shifts in the demand curve for labour in that industry. Figure 6.3 also shows the main factors that determine the supply of labour. This can be defined as the total number of hours that the labour force is prepared to work. Changes in the determinants of the supply of labour in an industry will cause shifts in the supply curve for that industry.

In recent decades, we have seen significant changes in the labour market. On the supply side, the quantity of available labour has grown with the increase in population. At the same time, adjustments have occurred through changes in school-leaving age, changes in retirement age, and changes in educational requirements for entry into occupations. Economic growth may lead to increased demand for labour, but the nature of this demand has been complicated by the technological and automation revolution, which has led to the need for a much more skilled workforce. This has resulted in growing income inequality within our economy, as the labour market slowly adapts and changes to meet the requirements of the production sector. Accordingly, the challenge of governments is to try to achieve both:

- optimal efficiency in the labour market via **full employment**, and
- the socially desirable outcome of equity in income and wealth distribution.

The methods used by governments to modify the market to achieve improved income equity outcome will be discussed later in this chapter.

CHECK FOR UNDERSTANDING 6.2

- 1 **Recall** the factors affecting demand for labour in a nation.
- 2 **Describe** the impact of technological change on the demand for labour.
- 3 **Recall** the factors affecting supply of labour in a nation.
- 4 **Explain** how some households may be excluded from participating in the market system.

6.1.3 Improving economic growth

CONCEPTS



Boom: the phase of the business cycle where the general level of economic activity is above average; it is characterised by full employment and inflationary pressure due to demand being in excess of supply

Business cycle: alternate but irregular periods of prosperity and recession of an economy; also called the trade cycle or the economic cycle

Contraction: the slowing down in aggregate output and income levels due to a rise in uncertainty; also known as a 'downswing'

Fiscal policy: measures undertaken by governments in relation to raising revenue through taxation and determining the nature of government expenditure, aimed at influencing a nation's aggregate demand

Mixed economy: an economy or economic system that relies on both markets and governments to allocate resources

Monetary policy: policy measures implemented through the Reserve Bank

of Australia to bring about changes in aggregate demand by influencing money supply and interest rates

Profit maximisation: the seeking of profit by firms; the basic stimulus for economic activity in a free-market economy.

Recession/trough: the phase of the business cycle where the general level of economic activity is below the economy's potential; it is characterised by high unemployment, reduced level of inflation, and low business and consumer confidence

Signalling: actions taken not for the sake of their direct results, but to inform a party of their intention

Standard of living: a measure of the material wellbeing of individuals within a country, usually measured by GDP per capita; based on material and quantitative indicators such as possessions, income, education and health standards, and quality of housing

KEY IDEA

The government may seek to intervene in and modify markets to ensure sustainable economic growth and improve standards of living for the population.

Australia operates as a **mixed economy** where both production (i.e. firms) and the government play key roles in the operation of the economy. Each employs labour from the household sector and provides a myriad of goods and services for general consumption. Accordingly, both sectors participate in the market and engage with the price mechanism

process, greatly influencing the general level of activity in an economy. However, it is important to remember that each is driven by very different motives. While the production sector is motivated by the quest for **profit maximisation**, the government sector is focused on generating positive societal outcomes.

Governments will pursue the key objective of sustainable economic growth, with the ultimate goal of providing an economy that will deliver an improved **standard of living** to the community.

To achieve sustainable economic growth, governments will actively monitor the level of economic activity within an economy. The **business cycle** is keenly scrutinised using various economic indicators, such as inflation, unemployment and production output (e.g. GDP), to ascertain how an economy is performing. Recall that the business cycle is an economic model introduced in Chapter 2. Having an understanding of where the economy is placed within the business cycle allows the government to modify its market interactions. This assists in either stimulating the economy in times of **contraction** or slowing the economy down in **boom** times. This is deemed important to a mixed economy, as an unregulated market can potentially be very unstable and lead to sections of the community being excluded.

For example, consider an economy in a state of **recession**, which is a phase of the business cycle where there is a general level of economic activity below the economy's potential, characterised by high unemployment, reduced level of inflation, and low business and consumer confidence. In a completely free market economy, the government would not intervene, allowing the market to run its course and correct itself over time via market forces and the price mechanism. However, this approach risks significant long-term economic and social hardship for large sections of the population, due to an extended period of high unemployment, as firms close down and industry slowly restructures itself. In contrast to this, in a mixed economy, the government would take action using **fiscal policy** initiatives to stimulate the economy. For example, the government may send a **signal** to the construction market and increase its spending on national infrastructure. This would lift employment in the construction industry, thus providing a boost to the economy and increasing business and consumer confidence, thereby reducing the severity and length of the recession.

Figure 6.4 provides a summary of the business cycle and what is typically seen in the economy at various stages.

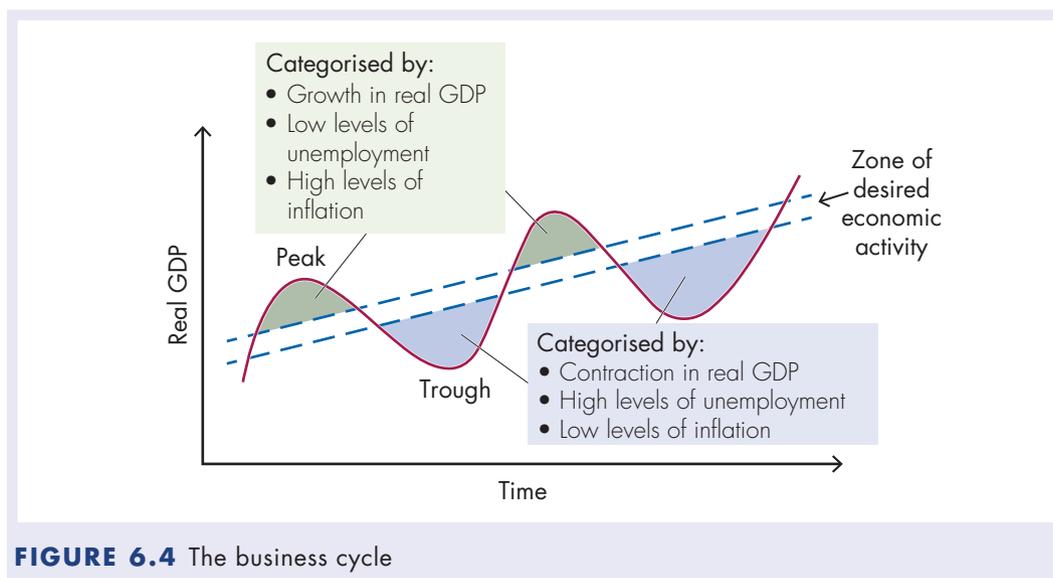


FIGURE 6.4 The business cycle

Monetary policy is another economic tool that can be used to either stimulate or dampen an economy. It is implemented through the Reserve Bank of Australia to bring about changes in aggregate demand by influencing money supply and interest rates. In the case of a recession, interest rates will often be lowered, thus sending a signal to the marketplace to encourage firms and households to borrow and use the funds in the economy.

ECONOMICS IN ACTION



Weblinks

Australian Bureau of Statistics (ABS)

Reserve Bank of Australia



Worksheet

6.1 Economic growth



THE SYDNEY MORNING HERALD

FIGURE 6.5 This is a 2023 cartoon from *Sydney Morning Herald* cartoonist Alan Moir. The character in the cartoon is Reserve Bank Governor Michele Bullock.

In daily newspapers across Australia, cartoonists comment on a range of issues, which are often political and related to economics. They entertain, provoke and/or persuade. Examine the cartoon in Figure 6.5.

- 1 Explain** the cartoon's meaning in the context of achieving economic growth.
- Using the Australian Bureau of Statistics (ABS) website, the Reserve Bank website and reputable news or data websites such as the World Bank, conduct research into the state of the economy from 2019 to 2023 and then copy and complete the following table.

Economic indicator	2019	2020	2021	2022	2023
Unemployment rate – December	5.1%				
Inflation rate (Consumer Price Index – Annual %)	1.6%				
Cash rate – December	1.5%				
GDP growth for the year	2.2%				
Size of budget deficit – June	\$0.7b				

- 3 Analyse** the data over the period and **evaluate** the state of the economy with reference to the cartoon.

6.2 Methods of market modification

KEY IDEA

The government may seek to intervene in and modify markets, subject to changing economic and social conditions. The two main approaches available to governments focus on legislation and taxation.

We have examined ‘why’ there is a need for the government to intervene in and modify markets:

- to deal with issues of market failure
- to promote an equitable distribution of income and wealth across a population
- to promote greater opportunities for sustainable economic growth within an economy.

Now we are left with the question of ‘how’ the government intervenes in and modifies markets. The remainder of this chapter will discuss the mechanics of ‘how’ government can modify market outcomes. However, you should keep in mind a deeper, perhaps more philosophical question – of whether a government should have a major or minor role in market intervention.

The government clearly has an allocation role in the marketplace, and will accordingly influence the economic issue of what and how much, how and for whom various goods and services are produced.

The two main broad approaches available to the government in modifying market behaviour centre on the processes of legislation and taxation. As you will learn, both policy areas are very powerful, and allow the government to either:

- adopt measures that affect the whole economy, or
- target specific market issues that may only be relevant to certain sectors of society.

6.2.1 Legislation to modify markets

CONCEPTS



Balance of payments: the summary of a nation’s payments to, and receipts from, the rest of the world over a year

Competition policy: all relevant government policies that affect the nature and extent of competition in the economy

Competition and Consumer Act 2010 (Cth): the legislative vehicle for competition law in Australia; administered by the Australian Competition and Consumer Commission (ACCC)

Consumer protection: government or legal assistance that, in addition to self-help, may protect consumers from unscrupulous business dealings

Environmental controls: direct regulations that restrain or ban actions harmful to the environment, and indirect controls through taxes and charges; together, they encourage desirable environmental practices

Import controls: tariffs or other protective devices, such as quotas, that make domestic products more competitive in comparison with imported products

Price surveillance: the overseeing by government regulatory bodies of price rises in markets where competition is not strong

Continued

Continued

Quality and health standards: standards imposed by governments or standards bodies to ensure safe and high-quality products and services

Restrictive trade practices: actions by people, businesses or governments that restrict competition in a market, and may increase market power and monopoly control

KEY IDEA

The government can pass legislation to modify the marketplace by preventing monopolies and restrictive trade practices, and so help maintain competition and protect consumers. It can intervene in markets by legislating to regulate foreign investment and ownership. The government can alter market behaviour by creating laws that license and regulate entry into certain trades and professions.

Through the use of legislation, governments try to remedy what they perceive as failures in the market system, thereby seeking to ensure that markets work as efficiently and fairly as possible to benefit all of society. Legislation is created by governments at all levels – federal, state and local – in an attempt to regulate many markets. For example, governments will try to:

- ensure fair competition among firms in all markets and protect consumer rights
- deal with negative externalities or unintended consequences of market operations
- supervise and regulate labour markets
- supervise and regulate financial markets
- supervise and regulate economic relationships in overseas markets.

Of course, not everyone is happy with the degree of legislative regulation in our economy.

When examining the intended purpose of a particular piece of legislation and how it is used to modify and intervene in a market, it is important to consider the social, political and historical context from which the law came.

Ensuring fair competition in the marketplace

The government promotes and protects competition against the increase of monopoly or market control. It also provides information on business conditions and the state of the economy, and establishes laws and courts to set the ‘rules of the game’ and settle disputes.

Governments are particularly active in the areas of:

- **consumer protection**, which works through courts, tribunals and laws to try to prevent misleading advertising, restrictive trade practices and dangerous products
- **quality and health standards**, which are imposed by governments or standards bodies to ensure safe, high-quality products and services
- trade practices, where the ***Competition and Consumer Act 2010 (Cth)***, the Australian Competition and Consumer Commission and the various corporations laws try to ensure fair competition, fair pricing and ethical practices in the sale of goods and services, and also discourage monopolisation and unfair pricing and selling practices.

Elements of competition policy

Competition is an essential ingredient of the effective operation of a market economy. **Competition policy** aims to establish an economic environment that promotes economic efficiency and growth. It seeks to achieve these aims by preventing firms from obtaining or using excessive market power. By limiting the development and the abuse of market power, competition policy offers protection to small businesses, consumers, workers and the general public from exploitation and the negation of their rights.

Abuse of market power and anti-competitive, **restrictive trade practices** come in many forms. Individual consumers and producers, governments and society as a whole can incur a loss of welfare as a consequence of these practices. Basically, the loss of welfare arises from the loss of the benefits of competition.

The source of the competitive forces comes from both existing firms and the threat of new entrants to a market. When barriers to entry and exit are low, the market becomes 'contestable'. This means that firms outside the market can enter and challenge existing firms. The mere threat of entry ensures that the incumbent firms act as if they were in a nearly perfectly competitive market structure. The aims of competition policy, therefore, can often be achieved by reducing barriers to entry or encouraging the threat of new entrants. The arguments for and against allowing some restrictive practices are summarised in Figure 6.6.

FIGURE 6.6 Advantages and disadvantages of allowing some restrictive practices

Advantages	Disadvantages
<ol style="list-style-type: none"> 1 economies of scale <ul style="list-style-type: none"> • greater production • lower costs and prices • reduction in duplication of plant 2 incentive to invest <ul style="list-style-type: none"> • more stability for firms 3 resources for research, innovation and new products 4 accords with policy objectives <ul style="list-style-type: none"> • maintaining employment • improving balance of payments 5 managerial improvements 	<ol style="list-style-type: none"> 1 reduction in competition <ul style="list-style-type: none"> • restriction of entry into business • monopoly price could be unrealistically high • restriction in choice • reduction in service 2 misallocation of resources <ul style="list-style-type: none"> • suboptimal levels of production • abuse of political power • wasteful advertising and product differentiation 3 reduction in incentive <ul style="list-style-type: none"> • firms become complacent 4 inequity in the distribution of income

It is important to recognise that the promotion of competition does not necessarily mean forcing industries to change so that they reflect the structural conditions of perfect competition. Cost efficiencies through economies of scale and robust competitiveness through research and development and innovation are usually enjoyed by large firms. In an economy such as Australia's, these competitive advantages may only be available to a few large firms, which may then dominate a market. Competitive forces can still exist if markets remain contestable. Competition policy allows this to occur and has many elements. There are laws that directly address the anti-competitive behaviour of firms; for example, as already noted, the Competition and Consumer Act. While such laws and regulations are important, competition policy embraces other elements of government policy as well. The features of competition policy include the following.

Price surveillance

A firm with a high degree of monopoly power may charge excessively high prices. Such abuse of market power is overseen by government authorities and also by private organisations, such as Choice. At the Commonwealth level, **price surveillance** is a function of the Australian Competition and Consumer Commission (ACCC), which is given powers by the Competition and Consumer Act. The purpose of the ACCC is to promote competition and to restrain price rises in those markets where competition is not strong.

Consumer protection

Legislative safeguards offer consumers protection from abuses of market power. Legislation seeks to prevent activities that could mislead or deceive consumers. While the emphasis is on giving protection to the consumer, consumer protection legislation also promotes competition. It prevents unscrupulous businesses from using misleading or deceptive conduct to harm the competitive position of more honest businesses.

Competitive conduct rules

Certain anti-competitive behaviours are prohibited by law. These behaviours usually entail some collusion or have an anti-competitive purpose. At the Commonwealth level, the Competition and Consumer Act prohibits the following anti-competitive practices:

- agreements that fix prices and contain exclusionary provisions
- the misuse of market power to damage a competitor (e.g. by predatory pricing)
- exclusive dealing, which forces a purchaser to deal exclusively with one supplier
- resale price maintenance, which prevents a reseller from selling below a minimum price
- price discrimination, which is when suppliers charge different prices to different customers for the same item
- mergers between firms that result in market dominance and substantially less competition
- misleading or deceptive conduct, which takes advantage of another party's vulnerability or ignorance.

CHECK FOR UNDERSTANDING 6.3

- 1 **Recall** two forms of anti-competitive practice.
- 2 **Describe** how the price surveillance function prevents the abuse of market power. Using news sources, can you find a current example of firms being watched in relation to allegations of price gouging in the Australian market?
- 3 **Explain** how reducing barriers to entry can achieve the aims of competition policy.
- 4 **Consider** the role of competitive conduct rules. **Explain** their effectiveness in preventing anti-competitive behaviour.
- 5 Contrast the advantages of large firms enjoying economies of scale with the disadvantages of reduced competition and potential market dominance.

Dealing with externalities resulting from market operations

As discussed at 6.1.1, externalities are the unintended results of production and consumption; for example, smoke and pollution from a steel factory or packaging from fast food. The market mechanism, by itself, provides no incentives for firms to prevent or reduce such harmful

effects. Governments can, however, step in with legislation and direct regulation to reduce these effects. Alternatively, as we will discuss later in the chapter, governments can pass the costs of externalities on to those who cause them, via taxation.

Governments employ various **environmental controls** to manage and protect the environment and promote sustainable development, including the following:

- **Evaluating the effects of proposed projects or activities:** Governments use environmental impact assessments (EIAs) to assess the likely impacts on air quality, water resources, biodiversity and other environmental factors.
- **Addressing adverse environmental impacts:** Governments at the federal, state and local levels enact regulations and issue permits to control activities with adverse environmental impacts; for example, in relation to pollution control, waste management, land use planning and natural resource extraction.
- **Protecting areas:** Governments establish protected and conservation reserves to safeguard biodiversity, ecosystems and cultural heritage.
- **Managing licensing and compliance:** To operate legally, industries and businesses may require environmental licences or permits.
- **Waste management and recycling:** Governments implement programs to reduce, reuse and recycle waste materials.
- **Water management and allocation:** Governments manage water resources through water licensing, irrigation schemes and water efficiency measures.
- **Air quality management:** Governments monitor air quality and implement measures to improve air quality, particularly in urban areas.
- **Climate change mitigation:** Governments develop policies and programs to address climate change, including renewable energy targets, emissions trading schemes and carbon pricing.

Supervising and regulating labour markets

Due to the way the Australian Constitution is formulated, the regulation of labour markets is a task shared by both federal and state governments.

The federal government is responsible for the following:

- **the Fair Work system** – which sets out the minimum employment standards including wages, working conditions and employment rights for most workers in Australia; this system is governed by the *Fair Work Act 2009* (Cth)



Stephen Dwyer/Alamy Stock Photo

FIGURE 6.7 Public sector workers march on Parliament House in Sydney, rejecting a 3 per cent pay rise offer.

- **the National Employment Standards (NES)** – which provide minimum entitlements for all employees covered by the Fair Work Act
 - **the award system** – through the Fair Work Commission’s minimum wages and conditions for specific industries and occupations
 - **enterprise bargaining** – the process of bargaining that allows employers and employees to negotiate, regulated by the government
 - **industrial relations** – regarding disputes between employers and employees, unfair dismissal claims and compliance with workplace law.
- State governments have complementary roles in areas such as workplace safety, workers compensation, industrial relations and skills development.

Supervising and regulating financial markets

Financial markets consist of a wide group of institutions, ranging from banks to non-bank financial institutions – such as credit unions, insurance companies, superannuation funds and the Australian Securities Exchange (ASX) – which act as intermediaries for the borrowing and lending of money. The government can influence, through legislation, the way these markets operate and their effect on investment and consumption in the economy by several methods, including:

- laws and regulations – such as various Banking Acts and the *Financial Sector (Collection of Data) Act 2001* (Cth) – to govern their establishment and operation, as well as such matters as overseas ownership
- the establishment of supervisory bodies such as the Australian Prudential Regulatory Authority (APRA), which supervises banks, and the ACCC
- the establishment of an independent Reserve Bank to manage monetary policy, which influences the availability of money through open-market operations (buying and selling government bonds), and influences interest rates by setting its bond rates and the cash rate for bank borrowing.

Supervising and regulating overseas markets

Not all economic activity relevant to a country occurs in its own domestic markets. In today’s global economy, events in markets overseas have a great influence on activity and growth in domestic economies. Australia relies very heavily on its overseas trade (imports and exports) and capital investment and borrowing for survival and growth. If the world price of wheat or coal or iron ore goes down, it can affect us greatly. If share prices on the New York Stock Exchange rise, then share prices on the ASX will almost certainly follow. The Australian Government cannot control international events, but it tries to supervise and regulate overseas markets – again via legislation – to influence our **balance of payments** and benefit our domestic economy by:

- establishing **import controls** and other barriers to trade, such as tariffs, quotas and administrative regulations that can be reduced or strengthened to promote or restrict trade
- making agreements with other countries to increase trade on a bilateral or multilateral basis
- joining international institutions such as the World Bank, Asia–Pacific Economic Cooperation (APEC) or the World Trade Organization (WTO) to promote regional development or world trade
- providing assistance, in the form of lower taxes or construction or infrastructure requirements, to encourage overseas investment or the establishment of import-replacement industries.

CHECK FOR UNDERSTANDING 6.4

- 1
 - a **Recall** the markets that governments significantly intervene in and why they do so.
 - b **Explain** how governments try to ensure that markets are competitive.
 - c **Explain**, using a case study example, how governments try to deal with externalities resulting from market operations.
- 2 **Explain** how governments regulate:
 - a labour markets
 - b financial markets
 - c overseas markets.
- 3 Conduct a class debate on one of the following topics:
 - a Import controls, such as tariffs and quotas, only weaken trade and stifle economic growth.
 - b Governments should leave the labour market to be managed by trade unions and firms.

ECONOMICS CHALLENGE



The Australian housing dream has at its core the principle that everyone has the right to residential property ownership. Since the early 2020s, it has become increasingly difficult for first-home buyers to gain a foothold in the property market, partly due to the lack of supply of housing. Accordingly, first-home buyers have to compete with wealthy property investors for limited housing, particularly in Australia's major capital cities of Brisbane, Sydney and Melbourne.

This economics challenge invites you to find out more about the operation and general nature of the Australian residential property market. Visit the suggested websites (listed on the following page) to establish residential property market trends, and examine the 'property market clock' in Figure 6.8. Then use the following statements to guide your research to compare and contrast the housing market versus the unit market.

Use the nearest Queensland major city to where you live as a case study.

- 1 Graph and **analyse** median property prices in both houses and units for the last 10 years.
- 2 Graph and **analyse** median weekly rental returns in both houses and units for the last 10 years.
- 3 Graph and **analyse** total residential property sales for both houses and units for the last 10 years.
- 4 Graph and **analyse** average mortgage interest rates for home loans for the last 10 years.
- 5 Graph and **analyse** total construction of new dwellings for houses for the last 10 years.
- 6 Graph and **analyse** total construction of new dwellings for units for the last 10 years.
- 7 Research media reports from leading Australian news organisations and real estate associations about changes in Australia's property market.



Worksheet
6.1 Economics
Challenge

Continued

Continued



Weblinks
Australian
residential
property market
research

Suggested websites

Use the search function within the following websites:

- Master Builders Australia
- Real Estate Institute Queensland
- realestate.com.au
- Real Estate Institute of Australia
- Australian Parliamentary Library
- Australian Bureau of Statistics
- Reserve Bank of Australia
- Australian Government Productivity Commission
- Council of Australian Governments
- First Home Owner Grant
- Australian Chamber of Commerce and Industry.

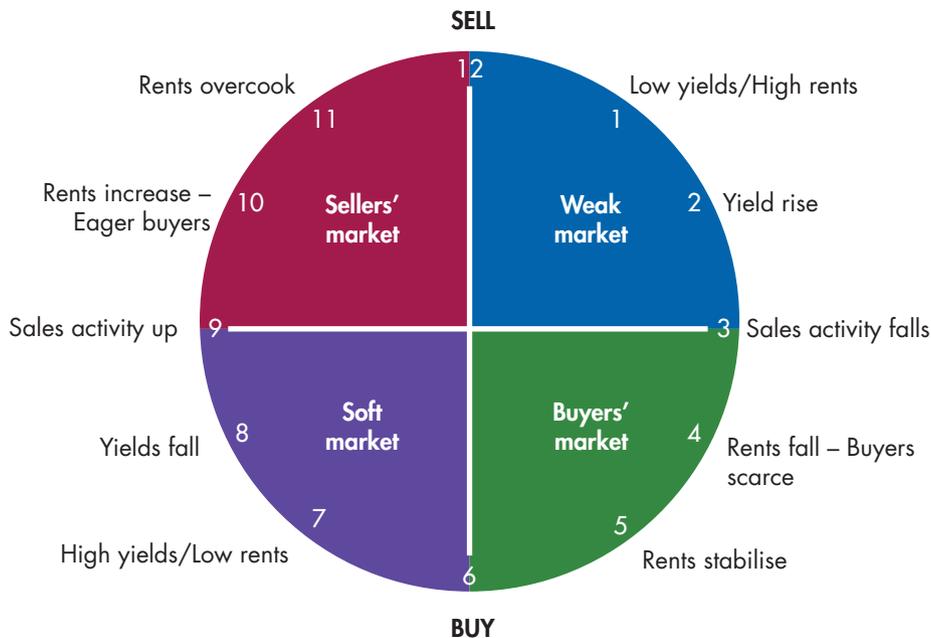


FIGURE 6.8 The property market clock. This is a tool that divides the property market cycle into different stages similar to the hours on a clock, with each stage representing a different phase of the market, from peak to trough.

Now that you have completed some preliminary research into the housing market, **construct** a synthesised response to the following.

Evaluate whether or not governments, at the federal, state and local levels, should intervene in and modify the residential property market to make it easier for buyers to acquire their first home.

Your response should include a discussion of what legislative policies are available to governments to modify the property market and an explanation of the possible ramifications of any market intervention.

6.2.2 Modifying markets

CONCEPTS



Direct tax: tax that is borne by the person or firm on which it is levied; for example, income tax

Indirect tax: tax that can be passed on to others by the person or firm on which it is levied; for example, goods and services tax (GST) or customs duty

Macroeconomic policy: legislation, taxation or spending measures implemented by governments to influence broad variables in the economy; for example, consumption or investment

Price ceiling: a price fixed by the government at a lower level than what would be established by the free operation of the price mechanism

Price controls: the setting of minimum or maximum prices by the government so that prices are unable to adjust to the equilibrium established by the free operation of the price mechanism

Price floor: a price fixed by the government at a higher level than what would be established by the free operation of the price mechanism

Regressive taxation: a tax system in which the ratio of tax to income is lower with large incomes than with small incomes

Taxation criteria: criteria for judging whether a tax is a good tax or not; for example, equity, efficiency and simplicity

KEY IDEA

Government taxation can modify the marketplace by generating a form of price control – to either restrict certain market behaviour, or create incentives to help maintain competition and improve socially desirable outcomes. Either way, there are always ramifications for markets, consumers and producers when the government makes changes to taxation policy.

Through our study of the circular flow of income model and the price mechanism in Chapters 2 and 3, we recognise the significant and complex roles of both the household and business sectors in determining the success or failure of a market. In addition, the government recognises that the market system has its flaws and will therefore seek to influence consumer choices and business behaviour. The government can do this via its **macroeconomic policy** measures, which seek to influence consumption and investment within an economy. Examples include:

- redistributing income through taxation, social welfare payments and wages policy
- imposing taxes on certain commodities or business practices
- applying restrictions to advertising
- selectively assisting producers of some commodities while restricting others.

Incidence of taxation

When discussing taxes, it is important to know if the person on whom the tax is levied is the person who ultimately bears the burden of the tax, or whether this burden is shifted on to someone else. The person who does ultimately bear the burden of the tax is the one on whom we say the incidence of the tax falls.

Income tax is a **direct tax** as it is 'incident on' – that is, borne by – the person on whom it is levied.

Personal income tax and company tax are the main forms of direct taxation in Australia. They are long-established and relatively acceptable forms of taxation. They are also important tools used by the federal government in its efforts to maintain economic stability.

An **indirect tax** is levied on one person and then shifted, so that it is incident on a different person.

The main forms of indirect taxation in Australia are the goods and services tax (GST) (which replaced many different sales taxes), excise tax and customs duty. In each case, the person on whom the tax was originally levied does not bear the ultimate burden of the tax. The wholesaler or retailer (GST), manufacturer (excise duty and GST) and importer (customs duty) eventually pass on part or all of the tax to the consumer in the form of higher prices.

In some cases, this will entail the tax being passed on through a number of stages before it reaches the consumer. This can be clearly seen in the case of excise duty. After being originally levied on the manufacturer, excise duty is passed along through the wholesale and retail levels to the consumer, by whom it is finally incident. The result, as highlighted by Figure 6.9, can have an impact on demand in a market, affecting both consumption of the household sector and, ultimately, the production levels of firms.

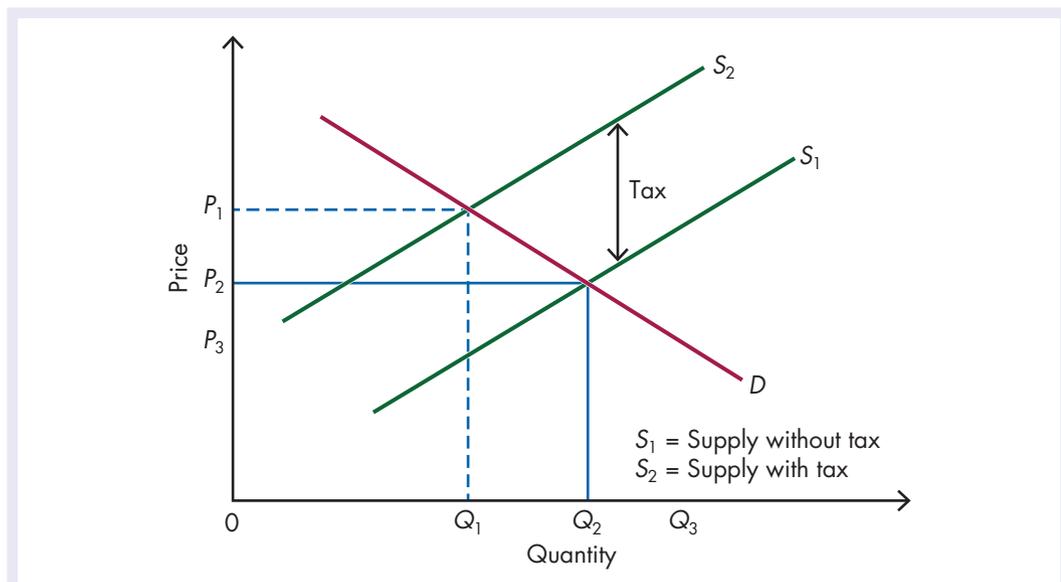


FIGURE 6.9 Tax can affect demand and, subsequently, production of a good.

Advantages of indirect taxes

Indirect taxes are popular with the government for two main reasons. First, they are convenient and inexpensive to administer. Second, they are, to some extent, concealed from those on whom they fall. The average consumer has only a vague idea of what fraction of the price paid for a commodity consists of tax. Do you know how much of the money you pay for the goods you normally purchase goes to the government in one form of tax or another?

Disadvantages of indirect taxes

Indirect taxes do, however, have a number of disadvantages. The most important of these is that indirect taxes are all forms of **regressive taxation** and therefore are considered by many people to be inequitable. They have a much greater impact on the poor than on the rich, and, since the introduction of the GST in 2000, have grown as a proportion of total taxation.

Regardless of whether the government applies a direct or indirect tax, a tariff or subsidy, or legislates a minimum wage or a maximum surcharge, all interventions of this type mean that the real influence of the price mechanism, while still very important, is in fact more limited than the theoretical model indicates.

Price controls

Price controls refer to the setting of minimum or maximum prices by the government so that prices are unable to adjust to the equilibrium established by the free operation of the price mechanism.

Price floors

Let us return to the issue of supply and demand in the labour market scenario we discussed at 6.1.2. If the price mechanism were left free to control wages and salaries, then individual workers would be left at the mercy of the rules of supply and demand. Logic follows that in industries where there is an under-supply of labour, the average worker in those industries will enjoy higher wages compared to workers in other sectors where there is an abundance or over-supply of labour. Clearly there are broader social considerations for governments in dealing with the labour market, as they seek to maintain an equitable distribution of income and wealth across the population. So when a government introduces a minimum wage to promote positive social outcomes for the lowest paid workers, it is seeking to establish a **price floor** above the market equilibrium.

Likewise, Australian unions hesitate to put their complete trust in the market system. Many wage rates reflect the bargaining power of strong unions. This means that wage rates no longer fall when demand for labour weakens. This is what the unions set out to accomplish, but it usually means that, instead of wages falling when demand for labour falls, the level of employment drops more than it otherwise might. To analyse this attempt to change the outcome of free market operations, we will apply some of the tools and concepts you learnt in Chapter 3.

Price fixing above market equilibrium – minimum wage

Since the early part of last century, Australia has had minimum wage legislation. The purpose of such legislation is to aid the poorest paid workers in society, whose bargaining power with firms is comparatively weak.

For example, assume that an equilibrium level of payment for unskilled labour is \$700 a week, at which a rate of almost six million people are employed. At this wage rate, demand (a 'derived' demand, as labour is a factor of production) is equal to supply.

Now, assume a minimum wage above the market equilibrium is set; for example, \$800 a week. More people will now be willing to work at this higher wage. But unfortunately, as shown in Figure 6.10 on the following page, less labour will now be demanded by employers. There will be a surplus of labour. Unemployment will surely result. How many people are now willing to work for this minimum wage? How many workers do employers want? What will be the resulting level of unemployment?

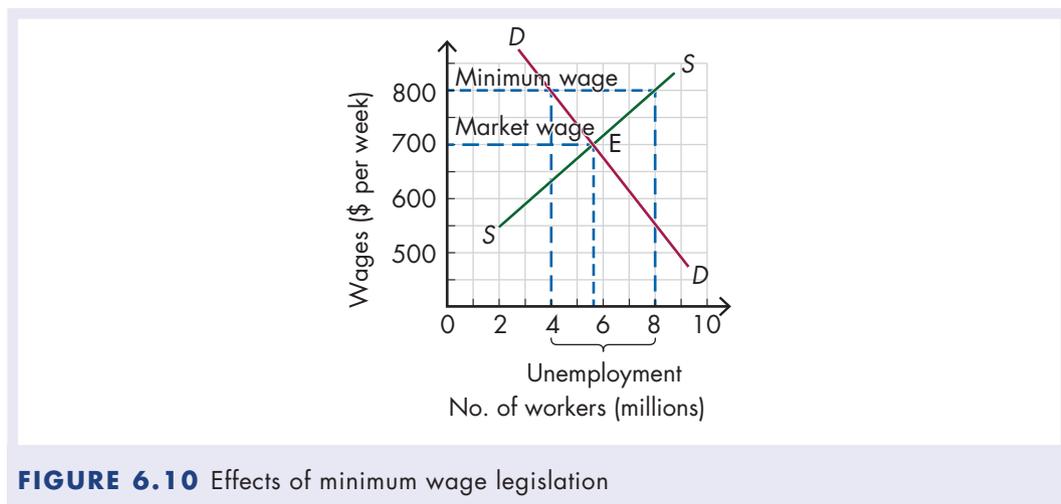


FIGURE 6.10 Effects of minimum wage legislation

Such an analysis does not necessarily mean that minimum wages are a bad idea. Workers remaining in their jobs would have improved rates of pay. Some workers would gain, while others would lose. Clearly, both positive and negative externalities will result from such an intervention to correct a perceived market failure of having very low-paid workers. Through retraining and general economic growth, unemployment may be reduced in the long run. We cannot ignore the fact that the least skilled would be the ones who would suffer most, but governments and society may still make the value judgement that such price fixing above the market equilibrium is worthwhile.

Price ceilings

Let us now consider an example where price fixing below the equilibrium – that is, a **price ceiling** – may be worthwhile.

Price fixing below market equilibrium – residential rent control

Imagine a poor inner-city area that has a history of low residential rental vacancies and high rents, which is causing significant social problems for poorer working people living in the area. To tackle this problem, the government intervenes. It modifies the market by imposing rent control in the area so that landlords cannot charge more than \$600 a week. Before this price ceiling was imposed, the equilibrium market rate averaged \$700 a week for houses and flats in the area.

What would happen? Probably two things: people from other parts of the city would move to this area to take advantage of the cheap housing, so the quantity of housing demanded would rise; and many landlords would now find that leasing was no longer profitable, so they would begin to move out of the business. They would not maintain their buildings as well as they did previously, and they would build fewer new houses or flats. There would be a very real housing shortage (see Figure 6.11).

It is likely that a ‘black market’ for housing would develop, with some of the less poor people in the area being willing to pay more – perhaps even more than the previous equilibrium price – in order to secure a house. The very poor people, whom the law was supposed to help, would probably be left with nowhere to live.

Most kinds of price control where imposed ceilings are below free-market levels produce results of this kind. They will bring cheaper goods, but perhaps not to those who most need them, unless there is some form of rationing and very strict enforcement of the law.

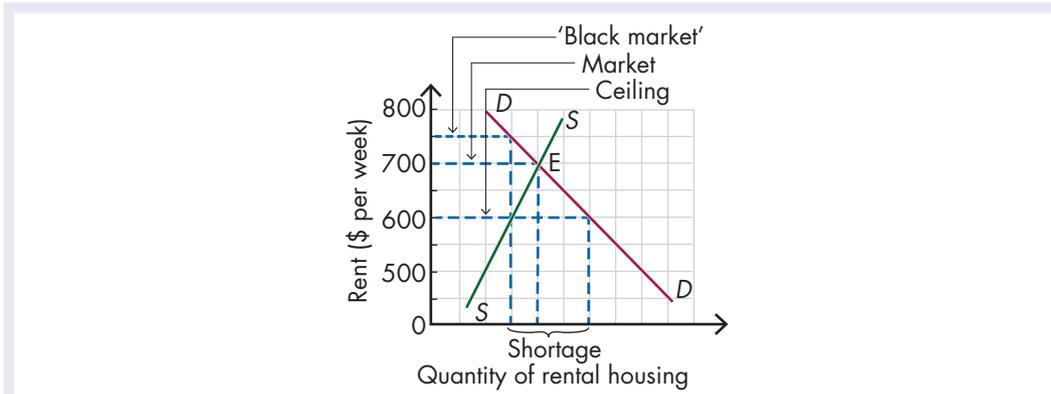


FIGURE 6.11 Effects of price controls

The government may still decide to pursue a policy where imposed price-control ceilings are below free-market levels if it can adequately determine the magnitude of any shortage. Understanding the elasticity of a product in the market is key (remember Chapter 4). If demand is relatively inelastic, there will be only a slight increase in the quantity demanded. If supply is inelastic – that is, if there is little response in the quantity supplied to a change in price – the potential shortage will be quite small. If demand and supply are both relatively more elastic, then significant shortages will occur, creating further unintended costs (negative externalities) for some individuals, and benefits (positive externalities) for others.

CHECK FOR UNDERSTANDING 6.5

- 1 **Explain** the effect on the demand for bread, and the price of bread, if the government attempted to assist the rural sector by setting a price floor for wheat.
- 2 **Describe** other examples of price fixing above market equilibrium and below market equilibrium. Use graphs to **analyse** possible effects of each example you choose.
- 3 **Explain** what is meant by the 'incidence' of a tax.
- 4 **Explain** the consequences of price ceilings for different stakeholders in the case of:
 - a rent control
 - b food price control.

Principles of taxation

As we now recognise the immense power of taxation to alter markets, as citizens we have an obligation to hold elected governments to account, ensuring that they acknowledge the significant responsibility they have in developing efficient and equitable taxation policy. Adam Smith first outlined the principles on which all taxes should be based in *The Wealth of Nations* (1776). He put forward four basic principles, which are generally still regarded as the basis of a sound taxation system:

- 1 **The principle of equity:** As Smith stated, 'The subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities'. In other words, the rich should pay more tax than the poor.

- 2 **The principle of economy in collection:** The cost involved in collecting the tax should be kept as low as possible. A tax that is expensive to collect defeats its purpose, as a high proportion of the revenue collected will be used up in the cost of collection.
- 3 **The quality of certainty:** Those from whom the tax is being collected should be certain of three things. They must know when the tax has to be paid, how much tax has to be paid and how the rate of tax is calculated.
- 4 **The quality of convenience:** Both the time and the manner of payment should be selected so as to cause the least possible inconvenience to the taxpayer.

Modern writers sometimes express these principles as **taxation criteria**; that is, ways of judging whether a tax is a good one or not. The principles are then usually summarised as equity, efficiency and simplicity. You can see how these have been adapted from Smith's principles and thus how relevant they still are today.



Worksheet
6.2 Price controls



Article
The Conversation
article

ECONOMICS IN ACTION



Price controls

Read the article 'Why capping food prices won't work – and will actually make things worse' by Phil Lewis on *The Conversation* website. Then answer the following questions.

- 1 **Explain** the price controls being considered at the time the article was published.
- 2 **Recall** advantages and disadvantages of rent controls.
- 3 Do economists agree or disagree on price controls? Graph your response.
- 4 **Describe** another example of price control seen in Australia or around the world from your own research. For example, Vietnam considered the imposition of price controls to fight inflation.

6.3 Difficulties with and implications of market modification

CONCEPTS



Exclusion principle: when consumers or firms that do not pay for a good or service are excluded from any benefits derived from that good or service

Free-rider problem: when consumers or firms in a society can derive a benefit from the consumption of a good or service without having contributed directly to the cost of that good or service

Pigovian tax: a form of taxation that is imposed on any commercial activity in a marketplace that produces negative externalities; the purpose of the tax is to correct a suboptimal and socially undesirable outcome

Property rights: legislated measures created by governments to administer the ownership, uses and disposal of property and resources

Tradeable permit system: a government tool whereby allocated pollution permits are created, allowing firms to emit a certain amount of pollution; these permits are then tradeable on an open market between competing firms

Tragedy of the commons: the overuse or destruction of a common property good because it has no price and so markets do not ration its consumption

KEY IDEA

When a government intervenes in and modifies a market, economists recognise that the results of such interventions will often create positive and/or negative externalities for society. The aim of governments is to create more of the former and fewer of the latter.

So far we have examined the reasons ‘why’ governments intervene in markets and the methods of ‘how’ they seek to modify both consumer and business behaviour, through the use of legislation and taxation. In this final section, we discuss the difficulties and implications for an economy when a government seeks to modify a market.

6.3.1 Dealing with negative externalities

One of the challenges facing governments is how to deal with negative externalities that arise out of some marketplace commercial activities. An example of this is how to tackle the dilemma of pollution within a growing economy. Pollution is deemed to be a negative externality, as its impact has far-reaching implications for innocent third parties, who were not directly involved in the initial commercial transaction.

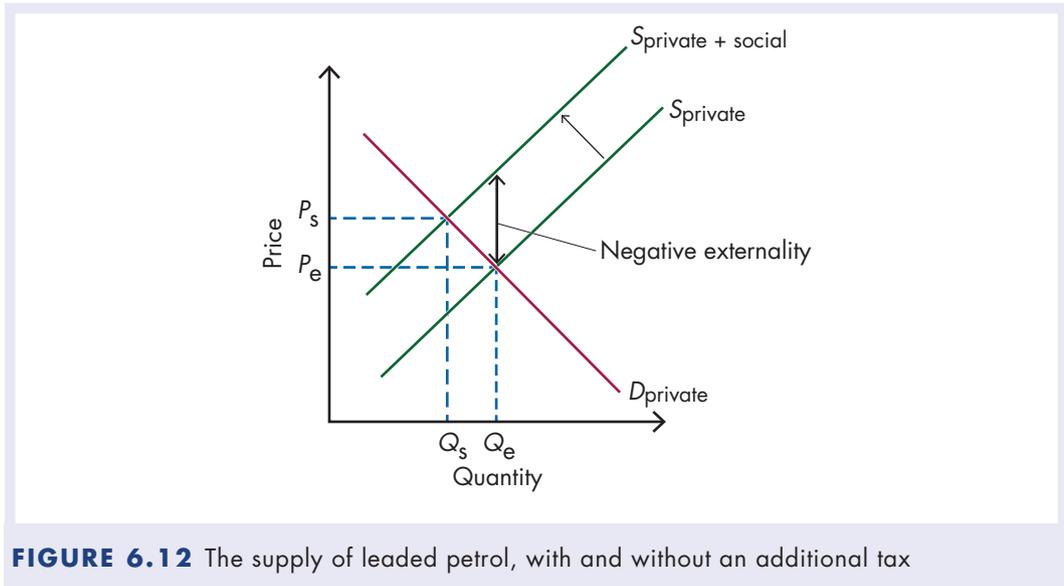
One tool that can be used by governments to tackle negative externalities is to apply a **Pigovian tax**, which seeks to correct a suboptimal and socially undesirable outcome by factoring in the social costs of a private transaction.

Consider the following example.

In the late 1980s and into the early 2000s, the federal government made a decision to phase out leaded petrol. The use of leaded petrol in cars creates pollution. Lead can accumulate in the human body, and high levels of lead can lead to mental illness in children, and illnesses such as liver failure in later life. We can see from this example that the social costs (negative externalities) of leaded petrol are high. However, leaded petrol is cheaper to make than unleaded petrol. So the quandary for the average household is to choose either a petrol that has a high social cost but a low private cost, or a petrol that has a low social cost but a high private cost.

Can you guess which petrol product most consumers would select?

It is not surprising that in a market where individuals seek to minimise their private costs, most consumers would purchase the leaded petrol. So to change consumer behaviour and have households start to consider the social costs of leaded petrol, the government could have applied a Pigovian tax. The tax would correct the inefficient market outcome, by factoring in the social costs of all the negative externalities into the price of the product – in this case, the leaded petrol. After considering and calculating the social costs and looking at alternatives, the government could have placed a higher tax on leaded petrol. This higher tax would decrease the negative externality created by the use of leaded petrol and now make the choice of unleaded petrol a far more attractive alternative to the consumer. The tax would shift the supply curve to the left, raising the price of leaded petrol from P_e to P_s (see Figure 6.12 on the following page). Consequently the quantity of leaded petrol demanded would fall from Q_e to Q_s , thus reducing the negative externality of toxic lead in the environment.



Ultimately, the government can use its legislative powers and apply such taxes to any market where there are significant negative externalities to either:

- reduce the consumption of particular goods, or
- move consumer sentiment and behaviour towards other products that have fewer negative externalities or social costs.

Because of the uncertainty of the outcomes of such interventions in the operation of the price mechanism and the circular flow, and the general failure of most highly planned economic systems, not all governments wish to intervene to a greater extent than they feel is warranted by political and social expectations. Indeed, many governments are cutting back on such interventions.

6.3.2 Taxation effects

Recall that there are two different forms of tax. Direct and indirect taxes are summarised in Figure 6.13.

FIGURE 6.13 Direct and indirect taxes

Direct taxes – paid directly by the individual or firm to the government	Indirect taxes – paid by one individual or firm to the government, but the burden is passed on to a different individual or firm
Personal income tax	Goods and services tax (GST)
Corporate tax	Customs duty
Capital gains tax	Excise duty (e.g. fuel, alcohol, tobacco)
Stamp duty	
Payroll tax	
Land tax	

Taxation is a very powerful tool for government in dealing with both market outcomes and social outcomes. It is important to note that while the various forms of taxation levied by the federal, state and local governments affect the economy and the individual in many different ways, all forms of taxation have a similar negative effect on the aggregate level of spending. High rates of income tax and company tax leave consumers and producers with less money to spend. High rates of indirect taxes raise the prices of the goods on which taxes are levied.

The overall effect in both cases is a lower level of spending on the part of both firms and individuals. It is then the responsibility of the government to decide what to do with the revenue raised in this way. If it is spent within the economy, there will be no change in total spending. If this does not occur, then aggregate spending will fall. The government will be guided in its decisions with regard to the levels of both taxation and spending by the state of the economy at the time. For example, in times of recession, the government might increase its spending to help stimulate growth and employment. Likewise in the 'boom' times, where government revenues would be naturally higher, the government might reduce overall expenditure so as not to over-stimulate the economy and create inflationary pressure.

One particular aspect of the effect of indirect taxes on spending is particularly worthy of comment. Indirect taxes affect the pattern of spending and, therefore, the pattern of production. The negative aspect of this effect is evident in the case of excise duty. One of the reasons given for the imposition of excise tax on alcoholic drinks and tobacco products was that the tax would discourage the consumption of these goods. Similarly, a substantial rise in the excise tax on petroleum products helps conserve dwindling reserves.

Taxes can also be used to encourage production. One of the results of customs duty is to increase the cost of imported goods. This may induce consumers to buy Australian-made goods instead, thereby increasing local production. In a similar manner, a temporary cut in sales tax on products has been used in the past to increase sales, which can help an industry out of a slump and maintain local production and employment, at least in the short term. This is why governments spend an extensive amount of time in community consultation to consider the implications of any changes to taxation policy.

6.3.3 Goods and negative externalities

You will recall that in 6.1.1 we discussed the distinction between private and public goods. *Private goods* – such as cars, clothes and restaurant meals – are provided in the marketplace with a goal to maximise profits for firms and maximise utility for the household sector. *Public goods* – such as education, health care and defence – are largely provided by governments, through the collection of taxation revenue, with the goal of maximising positive social outcomes for the economy and society. It is important to note, however, that some public goods, including some health-care and education services, are also provided by firms with a view to making a profit, through the provision of the public good in return for a fee.

Another distinctive difference between private and public goods centres on the two connected concepts of the **exclusion principle** and the **free-rider problem**. The exclusion principle occurs in the market through the consumption of private goods, when consumers or firms that do not pay for a good or service are excluded from any benefits derived from that good or service. This, in turn, may lead to the creation of negative externalities for third parties not involved in the market transaction. If we return to our leaded petrol example, we can concede that someone who is unable to afford the cost of running a car is naturally excluded from purchasing petrol and also from the benefits and convenience of using a car. However, we must also accept that they are not excluded from the health hazards generated by the pollution from the other people who use leaded petrol.

When we examine the free-rider problem (see Figure 6.14), we also find that negative externalities may exist. The free-rider problem, which is a form of market failure, occurs through the consumption of public goods. It becomes an issue when consumers or firms can derive a greater benefit from the consumption of the public good than what they contributed to the cost of that public good through their taxes. In extreme examples, a society may find that an individual has derived a benefit from the consumption of a public good without having contributed directly to the cost of that good at all.



FIGURE 6.14 The free-rider problem

To highlight the free-rider problem, consider a simple example, such as the provision of a state library, museum or art gallery. These types of facilities are funded through the taxes of all citizens. They are often located in major cities. Therefore those of us who live in the city, close to these facilities, may choose to access and use them on a monthly, weekly or even daily basis. Now consider those members of the public who live in rural or provincial areas. Their access to these facilities is extremely difficult due to the tyranny of distance. Clearly those citizens who live in a state capital such as Brisbane, close to such institutions, can enjoy the ‘free-ride’, where they can maximise their private benefit with a comparatively low social cost; while those living in the central Queensland town of Cunnamulla are paying the same taxes as their Brisbane counterparts, but not receiving the same benefits.

Both the exclusion principle and the free-rider problem illustrate potential failures in the market and a resulting rise in negative externalities. This leads us to discuss perhaps the biggest challenge for all economies: how to deal with negative environmental externalities.

6.3.4 Environmental externalities and property rights

If we were to begin from the premise that a society and an economy should exist to benefit all of their citizens and to improve the standard of life for all of their population, then it naturally follows that citizens, via their government, have a responsibility to reduce the negative externalities that arise from market failure. Conceivably, the negative environmental externalities that affect our air, water and land, due to pollution from both production and consumption alike, provide the greatest risk – not only to our current quality of life, but also, as science reminds us, our long-term viability and existence as a species.

If we examine the problem of pollution from an economic perspective, we can immediately recognise that a significant dimension of the problem is the fact that no single individual or firm owns all the air, water and land resources. Accordingly, if there is no single owner of these resources, then it could be argued that it is not in any individual owner's interest to ensure that these resources are used in an efficient and sustainable manner. Thus a situation arises where all individuals and firms seek to exploit these jointly held resources to secure the greatest possible personal benefit, thus furthering their own needs without any concern for third parties. The irony is that as demand for these resources exceeds supply, the consumption of every additional unit directly harms their long-term availability and therefore the long-term viability of all individuals and firms using them. This is known as the **tragedy of the commons**, where citizens of a society face difficult and complex choices over the use of commonly held resources such as water, air and public land.

One solution to this problem is to assign **property rights**, which are legislated measures created by governments to administer the ownership, uses and disposal of resources by individuals and firms.

Let us consider an example illustrating the creation of an environmental externality in the absence of property rights. Imagine that a state government has approved the positioning of an open cut coal mine next to prime rural farming land as seen in Figure 6.15.



FIGURE 6.15 Rural farming land and an open cut coal mine

Running throughout this rural district, and connecting both the mine and the adjoining farms, is a series of natural aquifers – underground water sources that currently provide water for the farms. If no one owns these natural water sources, then, just like the farmers, the mine operators are free to use the water supply as they see fit, at zero private cost.

As the mine begins running, its operators must make myriad decisions, ranging from how to manage the levels of dust going into the atmosphere due to blasting and digging, through to how they will dispose of the mine's waste. The mine operators start to draw on the aquifers and using the water to spray the mine site to reduce dust entering the atmosphere. Within the confines of the mine site, they also create a 'waste pond', which is a dam used to store toxic waste from the mining operations.

Can you start to see some of the negative environmental externalities that have been created? First, water that could be used to grow crops is now being depleted to control dust. Second, there is potentially a risk of toxic waste escaping into the underground water system or directly into adjoining farms. So the social costs of the mining operation are not zero.

In this example, however, we can correct the negative externality by creating a property right where one does not currently exist. Let us assign the property rights of the aquifers to the

farmers. Now that the farmers own the water source, the mine owners have to pay for the use of that water and also pay for any damage caused to the water supply from the toxic waste pond. We now have a situation where the miners' private costs are directly affected by their decisions relating to the broader social costs and externalities. As a consequence of property rights, the mine owners will now seek to reduce the externalities of their operation so they can reduce their private costs and risks associated with the water supply.

From this example we can see how the assigning of property rights can reduce negative environmental externalities. Follow-on questions for government naturally arise regarding how property rights should be assigned. For example, does it matter who the property rights are assigned to, the victim of pollution or the polluter?

6.3.5 Tradeable permits and pollution rights

One solution to the issue of pollution, which is being embraced by a number of economies, is the creation of a market for pollution rights. The justification for this approach stems directly from the fact that our air, oceans, beaches, reefs, rivers, waterways, national parks and many of our forests are communally owned, and this has led to the 'tragedy of the commons'. As we have discussed, the heart of the problem is the fact that there are no property rights attached to these resources. No single organisation or individual has any economic inducement to keep these resources free from pollution. Consequently, our society is faced with the reality of these resources being freely available to all of society's citizens, who in turn are permitted to over-consume these resources and slowly destroy them with pollution.

It would be extremely challenging for governments to issue property rights to all of our communal resources. Imagine, for example, the controversy if our beaches were owned and operated by private corporations, which could then charge beachgoers a fee to access the surf, sand and sun. While we would have cleaner beaches – as it would be in the interests of the owners to keep the environment clean to attract the maximum number of beachgoers – the public outrage and protest that would result from having to pay to go to the beach would be politically damaging to the government that issued those property rights.

So an alternative to protecting the environment would be the setting up of a market for pollution permits. The **tradeable permit system** is a government tool that creates allocated pollution permits, thus allowing firms to emit a certain amount of pollution. These permits are then tradeable on an open market between competing firms, similar to a share market. Consequently, as there would be a limited number of permits, the laws of demand and supply would formulate the market price for pollution and thus help cap the damage done to our communal resources.

Case study example: CSIRO

To further explain this, consider a hypothetical scenario where the federal government, having consulted with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), which is the agency for scientific research in Australia, has determined that 750 units of air pollutants per year can be safely released by industry into the atmosphere in a given area. At this level, CSIRO notes, the environment within that given region can adequately cope with air pollutants and reprocess them into clean air. We now have a situation where there are 750 air pollution permits available for sale to firms in that given district per year. These pollution permits can now be traded on an exchange, where buyers and sellers can bid for the permits that they need. Firms are only allowed to release air pollutants in accordance with the number of permits they own.

As the supply of permits is fixed, using price mechanism theory we can predict what will happen to the value of those permits. Figure 6.16 highlights the perfectly inelastic supply of the fixed amount of pollution rights and the resulting impact on price.

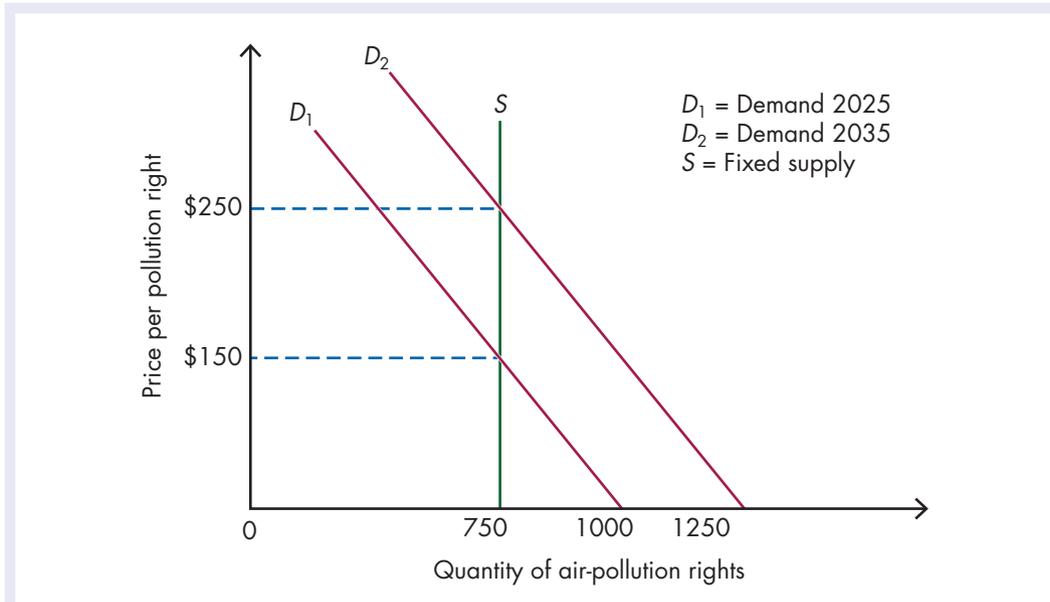


FIGURE 6.16 The market for air-pollution rights

We can see from Figure 6.16 that as the demand for pollution permits rises from 2025 to 2035, so does the price of the permits, as the annual supply of pollution rights does not change. The tradeable permit system now provides an economic incentive for firms to change their behaviour in relation to the release of air pollutants. Accordingly, most firms will seek to instigate production processes that minimise the negative externality of air pollution, thus reducing their reliance on purchasing the necessary pollution permits, which add to their production costs.

Issues with assigning property rights

Most economists recognise the theoretical value of having a tradeable permit system to help manage the pollution problem within an economy, but there are some significant political and social challenges in trying to move from economic theory to reality. The key issues are summarised below.

- For the scheme to work, all nations and all states within a nation would need to agree to the system and participate in the market.
- Firms, industry and governments need substantial preparation time to implement the new market system, with some firms requiring initial government support as they adjust to the new market.
- To have a well-informed market, the pollution emissions data used to calculate the number of available permits needs to be accurate and reliable for market participants to have faith in trading on the market.
- To ensure the relative scarcity of supply of permits, which is crucial to the market's success, the authorities charged with overseeing the market need to ensure that unused permits can be banked and stored by firms. Forfeiture of unused permits would affect the inherent value of all other permits on the market.
- Governments would need to be actively involved in monitoring and enforcing pollution emissions levels so that firms do not try to fraud the market system.

Clearly the transition to a new tradeable permit system for pollution emissions will take time, commitment and a comprehensive public policy approach from all levels of government.

The scheme is not without its challenges, but without it the tragedy of the commons will continue and pollution, along with climate change, will remain humankind's ultimate dilemma.

ECONOMICS CHALLENGE



The tragedy of the commons

In 1968, an American ecologist, Garrett Hardin, published an article entitled 'The tragedy of the commons'. In the article, he noted that when resources are held commonly, it is in an individual or firm's own self-interest to use as much of the resource as possible to maximise their utility (in the case of an individual) or their profit (in the case of a firm).

This economics challenge invites you to find out more about the tragedy of the commons as it relates to the world's oceans and the problem of overfishing. Visit the websites suggested on the following page to establish an understanding of the problem of overfishing of a particular species of fish; for example, the bluefin tuna. Use the following questions to guide your research to compare and contrast the various approaches that nations are using to protect precious fish stocks.



Worksheet
6.2 Economics
Challenge

- a **Analyse** how the supply of fish has changed over the last 10 years.
- b Explore how world demand and prices for fish stocks have changed over the last 10 years.
- c How has technology influenced the finding and catching of fish?
- d How has fish farming affected fish stocks over the last 10 years?
- e How has an increase in recreational fishing affected fish stocks?
- f What impact has ocean pollution had on fish stocks over the last 10, 20 and 30 years?
- g What measures have developed nations put in place to protect fish stocks?
- h What measures have developing nations put in place to protect fish stocks?
- i What measures does the United Nations want put in place to protect fish stocks?



Diarmuid/Alamy Stock Photo

FIGURE 6.17 A commercial haul of fish

Continued

Continued

Suggested websites

Use the search function within the following websites.

- World Wildlife Fund – bluefin tuna
- United Nations
- Fisheries Research & Development Corporation
- National Oceanic and Atmospheric Administration Fisheries
- GreenFacts – Fisheries
- Greenpeace – Overfishing
- Ocean & Climate Platform.

Now that you have completed some preliminary research on the overfishing problem, construct a synthesised response to the following inquiry:

Evaluate whether or not governments from around the world should agree to intervene in and modify the commercial fishing sector. Your response should include a discussion of what legislative policies, incentives and disincentives are available to governments to restrict and police the commercial fishing sector. Your response should also include an explanation of the possible ramifications for any market intervention by the setting of property rights.

R 6.1 Terminology

Select the correct term from the list below that describes each statement.

- | | | |
|---------------------------------|------------------------------|-----------------------------|
| A tragedy of the commons | E indirect tax | I free-rider problem |
| B externalities | F price ceiling | J price surveillance |
| C public goods | G property rights | |
| D monetary policy | H exclusion principle | |
- 1 a price fixed by the government at a higher level than what would be established by the free operation of the price mechanism
 - 2 tax that can be passed on to others by the person or firm on which it is levied; for example, goods and services tax or customs duty
 - 3 when consumers or firms in a society can derive a benefit from the consumption of a good or service without having contributed directly to the cost of that good or service
 - 4 the overuse or destruction of a common property good because it has no price and so markets do not ration its consumption
 - 5 when consumers or firms that do not pay for a good or service are excluded from any benefits derived from that good or service
 - 6 policy measures implemented through the Reserve Bank of Australia to bring about changes in aggregate demand by influencing money supply and interest rates
 - 7 indirect costs and benefits associated with the production and consumption of certain goods and services that the market fails to take into account
 - 8 goods or services provided by the government sector for societal use and benefit, usually in response to a market unable to supply those goods or services at a reasonable cost
 - 9 legislated measures created by governments to administer the ownership, uses and disposal of property
 - 10 the overseeing by government regulatory bodies of price rises in markets where competition is not strong

R 6.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 Which of the following would **not** be an example of deregulation?
 - A** The government opens up the banking sector and allows foreign banks to operate in Australia.
 - B** The government decides to privatise Australia Post.
 - C** The government outlaws compulsory union membership for construction workers.
 - D** The government imposes restrictions on the hours of trade for retail shopping centres.
- 2 The pollution generated from a coal-fired electricity station is an example of:
 - A** a public good.
 - B** a negative externality.
 - C** a necessary cost of production.
 - D** an intermediate good.

- 3 Which of the following is **not** a valid reason for government to intervene in and attempt to modify a market?
- A to manipulate prices and increase tax revenue
 - B to correct market failure
 - C to improve economic growth
 - D to improve the distribution of income and wealth
- 4 One of the factors affecting the demand of labour available for a particular kind of work is:
- A the strength of the unions in the industry.
 - B the wages offered in the industry.
 - C the capital intensiveness of the industry.
 - D the worker skill set required in the industry.
- 5 One of the factors affecting the supply of labour available for a particular kind of work is:
- A profit expectations of business.
 - B geographical location.
 - C size of market.
 - D capital intensiveness of operations.
- 6 Which of the following is **not** an example of a fiscal policy measure?
- A Interest rates within an economy fall.
 - B Tax cuts are provided to low-income earners.
 - C A tariff is introduced on imported luxury cars.
 - D An Australian manufacturer is awarded a major government contract.
- 7 Which of the following actions can the government take to modify the marketplace?
- A encouraging the formation of monopolies
 - B preventing restrictive trade practices
 - C discouraging competition
 - D avoiding regulation of foreign investment and ownership
- 8 Which of the following is **not** prohibited by the *Competition and Consumer Act 2010* (Cth).
- A interlocking directorships
 - B monopolisation
 - C discriminatory dealing
 - D resale price maintenance
- 9 Competition policy aims at establishing an economic environment that promotes:
- A an increase in the production of public goods.
 - B an increase in the production of merit goods.
 - C greater government control of markets.
 - D economic efficiency and growth.
- 10 Which of the following responsibilities is managed by the federal government within the Australian labour market?
- A overseeing workplace safety and workers compensation exclusively
 - B setting out minimum employment standards through the Fair Work System
 - C administering state-level industrial relations independently
 - D developing skills programs and local workplace regulations

- 11 Which of the following are all examples of an indirect tax?
- A income tax, excise, company tax
 - B excise, customs duty, GST
 - C company tax, GST, income tax
 - D customs duty, income tax, GST
- 12 Which of the following is an example of government price fixing above market equilibrium?
- A setting the tax-free threshold
 - B setting a national cap on public housing rents
 - C setting a national minimum wage
 - D setting restrictions on foreign investment
- 13 The purpose of taxation policy is to:
- A raise government revenue, influence consumer behaviour and generate capital investment.
 - B raise government revenue, penalise foreign business activity to help maintain domestic competition and restrict consumer behaviour.
 - C raise government revenue, restrict certain market behaviour, help maintain competition and improve social outcomes.
 - D raise government revenue, restrict competition and improve social outcomes.
- 14 Which of the following provides the best example of the tragedy of the commons?
- A the overuse of capital goods in an economy
 - B the overfishing of the world's oceans
 - C the overuse of cheap migrant labour in farming
 - D the overgrazing of livestock on a privately owned cattle station
- 15 Which of the following provides the best solution to the tragedy of the commons?
- A Increase government restrictions on business activity.
 - B Educate consumers on environmental protection issues.
 - C Maintain a totally free market economy.
 - D Issue property rights.

R 6.3 Activities

Simulation



Weblinks
 'Tragedy of the Commons' online simulation

Fair Work Commission

Visit the Massachusetts Institute of Technology website and play the online simulation 'Tragedy of the Commons'.

Research report

In November 2022, a Full Bench of the Fair Work Commission resolved that aged care workers deserved an increase to their award wage. The Full Bench interim decision was to increase award rates for these workers by 15 per cent.

Examine the case through the Fair Work Commission website and news accounts. **Analyse** the costs and benefits of the decision, and **evaluate** whether the judgement is good for the Australian economy. You should include in your response a stakeholder summary clearly identifying who will be better off and who will be worse off under the new arrangement.

Interpretation and research

Australia's low smoking rate is the result of a concentrated long-term and comprehensive public policy effort from all levels of government. Review the graph in Figure 6.18 and the tobacco control timeline on the following page, and then complete these tasks:

- 1 Generate a table and categorise each policy action under the headings of health education, taxation and direct legislation.
- 2 **Consider** the graph and timeline, and decide which form of government intervention had the greatest impact on reducing the prevalence of smoking. **Explain** your reasoning.
- 3 **Consider** the graph and timeline, and decide which form of government intervention had the least impact on reducing the prevalence of smoking. **Explain** your reasoning.
- 4 **Analyse** the latest data on smoking prevalence in Australia and decide whether any more government intervention is required to further reduce the prevalence of smoking. Do you think it is possible to reduce smoking prevalence to below 10 per cent? Below 5 per cent? **Explain** your reasoning.
- 5 **Analyse** the latest data on smoking prevalence in a developing economy of your choice. Then establish what (if any) government policy actions are intervening in their tobacco market to reduce the prevalence of smoking within their population.



Worksheet
R.6.3
Interpretation
and research

Chapter

6

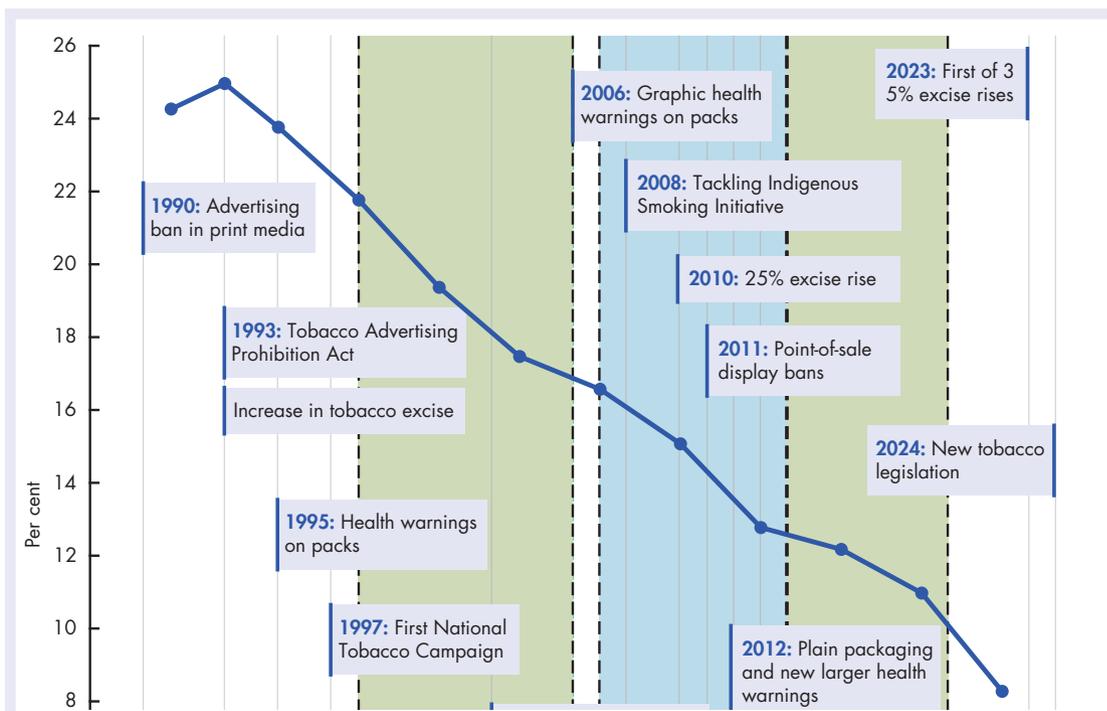


FIGURE 6.18 The decline in smoking prevalence rates for the '14 years or older' demographic, mapped against key tobacco control measures implemented by the Australian Government since 1990

Tobacco Control key facts and figures (2016), The Department of Health, Figure 1, <http://www.health.gov.au/internet/main/publishing.nsf/content/tobacco-kff>, Data Source: National Drug Strategy Household Survey reports: 1991, 1993, 1995, 1998 to 2013.

TOBACCO CONTROL TIMELINE

1973 – health warnings first mandated on all cigarette packs in Australia
 1976 – bans on all cigarette advertising on radio and television in Australia
 1986 to 2006 – phased-in bans on smoking in workplaces and public places
 1990 – bans on advertising of tobacco products in newspapers and magazines published in Australia
 1992 – increase in the tobacco excise
 1993 – *Tobacco Advertising Prohibition Act 1992* (Cth) prohibits broadcasting and publication of tobacco advertisements
 1994 to 2003 – bans on smoking in restaurants
 1995 – nationally consistent text-only health warnings required
 1998 to 2006 – bans on point-of-sale tobacco advertising across Australia
 2006 – graphic health warnings required on packaging of most tobacco products
 2010 – 25% increase in the tobacco excise
 2011 – first complete state or territory ban on point-of-sale tobacco product displays
 2012 – offence for any person to publish tobacco advertising on the Internet or other electronic media
 2012 – introduction of tobacco plain packaging, and updated and expanded graphic health warnings
 2013 – changes to the bi-annual indexation of tobacco excise and the introduction of the first 12.5% tobacco excise increase on 1 December
 2014 – 12.5% excise increase on 1 September
 2015 – 12.5% excise increase on 1 September
 2016 – release of the Post Implementation Review of Tobacco Plain Packaging
 2016 – 12.5% excise increase on 1 September
 2017 – additional four annual 12.5% tobacco excise increases implemented on 1 September each year from 2017 to 2020 inclusive
 2017 – reduction in duty-free tobacco allowance, 25 grams of duty-free tobacco (cigarette, loose leaf etc), plus one open packet; equivalent to approximately 25 cigarettes
 2017 – harmonisation of the taxation of roll-your-own tobacco and other products such as cigars, with manufactured cigarettes

Source: Department of Health

Calculations

Using the graph in Figure 6.19, answer these questions.

- 1 What is the equilibrium wage?
- 2 What is the equilibrium quantity of workers?
- 3 What would be the shortage of workers if there were a wage ceiling in place of \$1000 per week?
- 4 What would be the surplus of workers if there were a guaranteed minimum wage of \$1400 per week?
- 5 Based on your above answers, should the government intervene in the labour market to set wages? **Explain** your reasoning.



Worksheet
R6.3 Calculations

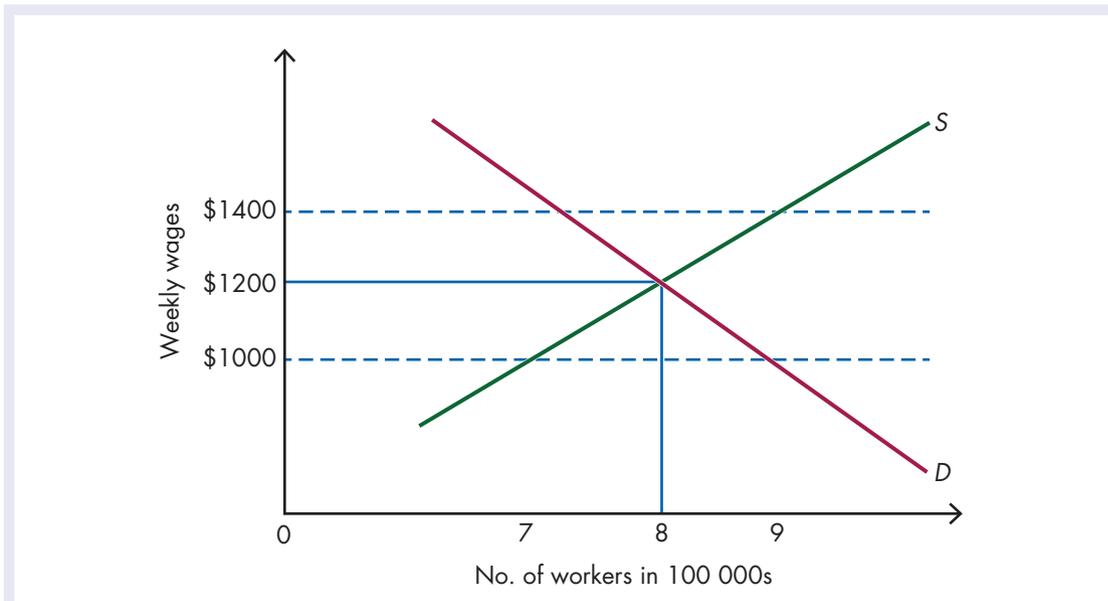


FIGURE 6.19 Wages vs workers graph

R 6.4 Inquiry topics

Complete one or more of the following inquiries using a model of inquiry.

- 1 **Analyse** the costs and benefits of decreasing wages for young people. **Evaluate** such a policy using economic criteria.
- 2 **Analyse** the externalities in Australia's alcohol market and **evaluate** if the current market interventions have been beneficial for Australia's standard of living.
- 3 One of the solutions to reducing air pollution is for governments to commit to a worldwide emissions trading scheme. Australia's carbon tax system is one of 25 emissions trading schemes around the world.
 - a Read the article 'Australia's new emissions trading scheme is a carbon tax' by Alan Kohler on *The New Daily* website.
 - b **Analyse** the market for Australian Carbon Credit Units and **evaluate** Australia's policy to address climate change using a variety of stakeholders.



Worksheet
R6.4 Inquiry topics



Article
The New Daily article

Economics in Action worksheets:

- 6.1 Economic growth
- 6.2 Price controls

Economics Challenge worksheets:

- 6.1 Economics Challenge
- 6.2 Economics Challenge

Chapter 6 Review worksheets:

- R 6.3 Calculations
- R 6.3 Interpretation and research worksheet
- R 6.4 Inquiry topics worksheet

Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





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7

Market concentration

Market concentration and market power change over time, affecting the operational efficiency of the market.

Focus questions and inquiries

- Why are some markets dominated by only a few competitors?
- Why do some markets cease to exist over time and new ones commence?
- What are the strategies firms use to try to dominate and control markets?
- Why is competition considered desirable in the Australian economy?
- What are the positive and negative externalities that arise out of market concentration?
- What can the government do to regulate competition? Why is this necessary?

This chapter will examine:

- the organisation of production
- sources of market power
- private and social costs and benefits of concentrated markets
- the role of governmental regulatory bodies.

7.1 The organisation of production

CONCEPTS



Efficiency: using the least amount of resources to produce the goods and services that people value the most; how cheaply and productively firms can combine land, labour, capital and enterprise resources to maximise output while generating profits

Firm: the basic unit of organised production, which can range in size from a sole trader to a global corporation employing hundreds of thousands of people; also called a business

Industry: a collection of firms that produce the same type of product

Primary production: includes all industries involved in the cultivation of land, the

grazing of animals and the extraction of raw materials from the land and sea

Productivity: a measure of the efficiency of production, expressed in terms of the rate of output per unit of inputs

Quaternary production: includes all industries involved in the production of services relating to information and communication

Secondary production: includes all industries involved in processing raw materials and producing goods

Tertiary production: includes all industries involved in the provision of services rather than the production of goods

KEY IDEA

Industries are broadly classified into four categories: primary, secondary, tertiary and quaternary production.

To begin to understand how market concentration affects society, we first need to appreciate how production is organised by firms in our economy. After all, it is firms that produce the goods and services that make up the market. In 7.1.1, we will examine the four broad categories into which industries are usually grouped. We will then look at what is meant by an ‘industry’ and a ‘firm’. Finally, we will consider some of the ways in which firms within industries behave.

7.1.1 Types of production

Economic forms of production can be classified into four categories: primary, secondary, tertiary and quaternary.

Primary production includes all industries that are concerned with the cultivation of land, the grazing of animals and the extraction of raw materials from the land and sea. The output of this form of production is either marketed in its raw state, as in the cases of meat, fruit and vegetables, or channelled into further stages of processing, such as the production of flour from wheat.

Secondary production includes all industries that are connected with the processing of raw materials and the manufacture of goods that can be either marketed in their final form or used as inputs for the production of other goods. In the case of motor vehicle production, for example, the large companies involved in vehicle assembly rely on primary industries

for raw materials, on other secondary industries for the supply of components that become inputs in the assembly process, and on tertiary industries for the supply of essential services such as power and transport.

Tertiary production includes all industries that provide services rather than produce goods. It includes industries such as power, building and construction, transport, tourism, health care and public services.

Quaternary production includes all ICT (information communication and technology) industries that provide services rather than produce goods. It includes firms that provide services relating to transforming knowledge and information, such as the media, telecommunications, banking and education.

The economic forms of production are estimated to contribute to gross domestic product (GDP) according to the percentage displayed in Figure 7.1.

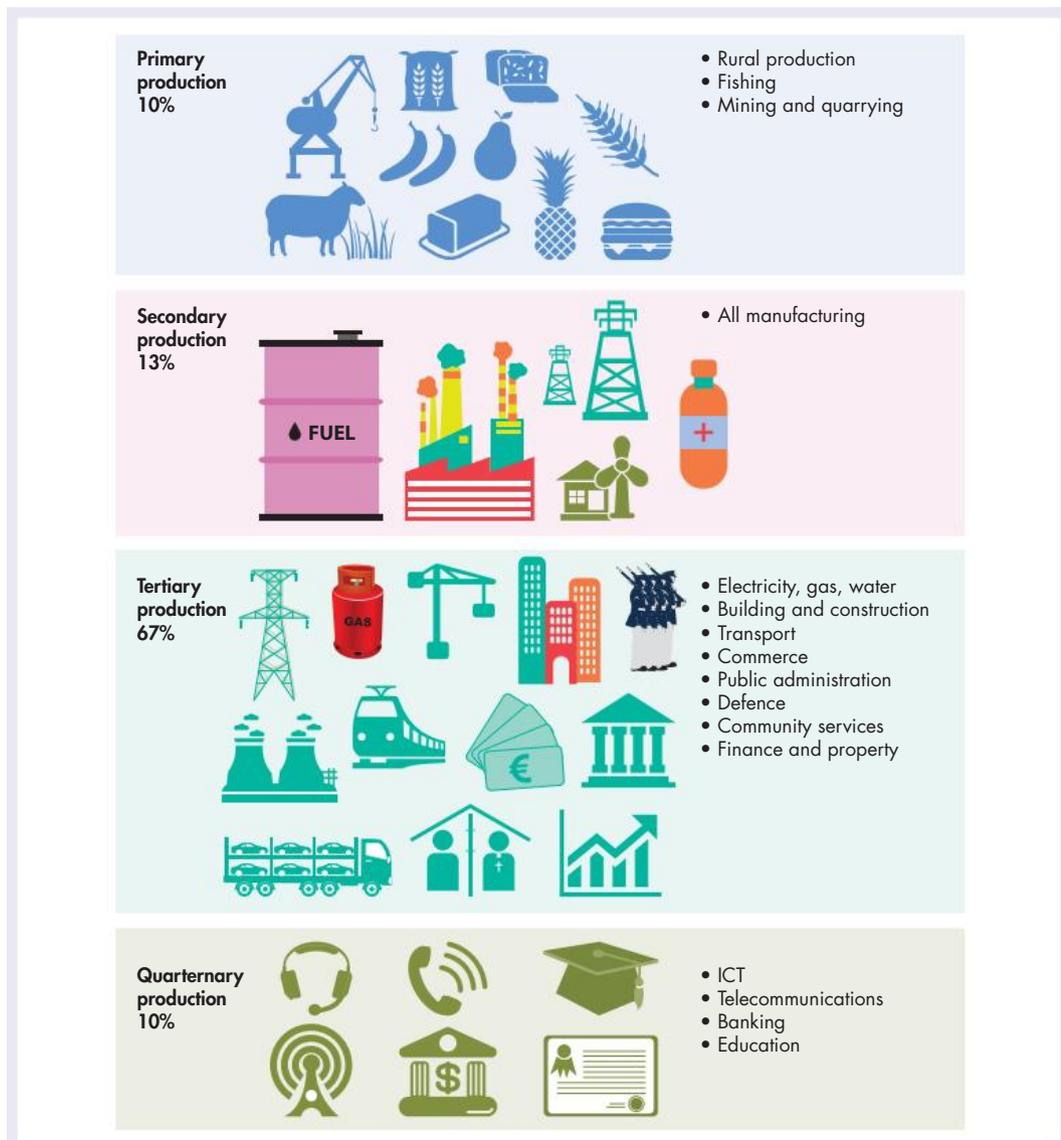


FIGURE 7.1 The contribution of industry groups to GDP

To further understand how production is organised in our economy, it is essential to understand the difference between a firm and an industry.

KEY IDEA

Firms exist to carry out production. They can be categorised according to type, stage of production, ownership and size.

The **firm** is the basic unit of organised production. In its simplest form, it consists of an entrepreneur who uses available resources to produce a commodity that can be marketed.

In the modern economy, production is conducted on various scales. For instance, there is an obvious difference between the scale of operation of your local convenience store and that of BHP Billiton. The size of a firm is usually related to the type of function it performs in the economy. Your local shopkeeper provides a personalised service requiring only a small amount of resources. On the other hand, BHP Billiton is involved in production on a scale that requires an amount of resources that is so large it is beyond the means of any one individual to finance. In a free enterprise economy such as Australia's, entrepreneurs can choose the style of operation they think will maximise profits.

KEY IDEA

An industry consists of one or more firms engaged in a similar productive activity in the supply of goods or services.

An **industry** is said to be a collection of firms involved in the same productive process. For example, when we speak of the Australian mining industry we are usually referring to the firms that mine commodities in Australia. BHP Billiton and Fortescue Metals are firms involved in this industry.

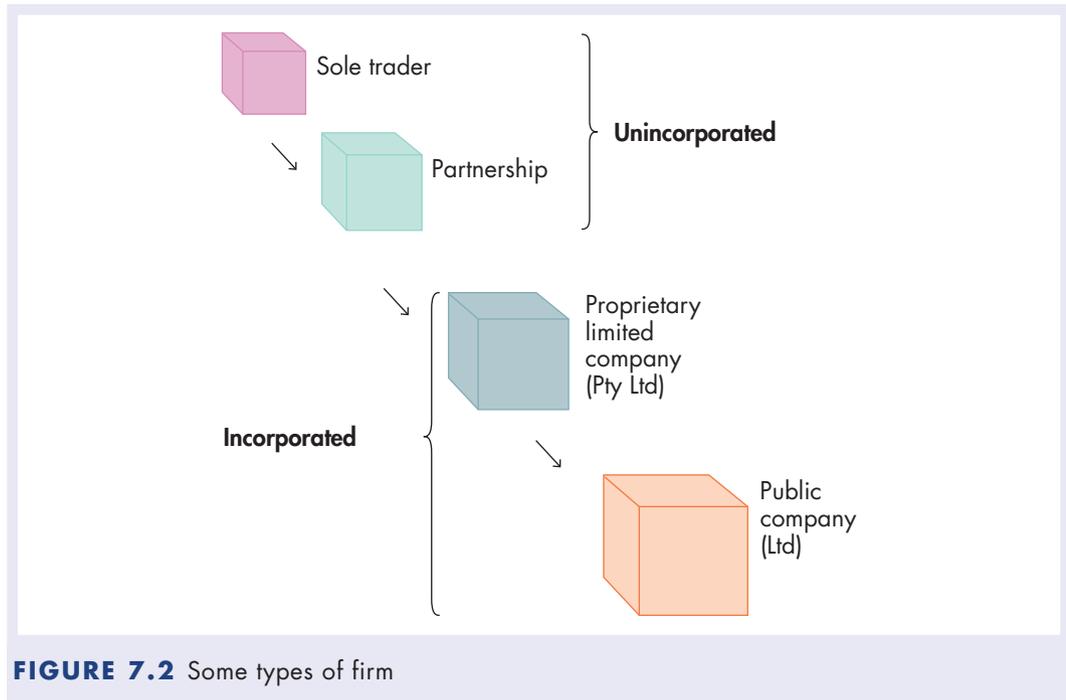
When discussing an industry, it is essential to define its boundaries as clearly as possible. This is due to the fact that in some instances, some large firms will have interests in a number of areas that cross over several industries. For example, Wesfarmers operates businesses across two industry sectors. Within the retail sector it owns and operates Bunnings and Officeworks, and within the industrial sector it owns and operates Wesfarmers Energy, Chemicals and Fertilisers. It previously held Coles in its portfolio; however, in 2018 Wesfarmers spun off Coles into a separate company.

KEY IDEA

The type of ownership and size of firms vary in different industries to suit the environment in which they operate.

In examining types of firm – see Figure 7.2 on the following page – we should keep in mind that business organisation is determined by the following factors:

- the function being performed by the firm
- the capital requirements
- the legal constraints.



ECONOMICS CHALLENGE



WebLink
Australian Securities
and Investments
Commission (ASIC)

Visit the website for the Australian Securities and Investments Commission (ASIC) to search Australian definitions of each of the following types of firms. **Describe** the essential characteristics of each type of firm.

- 1 Sole trader
- 2 Partnership
- 3 Private company
- 4 Public company
- 5 Holding company
- 6 Cooperative
- 7 Government business undertaking

CHECK FOR UNDERSTANDING 7.1

- 1 **Distinguish** between a firm and an industry.
- 2 **Distinguish** between unincorporated and incorporated firms.
- 3 The Commonwealth Bank of Australia (CBA) and Telstra were once fully owned and operated by the federal government. CBA was listed as a public company on the Australian Securities Exchange (ASX) in 1991 and Telstra was listed in 1997.
 - a **Analyse** the costs and benefits of 'privatising' some government enterprises, such as CBA and Telstra.

Continued

Continued

- b Evaluate** the government's use of privatisation of enterprises using a variety of stakeholders.
- 4** Queensland has seen political power gained and lost over state decisions to sell government assets. Research the most recent asset sale, and **evaluate** the outcome according to the criteria of state economic growth and employment.

7.1.2 Productivity

KEY IDEA

The firm provides a means of analysing the production function and the theory of productivity.

The primary goal of firms is to generate profit. Accordingly, entrepreneurs give much attention to issues of productivity and efficiency within the production process, to reduce costs and maximise output, thereby providing a competitive advantage to ultimately increase market share.

In real terms, **productivity** means the amount of output produced per unit of input over a given period of time. It is usually measured as the average rate of output per worker (or labour unit), or per unit of capital employed. **Efficiency** means using the least amount of resources to produce the goods and services that people value the most.

As productivity increases, more goods and services are produced for each unit of input. All firms (and nations), therefore, try to become more efficient. Profit increases, the overall production and prosperity of the nation increases, and firms (and the nation) as a whole become more internationally competitive. Eventually, over time, this leads to an efficient allocation and use of resources as dictated by markets and the firms that operate within them.

Whether this is achieved depends on many factors, such as the technology and capital equipment used, the size of the firm, the size and efficiency of the market, the size and quality of the labour force, the number and severity of industrial disputes, the size and efficiency of infrastructure, and actions of the government.

ECONOMICS IN ACTION



Productivity

Productivity growth has been one of the primary drivers of increasing living standards for Australians. The more goods and services a society can produce with a given set of inputs, the greater the material standard of living of that society.

The Productivity Commission website contains a raft of data for economists.

- Go to 'Australia's productivity performance' (under 'Ongoing reporting'). **Analyse** both 'multifactor productivity' and 'labour productivity' for the most recent year and the five-year average.
- Go to the 'Performance reporting dashboard' (under 'Ongoing reporting'). This reports on Australia's progress against national goals of productivity performance. Choose two categories to **analyse** (e.g. 'housing' and 'education'). **Evaluate** the performance according to the criteria of living standards.



Worksheet
7.1 Productivity

Weblink
Productivity
Commission

CHECK FOR UNDERSTANDING 7.2

- 1 **Explain** the difference between production and productivity.
- 2 **Describe** how a local business could increase productivity. Compare this with how a fast-food outlet manages productivity.
- 3 Business success is primarily measured in profits generated. **Describe** other measures that could be applied to measure a firm's success.
- 4 Using your research into the Productivity Commission, **explain** how Australia can increase productivity.

7.2 Economies of scale

CONCEPTS



Diseconomies of scale: occur when a firm grows so large that the costs per unit increase; this happens when economies of scale no longer function for a firm

Economies of scale: the cost-saving advantages that a firm gains by increasing its scale of production

External economies of scale: the cost-saving advantages shared by firms in the same industry or region as a result of the overall growth and development of that industry or region

Internal economies of scale: the cost-saving advantages that a firm experiences as it increases its scale of production

KEY IDEA

There are economies of scale as well as diseconomies of scale associated with large-scale production.

As a firm grows, it will often seek to increase its share of the market by creating a competitive advantage over its rivals. One way of achieving a competitive advantage is to reduce the costs of production. This can be done through a reduction in labour costs, energy costs and/or raw materials costs.

As a firm or an industry grows, a reduction in overall production costs – as well as an increase in productivity – can also be gained through the introduction of new technologies. Think of a manufacturing firm that uses robotics in its production process, which eliminates the need for paid workers. The cost savings are readily apparent, with robots able to potentially work 24 hours a day without having to be paid or trained for the job, getting sick or going on holiday.

For a firm to be able to fully use modern techniques of production, it must establish itself at a size that covers the costs of its production process. For example, an individual sole trader who makes toys could not achieve the **economies of scale** that are attained by a major toy manufacturer, such as LEGO.

Economies of scale are broken down into two types.

Internal economies of scale are those that are derived by a firm as a result of an increase in the size of its own operations. As a firm grows, it can eliminate much of the wasted capacity that is often found in small-scale enterprises, thus reducing the fixed costs of the firm. For

example, increasing the degree of specialisation (see 7.2.1) among its employees will often lead to an increase in output and fewer faults in the final product.

External economies of scale are those benefits that accrue to all firms within an industry and to society as a result of the growth of an industry. For example, the growth of the mining industry throughout Australia has brought with it numerous external economies. Large mining companies have undertaken infrastructure investment in order to achieve high levels of efficiency. This form of investment includes the establishment of shopping facilities, houses, roads, railways, dams and port facilities. While the companies themselves obviously benefit, society as a whole also benefits through these positive externalities.



DedMityay/Shutterstock.com

FIGURE 7.3 The use of technology results in cost savings.

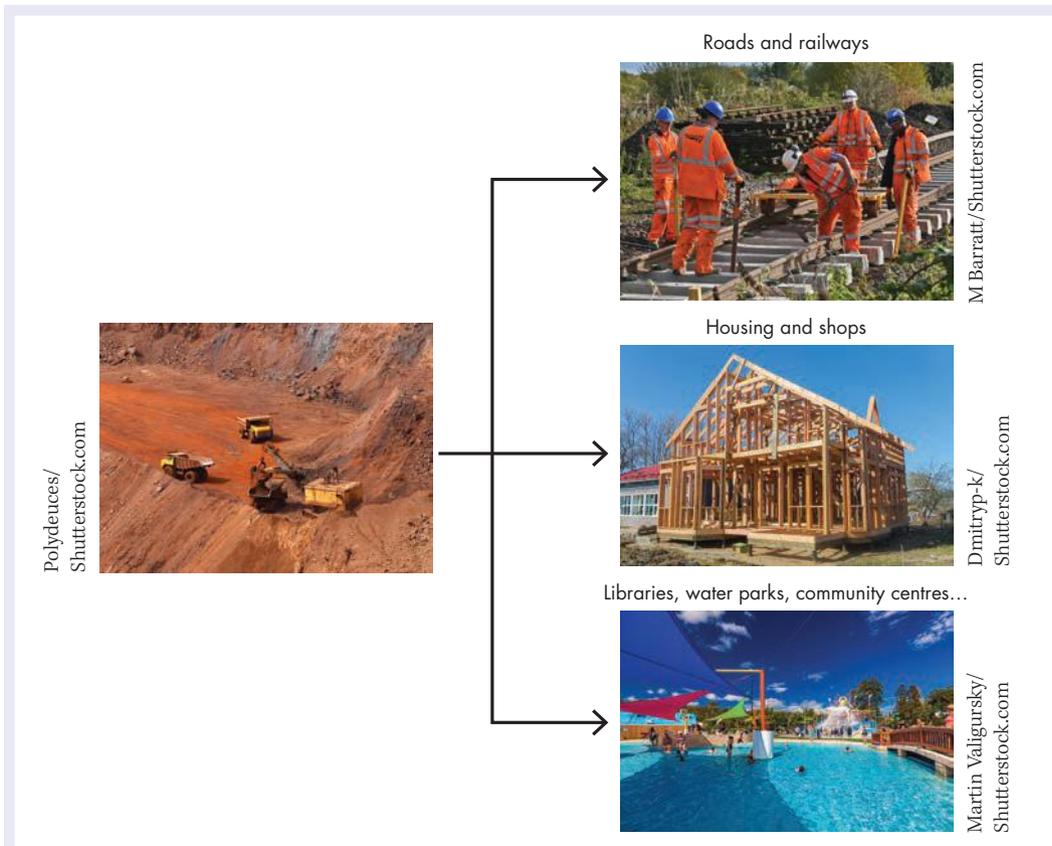


FIGURE 7.4 Fortescue’s iron ore mining operations have led to external economies of scale.

Economists also point to **diseconomies of scale** in relation to large-scale production. In recent decades, attention has been drawn to the environmental damage caused by some forms of large-scale production. As a result, more and more companies today take into account the environmental impact of their operations. Large mining companies, for example, undertake extensive land rehabilitation programs after they have completed their mining operations in a region.

A further problem that usually arises with large-scale production is that decision making becomes fragmented, and the communication process within a firm can deteriorate. For example, consider large multinational corporations with operational activities all over the world. Clearly there are challenges for the management of such organisations, which can potentially result in the generation of *negative externalities* (see Chapter 5 at 5.5.1).

CHECK FOR UNDERSTANDING 7.3

- 1 **Explain** the concept of 'economies of scale' and provide an example.
- 2 Select a local business with which you are familiar and **identify** the economies of scale that business has. Does it have any diseconomies of scale?

7.2.1 Specialisation

CONCEPTS



Division of labour: the separation of work into tasks so that each individual worker becomes expert at a specific task, thus ensuring maximum efficiency

Job rotation: a system of moving workers between different duties and tasks to reduce

the risk of boredom due to repetitive work practices

Specialisation: the use of the factors of production to perform narrowly defined, specific functions, such as assigning specific production tasks to a worker

In advanced economies such as the Australian economy, production is based on **specialisation**. This means that the factors of production are organised in such a way that their role in the production process is extremely narrow and clearly defined.

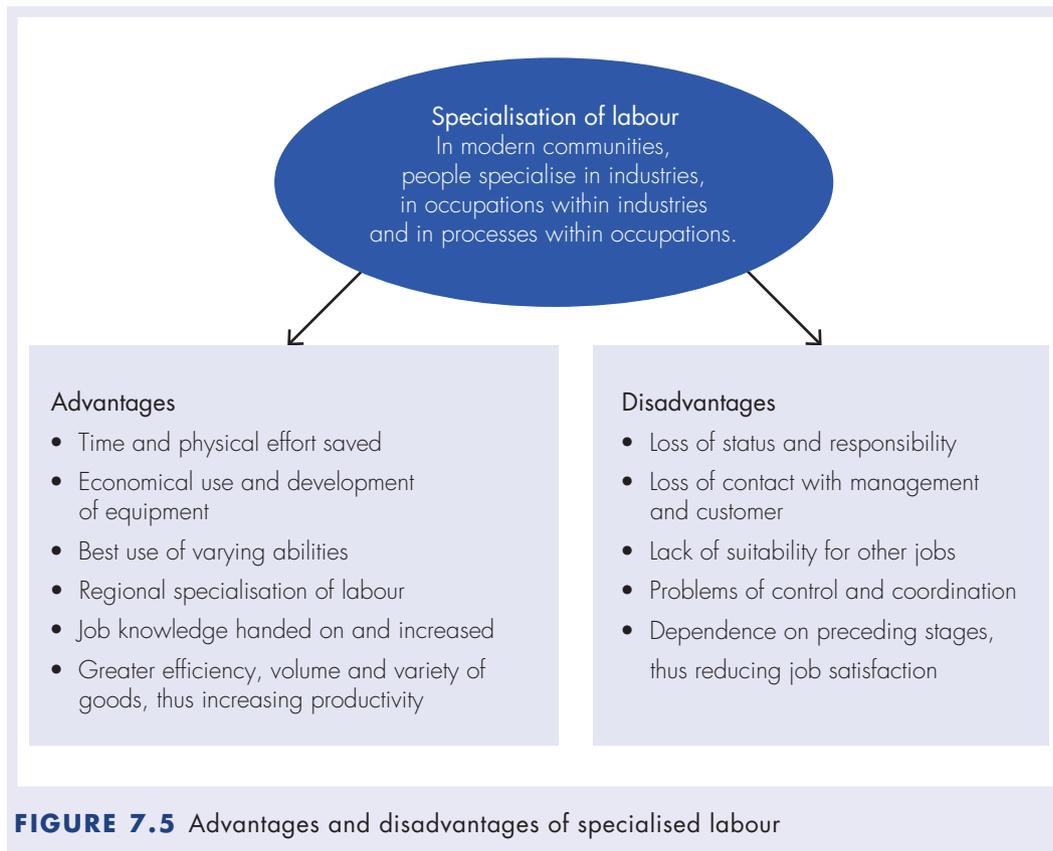
Accordingly, the more advanced an economy, the more likely it is there will be examples of specialisation across all four factors of production. For example, in terms of land, farmers generally choose to specialise in one or two crops, depending on their location. It is unlikely that you would find a wheat farmer trying to grow apples, or a sugar cane farmer growing vast quantities of vegetables. In cities, town planning has led to the zoning of land for specialised purposes: residential, high-rise development, light industry and heavy industry.

In terms of labour, specialisation – or **division of labour** as it is more commonly known – has become more and more common with the advance of technology, in particular robotics. The complexity of modern production techniques requires that each individual becomes an expert at a specific task to ensure maximum efficiency. A motor vehicle assembly plant provides a prime example of division of labour. Individual workers have specific tasks to complete as each vehicle body passes. Another good example of division of labour is in the building industry, with specialist trades completing specific tasks within a construction project.

While division of labour has meant that the productivity of each worker has increased significantly, numerous problems have arisen. Studies have shown that workers tend to 'tune out' when they are required to perform the same mundane task day after day. This may lead to deterioration in the quality of the final product and a decline in productivity. Managers have introduced various schemes in an effort to overcome the psychological impact of repetitive work.

One technique is to introduce a system of **job rotation** to break the monotony for workers. This system is found in many factories, where workers are given an opportunity to specialise in several skills (known as multi-skilling) and apply those skills across the production process.

Another technique is to use *work teams*. In the late 1980s, the Volvo motor vehicle company in Sweden experimented with an alternative approach to vehicle assembly. The company organised its workers into teams and each team assembled a complete vehicle. It argued that this approach restored a sense of worker identity with the final product, which is an aspect that tends to be lacking in conventional assembly line techniques.



Specialisation in terms of capital usage has developed concurrently with division of labour. As technology has advanced, highly specialised equipment has been introduced into the production process. A good example of this can be found in the mining sector. In 2015, Australian mining giant Rio Tinto began to use fully remote-controlled trucks to remove iron ore from two mines in Western Australia's Pilbara region.

Many firms have sought ways of reducing their labour input by incorporating greater capital (machinery, equipment and/or technology) into their production process. A modern oil refinery is a good example of highly specialised, capital-intensive production.

Specialisation in terms of enterprise is clearly related to the other three types of specialisation examined above: land, labour and capital. Entrepreneurs today tend to be skilled individuals who focus their skills on one aspect of the production process.

An examination of the management profile of any large company shows the diversity of skills required in the business world today. Figure 7.6 shows a management structure typical of most companies.

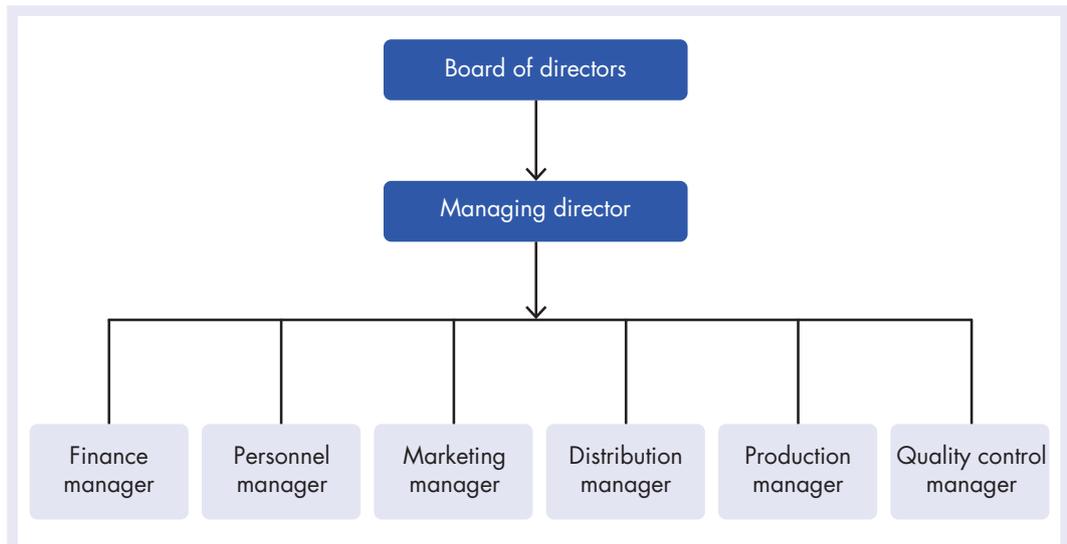


FIGURE 7.6 A typical management profile

We see, then, that specialisation is an integral part of the operation of the modern Australian economy. Specialisation enables the community to use available skills to full advantage, and ensures that resources are allocated as efficiently as possible. Increased specialisation leads to greater productive efficiency and provides a greater volume of output from a nation’s production process.

ECONOMICS IN ACTION



The use of technology in the mining sector has at times seen the achievement of economies of scale for the industry, as well as diseconomies of scale. **Analyse** the use of driverless trucks and trains on Australian mine sites and **evaluate** the costs and benefits of such a move by the industry.

7.3 Sources of market power

CONCEPTS



Amalgamation: the combination into a single business entity of firms that were previously independently owned and controlled, in order to enhance competitive strength

Barriers to entry: cost-based, market-based and legal-based factors that prevent

the entry of a new firm to an industry on a competitive level equivalent to that of existing firms

Cartel: a formal arrangement among firms to enhance their market power and profits by collectively controlling production levels, prices and market shares

Continued

Continued

Collusion: cooperation among independently owned and controlled firms to limit competition; for example, by collusive tendering

Concentration ratio: the percentage of the total sales accounted for by the largest four firms in a particular market or industry

Countervailing power: the influence that other groups can exert on a firm's decisions; for example, powerful customers, political interest groups or trade unions

Exclusive dealing: the imposition by a supplier of conditions on the supply of goods and services that limit the purchaser's freedom to choose alternative suppliers

First-mover advantage: the competitive advantage gained by firms that are first to enter a new market, including access to the best customers and suppliers, brand loyalty and economies of scale

Holding company: a company that owns and controls a number of subsidiary companies

Horizontal integration: where a single firm gains control of one stage of the production that serves many producers or industries; for example, owning all the abattoirs or export finance services

Market power: the ability to control and influence the market in one's own self-interest

Predatory pricing: a temporary price reduction by a dominant firm to discourage the entry of new firms and to force less-established firms out of the industry

Price discrimination: the charging of different prices to different customers of the same firm; for example, by way of selective discounts

Price leadership: where the price is set by the dominant firm in an industry that all other firms follow, thereby limiting price competition

Product differentiation: when producers try to give a good or service some characteristics that make it seem different from essentially similar products of competitors, to lessen the degree of substitutability and increase brand loyalty

Resale price maintenance: where a supplier specifies a minimum price to a reseller, below which goods and services cannot be resold or advertised

Vertical integration: where a single firm gains control of all of the stages of production and marketing distribution

KEY IDEA

Market power can lead to the exploitation of consumers and can restrict competition between firms in the marketplace.

Market concentration can change over time, resulting in changes to market structure. This can affect the broader economy in terms of the allocation and distribution of resources. As noted in Chapter 5 at 5.2, a competitive market will generally lead firms to engage in allocative, productive and dynamic efficiency. Accordingly, a high degree of market concentration can potentially lead to inefficient and wasteful use of resources within an industry. It is better for the broader economy to have firms operating in a highly competitive market, as it is through competitive pressures that firms will seek to differentiate themselves from their competitors and attract consumers by increasing their product innovation and investment. This in turn leads to improved resource allocation within an economy and greater market efficiency.

Many private firms can attain a degree of **market power** and can act, in part, like a monopolist even though they are not monopolies. Firms may abuse their market power by employing a variety of anti-competitive practices, discussed at 7.3.3. Such practices result in a form of market failure and, as a consequence, consumers, other businesses and the community at large will suffer a reduction in economic welfare.

Market power has many different sources and is exercised in a number of ways. The main driving force is fierce competition among firms. Companies in search of maximum profits search for ways to reduce or eliminate competition and increase their market share, thus maximising profit opportunities.

Ways to reduce the competitive pressures acting on a firm include forms of integration and cooperation among firms, anti-competitive and marketing practices, and barriers to entry.



Worksheet
7.2 Australia's
retail grocery
sector

ECONOMICS IN ACTION



Australia's retail grocery sector

Conduct research using online sources to establish the size and sales turnover of Australia's retail grocery sector. Then answer the following questions:

- 1 In 2021–22, Statista reported that Australia's food and grocery sector turnover totalled \$132.75 billion. **Analyse** the change over the past five years.
- 2 In 2021–22, it was estimated that Coles and Woolworths had a collective share of the market of 65 per cent. **Analyse** the change of their combined share over the past five years.
- 3 In 2021–22, Aldi had 587 stores across Australia, with an estimated 10 per cent share of the grocery market. **Analyse** the change over the past five years.

7.3.1 Integration

Integration, whereby a firm gains ownership and control of competitors, reduces competition and consequently increases the firm's market power. Forms of integration include:

- takeovers – where a firm buys out competitors
- mergers or **amalgamation** of firms previously in competition – where several firms amalgamate to form one larger firm; firms justify these actions in terms of cost efficiencies, access to new markets, sharing of risks, and access to human and physical assets, but the outcome is increased market power
- the establishment of a **holding company** – where a firm sets up or purchases a controlling interest in other firms, called *subsidiaries*; many different subsidiaries can operate as stand-alone businesses in their own specific industries and markets, but a single holding company ultimately owns and controls them
- **vertical integration** – where a sequence of stages or processes in the production of a commodity comes under the control of one firm, making it difficult for another firm operating at just one of these stages to compete against the vertically integrated firm: see Figure 7.7
- **horizontal integration** – where a firm gains control of all other firms at a single stage of production; for example, the mining stage or the fabrication stage, as shown in Figure 7.7.

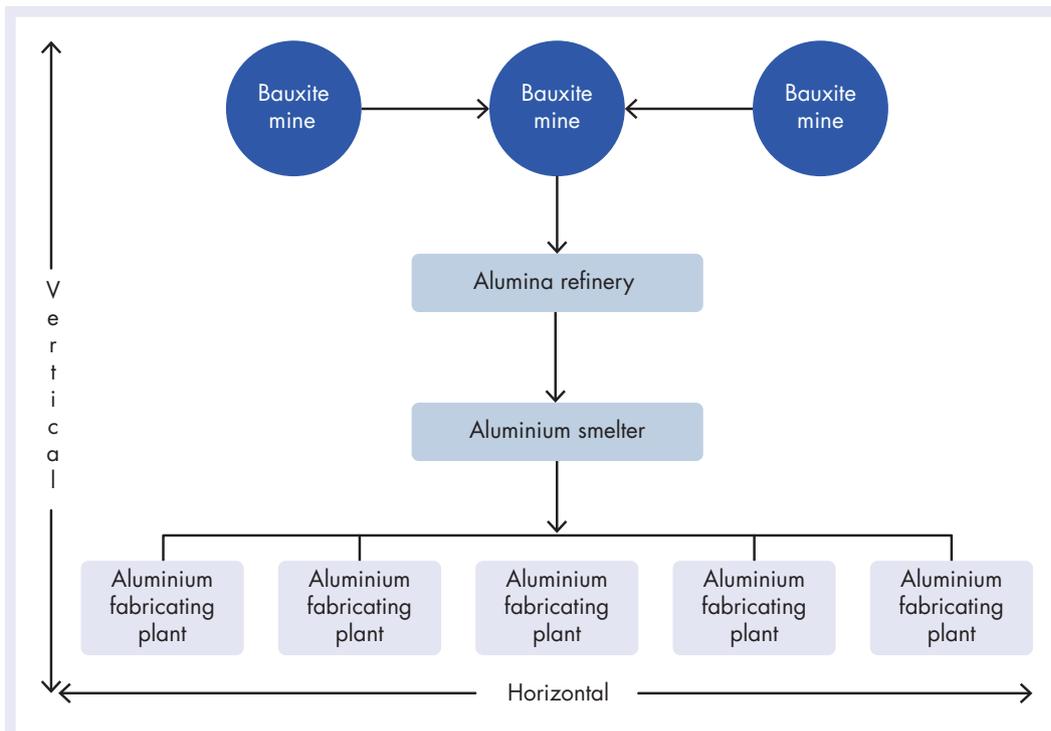


FIGURE 7.7 Types of integration

ECONOMICS CHALLENGE



Visit the suggested websites below and conduct research to **analyse** the food retail sectors of Australia compared with either the UK, Canada or the USA. Note your findings in a table with the following headings:

- size of the respective markets in dollar terms
- number of competitors within each market
- number of people employed in the sector
- number of stores per capita of population
- profit margin of the grocery sector
- any evidence of firms engaging in vertical or horizontal integration.

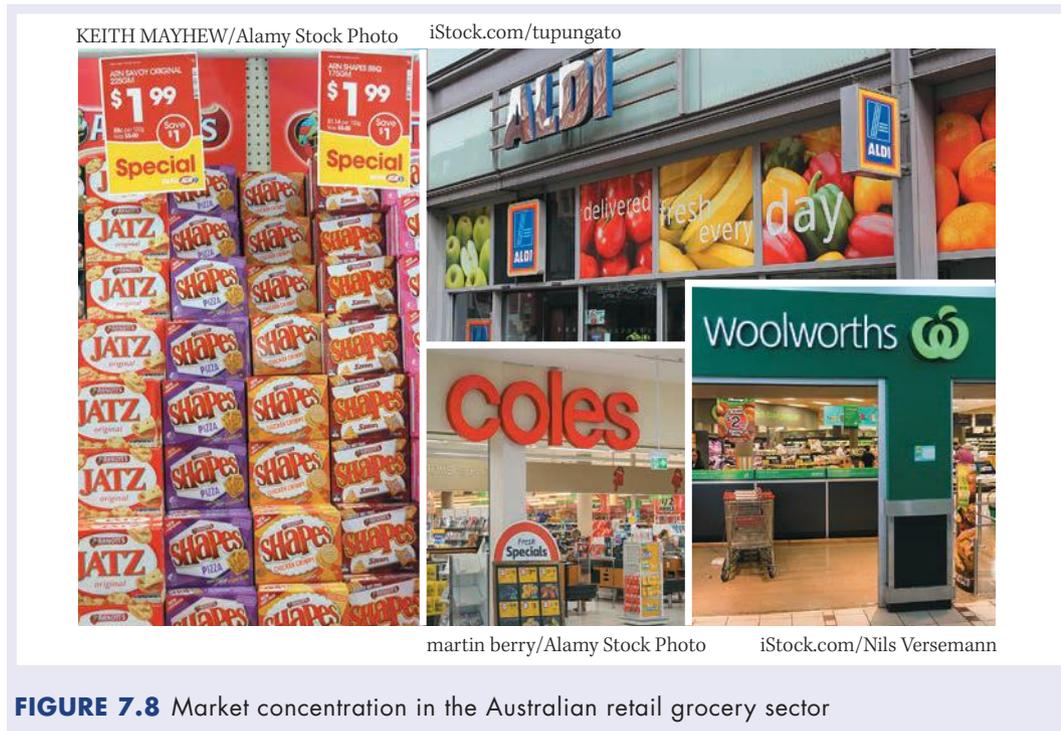
Use your analysis to **evaluate** the costs and benefits to Australia's highly concentrated grocery market using the perspectives of the household and production sectors.

Suggested websites

- Grocery News UK
- The Institute of Grocery Distribution UK
- Statistics Canada
- Retail Council of Canada
- Competition Bureau Canada
- United States Census Bureau
- United States Census Bureau – American FactFinder
- United States Federal Trading Commission
- United States Department of Agriculture Economic Research Service
- United States Department of Commerce Bureau of Economic Analysis



Weblink
Food retail sector
research



7.3.2 Cooperation among firms

KEY IDEA

Cooperation encompasses a range of practices where competing firms pursue activities that lead to shared profit maximisation within a particular market. These firms may act to control pricing and production output rather than actively compete against each other.

The following are all examples of cooperation among firms.

Collusion and cartels

Collusion occurs when firms in competition enter agreements, formally or informally, to limit the competition among them.

A **cartel** is a formal association of firms that aims to control a market for a particular product – such as heavy capital equipment or oil, by eliminating competition and fixing prices. Control can be won by:

- dividing up the market among the cartel members
- setting quotas for each member
- raising prices, and
- if necessary, restricting production.

A good example of a cartel is OPEC (Organization of the Petroleum Exporting Countries), which is an intergovernmental organisation of 13 oil-producing nations that seek to influence the supply of oil to the world market and thereby its price. In Australia, cartel practices are illegal and fall under the regulation of the Australian Competition and Consumer Commission (ACCC): see 7.3.6.

Interlocking directorships

The same directors may sit on the boards of supposedly competing companies. These directors are in a position to restrict or eliminate any real competition among the firms that they direct.

Price leadership

Price leadership occurs when one firm in an industry, often the largest, sets the price for products, and other firms in the industry adhere closely to this price. The first firm does this knowing that, if a 'price war' should ensue, it will probably be driven out of business, or at least suffer some loss of market share and profits.

Collusive tendering or bidding

When called to tender for building or other projects, firms may agree with one another to submit prices that ensure high profits and the sharing of work among them over a period.

At auctions or other commodity sales, buyers may agree not to bid against one another, thereby keeping prices down and sharing the available supply among themselves.

Trade and industry associations

A trade or industry association is an organisation of professionals or producers whose aim is to protect the mutual interests of its members and promote their industry. Such associations can exert market power by setting conditions of membership, including requirements of standards of fair dealing and quality of work, adherence to ethical codes of conduct, and satisfaction of entry qualifications. Associations can restrict competition in their industry by the regulation of entry into the industry.

Associations also act as powerful lobby groups to influence and respond to government policy on areas such as taxation, industry regulation and labour relations.

7.3.3 Anti-competitive and marketing practices

Individual firms may engage in practices such as price discrimination, product differentiation, exclusive dealing and resale price maintenance in order to achieve marketing objectives such as increased sales and market share, and to protect existing sales and share. These practices are both a source of power (by being a barrier to entry to potential competitors) and an outcome of having market power. It can be difficult to assess whether a practice is a legitimate business marketing strategy that one would expect to see in a free enterprise market economy or whether the practice is aimed at restricting competition by an abuse of market power.

Price discrimination

Price discrimination means the charging of different prices to different groups for a similar commodity or service. This may mean charging different prices to different people, in different places, at different times or for different uses, when there is no real justification for doing so, at least in terms of the cost of production.

Consider the prices charged by universities for higher education: these can differ according to the course of study, the status of the university or the type of student (foreign or domestic, full-time or part-time).

Product differentiation

Product differentiation is an attempt by producers to lessen the degree of *substitutability* (i.e. the extent to which one product can be replaced by another product), by giving their

product some characteristic that makes it different from others of the same type in appearance, quality, reliability or availability. The qualities are sometimes exaggerated through advertising and marketing to create a sense of uniqueness about a product. The producers hope to increase sales and profits by inducing consumers to select their product in preference to those of similar producers.

Consider the mobile phone market and the extent to which phone manufacturers attempt to differentiate products that essentially all perform the same function.

Exclusive dealing

Exclusive dealing arrangements exist when a firm requires its product to be purchased to the exclusion of all others of the same type.

Consider the way petrol and motor vehicles are usually sold to retailers. This results in a more or less guaranteed market for the supplier and restricts the trade opportunities of the retailer.

Resale price maintenance

Resale price maintenance occurs when the supplier sets the price at which a retailer must resell its products. This effectively restricts competition to features other than price. The supplier could attempt to refuse to sell to any firm that may resell its products at a discount.

Consider firms that advertise a ‘recommended retail price’ on their product packaging, which attempts to lock in retailers to a fixed selling price.

ECONOMICS CHALLENGE



Worksheet
7.1 Economics
Challenge

The Australian airport industry

The Australian airport industry is a good example of highly concentrated market power.

Read the article ‘Why Australia’s airports and airlines hate each other’ by Jacob Greber, which appeared in the *Australian Financial Review* on 5 January 2024 (The Australian Financial Review. Published on January 5, 2024 Australian Financial Review eEdition. Source: <https://www.afr.com/politics/federal/aviation-s-most-intense-frenemies-slug-it-out-20240104-p5ev7t>). **Analyse** the patterns and trends in the airport industry, and **evaluate** the industry against the economic criteria of free market competition.

WHY AUSTRALIA’S AIRPORTS AND AIRLINES HATE EACH OTHER

The Australian Financial Review. Published on January 5, 2024 Australian Financial Review eEdition. Source: <https://www.afr.com/politics/federal/aviation-s-most-intense-frenemies-slug-it-out-20240104-p5ev7t>

Jacob Greber

One of the architects of 1990s airport privatisation has hit out at a fresh campaign by airlines to force the industry super fund-dominated airports into lower prices for landing slots and concessions such as coffee shops, taxis and car parks.

The festering and long-running dispute has erupted anew as airlines accuse airports of operating price-gouging fiefdoms increasingly working in tandem via cross-ownership of the money-making assets.

But former Productivity Commissioner Peter Harris – who over two decades ago helped lead the government sale of Commonwealth-owned airports – said airlines appeared to be seeking regulatory intervention to ‘gain a share of profit now being made at airports’.

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‘But just being profitable is not a sign that you’re ripping somebody off,’ Mr Harris said in an interview this week.

‘In fact, desirably, we want these things to continue to be profitable, or the taxpayer will have to pay for them again.’

The clash is one of festering problems in the aviation industry that have left customers frustrated by sky-high prices, delays, cancellations, staff shortages among baggage handlers and air traffic controllers, and claims of poor service. Transport Minister Catherine King is yet to detail a full plan for aviation reform but is in the middle of a white paper review slated for release by mid-year.

A group led by former competition regulator Graeme Samuel that represents Qantas, Virgin, Rex and Jetstar has told Labor that airport owners are pushing ‘false narratives’ about a lack of airline competition.

Airlines are particularly angered by the Australian Airports Association (AAA) argument that after the pandemic domestic aviation has become one of the ‘most concentrated markets in Australia’.

‘Since the pandemic disruptions there has been a notable drop in service quality in the domestic market, as measured by the frequency of cancellations and delays and record high airfares. There are record levels of complaints against airlines,’ the group said in its submission just before Christmas to the white paper inquiry. Airlines for Australia & New Zealand, chaired by Professor Samuel, has hit back, saying: ‘Industry stakeholders, consumers and policymakers may wonder, as we did, at the motivation of the airports’ lobby group – representing some of Australia’s most profitable monopoly businesses, occupying a market position devoid of competition, and owned by an increasingly concentrated pool of investors – choosing to push false narratives about the airline market.’

Professor Samuel said it was time for Ms King to introduce a ‘code of conduct’ that would allow for enforced commercial arbitration.

It was time to ‘impose some discipline on what was effectively transfers of public monopolies into private monopoly hands’, he said.

‘They’re not good for customers, and they essentially allow the owners of monopoly assets to do what they like.’

Professor Samuel said growing concentration in the airports sector was evident in news just before Christmas that Global Infrastructure Partners, which a year earlier bought a \$32 billion stake in Sydney Airport, is seeking to buy the owner of the Gold Coast, Townsville, Mount Isa and Longreach airports. Data presented to the white paper review by the airline group shows significant ownership of airports by super funds, led by IFM Investors which owns large stakes in Sydney, Melbourne, Brisbane, Adelaide, Launceston, Darwin and Alice Springs airports.

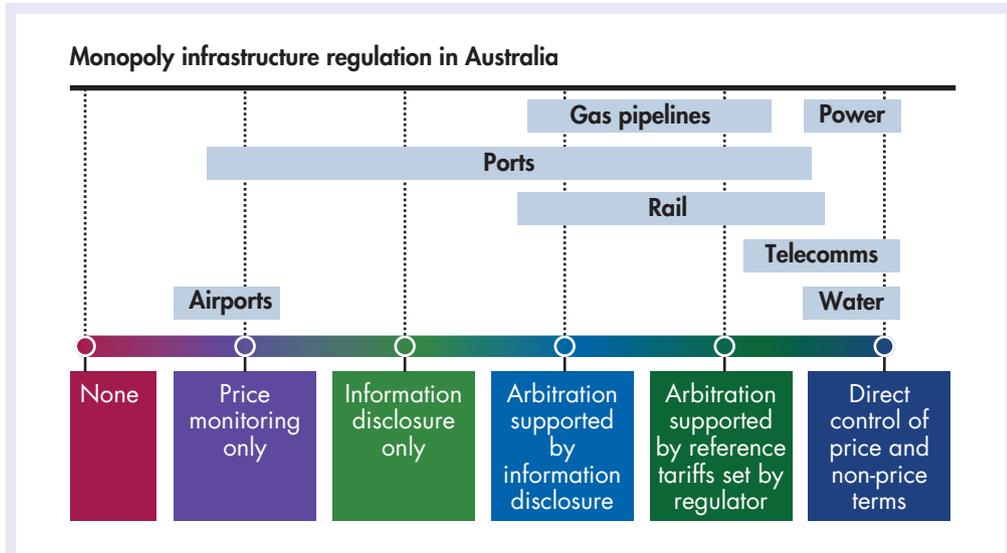
Others with significant holdings include industry super funds SAS Trustee Corp, AustralianSuper, ART, Spirit Super and UniSuper. The Future Fund owns shares in Melbourne, Perth and Launceston airports, while Queensland Investment Corporation Infrastructure fund has Brisbane and Hobart on its books.

‘The problem that occurs with cross ownership is that you end up with not only common shareholders but with common directors, and the common directors are then able to transmit information across the airports as to prices and terms of conditions,’ the airlines said. ‘That impedes the airline’s ability to negotiate fair deals.’

‘Secondly, airports in Australia are subject to some of the most light-handed regulation of any monopoly infrastructure in the country, and are among the least regulated airports around the world,’ the organisation said in its submission.

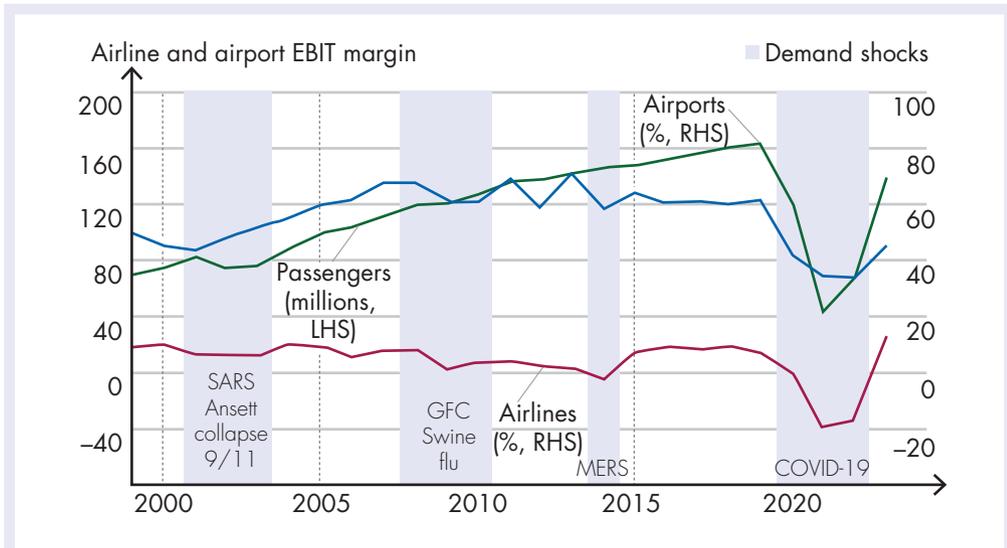
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Source: The Australian Financial Review, Nine Entertainment Co. Pty Ltd

FIGURE 7.9 Monopoly infrastructure regulation In Australia



Source: The Australian Financial Review, Nine Entertainment Co. Pty Ltd

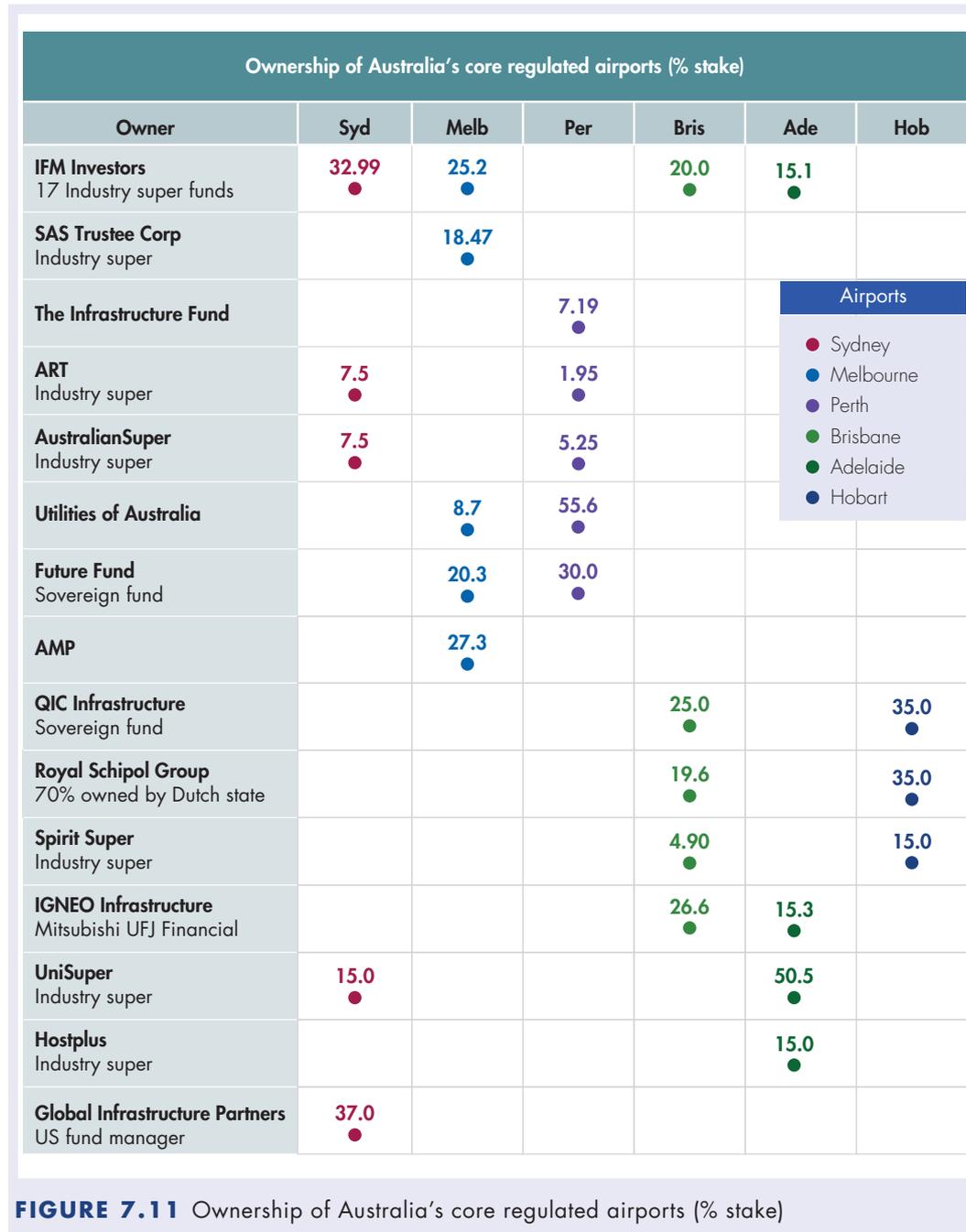
FIGURE 7.10 Airline and airport EBIT (earnings before interest and taxes) margin

Opposition transport spokeswoman Bridget McKenzie challenged airlines to back up their claims. 'If airlines have evidence of collusion – rather than supplying a mud map that looks horrific, like IFM is an octopus deeply and widely embedded in our infrastructure – they should be taking that to the ACCC for examination,' she said.

Continued

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Describing airlines and airports as 'frenemies', Senator McKenzie said both sides were 'dependent on each other's success and wanting the best possible deal from each other'.



Source: The Australian Financial Review, Nine Entertainment Co. Pty Ltd

7.3.4 Barriers to entry

KEY IDEA

Barriers to entry can be a range of obstacles or elements that exist in a market with few competitors. They potentially restrict new firms from entering the marketplace.

Barriers to entry are factors that prevent the entry of a new firm to an industry on a competitive level equivalent to that of existing firms. As discussed in Chapter 5, when abuse of market power occurs through collusive agreements or monopoly pricing, then existing firms are able to prevent the easy entry into the market of potential competitors. However, the super-normal profits that existing firms are able to attain as a result of their restrictive trade practices are a powerful incentive for new firms to enter a market. Consider the Australian retail grocery sector. Aldi entered the market because it identified the huge profits that Coles and Woolworths generated in a marketplace dominated by two large competitors.

The following are all examples of barriers to entry.

Large initial capital requirements

New firms have to establish production and distribution facilities of a similar capacity to existing firms' facilities in order to compete.

Economies of scale

Existing firms have larger production units and volumes already in operation. New entrants that start with a smaller production unit cannot produce as cheaply as larger units.

First-mover advantage

Existing firms that have already established brand identity and brand loyalty have **first-mover advantage**. They have tied up the best customers and the best suppliers. They have established their distribution channels (pathways that products take to get from the manufacturer to the final consumer).

Information and trade secrets

Existing firms have privileged access to information learnt by being in business. They have learnt, from trial and error, the best way to manage production and to approach the market. They have established contacts with key people in organisations and governments. All this information, at some cost, needs to be gathered by the new entrant.

Predatory pricing

An existing firm could threaten to lower prices, at or below cost, for a considerable period of time. This is known as **predatory pricing**. The existing firm is better able to sustain a low price than a new entrant. The new firm is dissuaded from entry and, when the competitive threat of the new entry has passed, prices are returned to normal levels. In Australia, a firm cannot use its market power to damage an actual or potential competitor in this way.

Privileged access

An existing firm may have access to the only viable supply of a natural resource, or it may own and control a facility that a potential competitor would need to access in order to compete, such as a gas pipeline or a railway line.

Government regulations

Government regulations can create a barrier to entry. A patent gives a firm privileged use of a certain technology or product design. Tariffs are a barrier to entry for foreign competitors. A firm may be the only one given a licence to provide a particular service; for example, catering at a sports venue, gift shops in an airport departure lounge, waste collection and disposal in a city, or taxi licences.

CHECK FOR UNDERSTANDING 7.4

- 1 **Distinguish** between vertical and horizontal integration.
- 2 **Distinguish** between a merger and collusion.
- 3 **Explain** how a cartel improves the profit opportunities of its members.
- 4 **Describe** how collusive tendering can be used by firms to increase profits.
- 5 **Describe** three barriers to entry that result from a firm being long established in an industry.

ECONOMICS IN ACTION



Inquiry: Does the owner of a natural gas pipeline have market power?

To get natural gas from the production wells to the point of consumption requires four types of economic activity: production at the well; transmission of the gas to major users and storage in urban areas; distribution within the towns and cities; and retailing. The gas from the production wells to the cities and towns is usually transported by a network of pipelines. The initial costs of constructing a fully operational pipeline are large, and include designing and engineering its capacity and technical standards, identifying and establishing foundation contracts with the major users of gas, gaining access to the easements along the route of the pipeline, preparing the sites and laying the pipes, and installing pumps and storage facilities.

Is this situation a natural monopoly? Is the market power of the owner of the pipeline constrained in any way?

Conduct an inquiry to answer the question: Does the owner of a natural gas pipeline have market power? Use a range of online data sources, including the ACCC and the Australian Pipelines and Gas Association (APGA).

Your inquiry will require answers to the following questions.

- 1 **Describe** the characteristics of a natural monopoly.
- 2
 - a How could the owner of a gas pipeline abuse the market power derived from the natural monopoly?
 - b How could users such as the exploration companies and the gas well owners be affected? How could consumers be affected?
 - c On what terms would other and smaller gas producers and distributors obtain access to the pipeline in order to transport their gas?
- 3
 - a What are the market characteristics of transmission pipelines?
 - b Is investment in pipelines *indivisible*; that is, does the investment need to be done in large chunks to get an operational pipeline?



Weblinks
Australian
Competition
and Consumer
Commission (ACCC)

Australian Pipelines
and Gas Association
(APGA)

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- c Do *economies of scale* exist; that is, does the average cost of transporting the gas decrease as more gas (up to the pipeline's capacity) is transported?
 - d Will one pipeline transport gas along a specific route more cheaply than two parallel pipelines?
 - e Are *sunk costs* large; that is, if the venture to build the pipeline fails, how easily can the owner sell the pipeline or change the investment to another productive use without incurring a large financial loss?
- 4
- a Does the owner have monopoly power if the characteristics outlined in the previous set of questions exist?
 - b Is there any *countervailing power* – that is, influence that other groups can exert on a firm's decisions – other than the threat of government regulation? The main users of natural gas are manufacturing, mining and electricity generation. How large and concentrated are the users of gas? Are there energy substitutes for gas? Are there alternative transport methods?
 - c Are there any competitive threats? How large are the barriers to entry to the transmission business by a new provider?

You will need to draw a conclusion as to whether or not the existence of market power means that there is no constraining competitive pressure acting upon the owner of the natural monopoly.

7.3.5 Market concentration

The Australian market is small when compared to the economies of major developed countries. With our population of just over 26 million, we depend very heavily on foreign investment. Many large multinational corporations have operations in Australia.

These conditions suggest that the Australian economy will often have particular markets that are *concentrated*; that is, dominated or controlled by a few large firms or suppliers. In such cases, there will usually be a competitive fringe of smaller firms sharing the rest of the market.

Concentration may be measured in various ways, using indices based on taxable income, employment, capital employed, output (value added) and sales (or turnover).

A common measure is the **concentration ratio**. This is the percentage of total market sales accounted for by the largest four firms in a particular market or industry. The concentration ratio serves as a useful indicator of market power or lack of competition, although it is not a complete measure.

In Australia:

- concentration ratios are very low in the agriculture, forestry and fishing industry, and in the accommodation, cafés and restaurants industry
- concentration ratios are much higher in the mining industry, the retail industry and communication services industry.

In this second group of industries, the potential exists for a few large firms to dominate and control a significant proportion of the market.

ECONOMICS IN ACTION



Market concentration

Read the article “‘Dire straits’: Australia’s industries more concentrated than America’ by Matthew Elmas, which appeared in *The New Daily* on 30 August 2023 (The New Daily, 30 August 2023, www.thenewdaily.com.au/finance/finance-news/2023/08/30/consumers-australian-industry-concentration). **Analyse** the patterns and trends in market concentration. **Evaluate** the increase in market concentration against the economic criteria of consumers.



Article
The New Daily article

Worksheet
7.3 Market
concentration

The concern about market concentration arises from the belief that it increases the market power of the dominant firms, and also increases the likelihood of collusion and the implementation of unfair and restrictive trade practices.

However, the level of market concentration that arises from mergers does not necessarily imply reduced competition. As Australia becomes more integrated in the global economy, with increased trade and foreign direct investment inflows, the large, dominant domestic firms in Australia remain subjected to the competitive pressures of the possibility that global firms may enter the Australian market. It would be a mistake for government regulators to prevent mergers simply to avoid a small number of firms dominating the market.

Conditions that determine whether or not market concentration will substantially lessen competition include:

- the extent of competition from imports
- the potential of competition from new entrants (including foreign multinationals); that is, whether or not there are barriers to entry
- the existence or development over time of substitute products in other industries; for example, a few firms may dominate the steel construction materials industry, but timber, aluminium, clay bricks and concrete products are substitutes
- the effectiveness of regulations to limit the abuses of market power, such as those enforced by the ACCC.

ECONOMICS CHALLENGE



Countervailing power

John Kenneth Galbraith (1908–2006) was an American economist whose books have proved popular with the public, and who has had an important influence on economic thought. His writings have always been controversial, questioning many of the basic ideas of orthodox economics. Galbraith has written on a wide range of topics – from the need for more public goods to the decline of competition in private enterprise economies.

His first major work was *American Capitalism: The Concept of Countervailing Power* (1951), in which he introduced the concept of **countervailing power**. It had become increasingly obvious during the 1930s and 1940s that, with the development of the large corporation, a drastic rethinking of some areas of economic theory was needed, particularly those related to competition and consumer sovereignty. Galbraith argued that it was pointless to continue discussing relationships between single consumers and small retailers, or between individual workers and competitive producers. We now had to consider giant

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corporations interacting with big unions in the presence of growing government interference. Great power on one side of the market is, as he pointed out, matched by ‘countervailing’ power on the other. Thus, strong labour unions and political interest groups will act as constraints on the power of large producers. Competition still exists, but in an entirely different form from what was envisaged by Adam Smith. Accordingly, two of the foundations of the free enterprise economy are the price mechanism and the profit motive. Galbraith argued that in the American economy, these had both been replaced by the planning of the *technostructure* (Galbraith’s term for management and the highly skilled and knowledgeable professionals who make decisions about what to produce, how and for whom).

Using online sources, conduct research to examine and **evaluate** whether significant countervailing power exists in the Australian market. Examine one of the following industries and its associated supply chains to determine if any market power exists:

- **Motor vehicle industry:** Are car retailers in a position to negotiate lower car prices that would ultimately benefit consumers?
- **Petroleum industry:** Are independent service station owners able to negotiate lower fuel prices that would ultimately benefit consumers?
- **Retail grocery sector:** Are food manufacturers able to negotiate higher food prices with the duopoly of Coles and Woolworths?

You will need to draw a conclusion as to how countervailing power differs from ordinary competition, and whether increased government intervention would help in managing any limitations in a particular market.

7.3.6 Market regulatory bodies

KEY IDEA

Regulatory bodies are created by governments to help control the economic behaviour of firms and the operations of a market, with the view to reducing the likelihood of market failure.

In Chapter 6 at 6.2.1, we examined how *competition policy* is one way to counter market failure. It also assists with reducing a firm’s ability to exercise significant market power. Ultimately, a strongly enforced competition policy is good for markets, as the competitive pressures lead to greater investment and innovation by firms.

There are several government regulatory bodies, both at federal and state level, that provide safeguards for industry and markets alike. At the Commonwealth level, the ACCC is the regulatory body that administers the competition legislation. It is responsible for ensuring compliance with the *Competition and Consumer Act 2010* (Cth).

The objectives of the ACCC are both regulatory and educational. It aims to:

- improve competition and efficiency in markets
- foster adherence to fair trading practices
- promote competitive pricing and restrain price rises in markets where there is little competition
- inform the community, businesses and consumers about the implications of the Competition and Consumer Act.

Provisions in the Act prohibit the anti-competitive practices identified at 7.3. In addition, consumer protection provisions of the Act deal with unfair practices, product safety and information, conditions and warranties, and product liability. The aim of these provisions is to strengthen the position of consumers relative to sellers; in other words, to restore *consumer sovereignty*. The issues of public warnings and product recalls of unsafe goods are executed under the authority of these provisions, which also prohibit misleading advertising.

The ACCC has the power to grant immunity from court action for certain practices that would otherwise be in breach of the Act. For example, mergers may be permitted if it can be argued that public benefits exceed the anti-competitive costs. The public benefits of mergers are the increasing international competitiveness of the Australian industry seen in the increase in the value of exports and the extent of *import substitution* (i.e. reducing a country's dependency on imports by encouraging the domestic production of goods that would otherwise be imported).

The ACCC also undertakes price surveillance work, which involves vetting proposed price rises, holding inquiries into pricing practices, and monitoring prices, profits and costs in any industry or business.

In the areas of fair trading and consumer protection, the ACCC complements the consumer affairs agencies in the states and territories. For example, the relevant consumer protection agency in Queensland is the Office of Fair Trading, which seeks to protect and regulate the rights of consumers, business enterprises and not-for-profit organisations. These government agencies, both federal and state, recognise that it is difficult for consumers to have perfect and complete information about a market. Accordingly, to help avoid the adverse selection of products by consumers, which then contributes to a misallocation of resources, the agencies provide a necessary safeguard to all market participants.

Like the ACCC, the objectives of the Queensland Office of Fair Trading are both regulatory and educational. It aims to:

- educate, advocate and act on behalf of consumer complaints in relation to business practices and or products
- improve competition by creating a fair, safe and equitable market
- investigate unfair market practices and products that do not meet state safety standards
- enforce state legislation in relation to regulated industries where licensing is required to conduct a business
- maintain a public register of business licences, charity organisations and not-for-profit associations.

ECONOMICS CHALLENGE



People power: the Internet, consumers and market power

Not all instruments for curtailing anti-competitive practices and market power arise in the government sector. Individuals, with the aid of the Internet, have been able to exert power of their own on firms.

Firms with market power can undermine consumer sovereignty. One source of market power is information. Firms are usually better informed about a product and market conditions than a consumer. Firms also have the size and financial resources to withstand any legal action that an individual consumer might take to redress any damage from an alleged abuse of market power.

The Internet, however, has allowed consumers to rebalance, to some extent, the power between the consumer and the firm. Consider how the use of social media platforms such

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Weblinks
ChoiceConsumers
Federation of
Australia

as Facebook, Instagram and Twitter have transformed the way consumers interact with not only firms, but also other consumers in generating 'likes' or 'dislikes' for a business or its products. Broader interest groups are also using social media to influence firms and consumers, acting as a catalyst for greater social responsibility, particularly in the areas of human rights and the environment. Consider the impact of environmental organisations (e.g. Greenpeace) and consumer advocate associations (e.g. Choice) that seek to educate, influence and lead public opinion on particular products or business practices.

Unlike other mass communication systems, the Internet has a number of communication properties that individual consumers can exploit to their benefit. These properties include:

- interactivity, whereby people can ask and answer questions, rather than one party sending messages and another party only receiving the messages
- universality, which allows anyone, anywhere to communicate at any time of the day or night
- network externalities, which increase the value to users as more people connect to the Internet, and
- the ready availability and accessibility of information, which enables all parties in a transaction to be well informed, and the information to be shared more equally.

Associations for consumer action exist to advocate for policies and regulations that benefit consumers.

Visit the websites of organisations such as Choice and the Consumers Federation of Australia, and answer the following questions.

- 1 **Describe** their function and membership.
- 2 **Explain** how they can bring pressure to bear on large firms.
- 3 **Consider** and predict how firms may begin to respond to social media pressure if received.
- 4 Research and examine a recent consumer campaign by one of the organisations noted above that led to a business changing its behaviour or product.
- 5 Discuss, using examples, whether social media platforms are contributing to a reduction or an increase in the amount of asymmetric (imperfect) information about products and markets.

7.3.7 Dealing with the under-provision of goods

CONCEPTS



Demerit goods: private goods with negative externalities

markets because individuals do not value them highly enough to pay for them; private goods with positive externalities

Merit goods: goods or services that are not produced in sufficient quantities by

KEY IDEA

Governments have the capacity to intervene in markets where there may be the under-provision of a merit good. Governments do this to satisfy their economic, political and social objectives.

One of the great challenges facing the world in coming decades is how to deal with the issue of increasing carbon emissions and the impact of climate change. One solution is for households and firms to install solar roof panels, thereby switching to a renewable energy source and reducing their consumption of electricity from the traditional coal-fired generators. The advantage of this approach is that it provides a positive externality that benefits the rest of society, as fewer carbon emissions are being produced. The disadvantage to the individual household or firm is the high capital cost of installing the necessary solar panels and the ongoing maintenance costs.

A **merit good** is a private good with positive externalities; that is, it provides social benefits to other people. The consumption of renewable energy, education and private health care are all examples of a merit good. Conversely a **demerit good** is a private good with negative externalities; that is, it provides social costs to other people. Some examples include the motor vehicle (which generates pollution), cigarettes and alcohol.

Let us consider a scenario where the government might seek to increase the consumption of a merit good.

A property developer undertakes the construction of a new building because it sees the potential for a private benefit: profit to the developer. Accordingly, the developer incurs private costs to build the building. The developer may agree that installing solar panels provides energy benefits to the home owner, but who is going to pay for it? Will the developer be able to guarantee and command a greater sale price on the property if it has the solar panels?

Markets provide goods at the optimal private level; that is, where the marginal private benefit equals the marginal private cost. Figure 7.12 shows this position at P_0Q_0 . With a merit good that accrues positive externalities, the marginal social benefit will exceed the marginal private benefit (P_1Q_1), and thus the merit good is likely to be under-provided at a socially optimal level; that is, it will be provided at Q_0 instead of the desirable Q_1 .

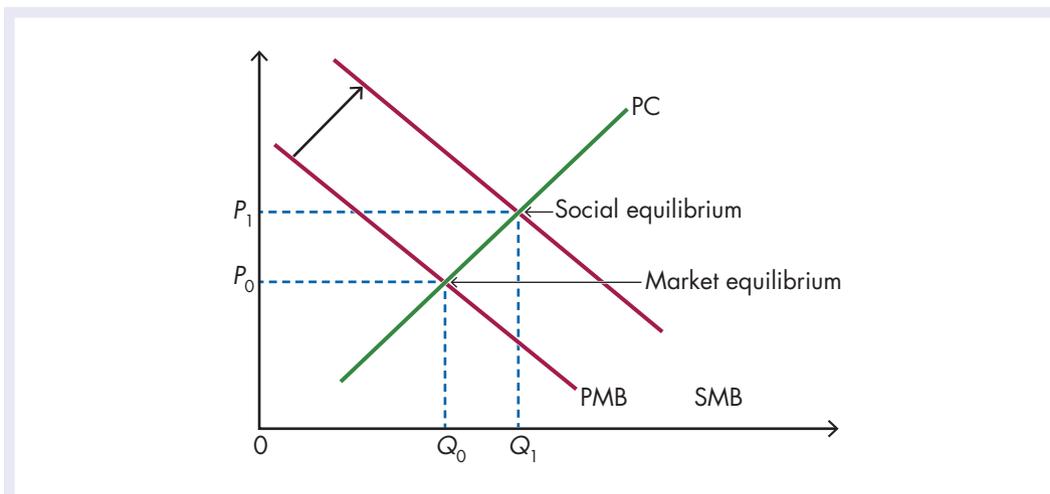


FIGURE 7.12 A positive externality: the supply of merit goods

Governments can influence the supply of merit goods in a number of ways. For example, in relation to the installation of solar panels, state and federal governments offer financial assistance. The federal government provides a *subsidy* towards the initial capital cost, and the Queensland State Government provides a reduced ongoing electricity tariff that provides cheaper power to the household. Clearly, with this level of support, you would expect an increase in the fitting of solar panels to both new and existing premises.

A subsidy effectively decreases the cost of installing solar panels and allows the developer to capture and thus internalise some of the positive externality. Figure 7.13 shows that at the lower private cost, the private marginal cost curve (PMC) moves out towards the social marginal cost curve (SMC). This means that the stock of housing with solar panels will be increased from (Q_M) to the socially optimal level (Q_S).

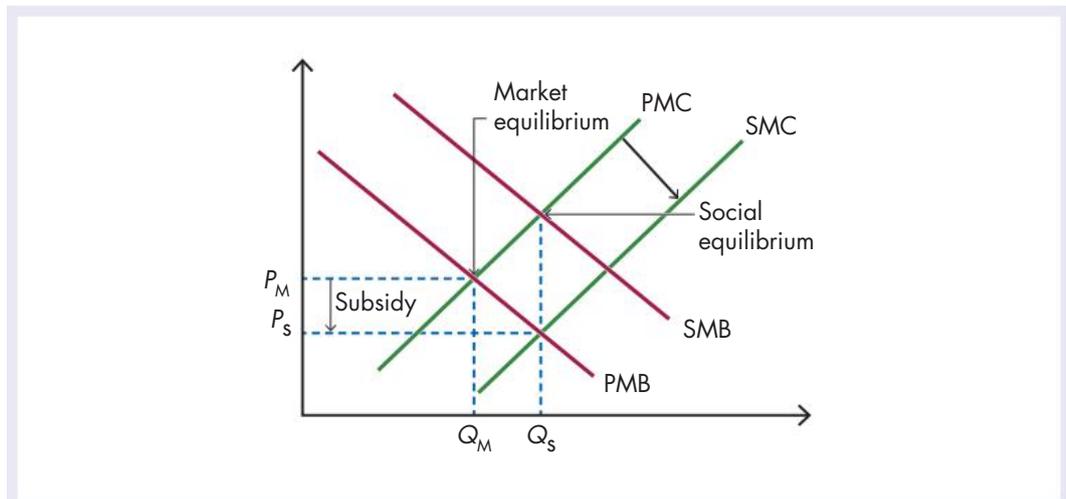


FIGURE 7.13 Capturing a positive externality: the supply of solar panels, with and without a subsidy

The private cost of buying and maintaining a house with solar panels has fallen because governments are assisting the developer, and ultimately the owner, to maintain a house with a renewable energy source. The effect of this is to move the private cost curve outwards, thus increasing the number of houses with solar panels. In this example, the government is assisting the community to gain the benefits of a positive externality.

CHECK FOR UNDERSTANDING 7.5

- 1 **Describe** the economic and social advantages and disadvantages of large, dominant firms from the perspective of:
 - a a consumer
 - b a small business competitor.
- 2 **Explain** what makes a market contestable.
- 3 **Describe** an example of a market regulatory body and list its objectives in helping to manage competition policy in our economy.
- 4 **Describe** an example of a merit good and a demerit good and **explain**, using diagrams, how the government might seek to increase the consumption of merit goods and decrease the consumption of demerit goods.

R 7.1 Terminology

Select the correct term from the list below that describes each statement.

- | | | |
|-----------------------------|----------------------------------|------------------------------|
| A production | E vertical integration | I efficiency |
| B collusion | F horizontal integration | J concentration ratio |
| C cartel | G product differentiation | |
| D division of labour | H price discrimination | |
- 1 the percentage of the total sales accounted for by the largest four firms in a particular market or industry
 - 2 the charging of different prices to different customers of the same firm
 - 3 the process of combining land, labour, capital and enterprise to provide goods and services in an economy
 - 4 a formal arrangement among firms to enhance their market power and profits by collectively controlling production levels, prices and market shares
 - 5 the separation of work into tasks so that each individual worker becomes expert at a specific task, thus ensuring maximum efficiency
 - 6 using the least amount of resources to produce the goods and services that people value the most
 - 7 where a single firm gains control of all of the stages of production and marketing distribution
 - 8 cooperation among independently owned and controlled firms to limit competition; for example, by collusive tendering
 - 9 where a single firm gains control of the one stage of the production process that serves many producers or industries
 - 10 when producers try to give a good or service some characteristics that make it seem different from essentially similar products of competitors, to lessen the degree of substitutability and increase brand loyalty

R 7.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 Production in Australia can best be described as:
 - A labour intensive with a high degree of specialisation.
 - B capital intensive with a low degree of specialisation.
 - C labour intensive with a low degree of specialisation.
 - D capital intensive with a high degree of specialisation.
- 2 Models of an unincorporated enterprise include:
 - A a private company and a cooperative.
 - B a public company and a government-run enterprise.
 - C a sole trader and a partnership.
 - D a holding company and a charity organisation.

- 3 Horizontal integration occurs:
- A when a sequence of stages or processes in the production of a commodity comes under the control of one firm.
 - B when a firm merges with another firm within the same industry.
 - C when a firm gains control of all other firms at a single stage of production.
 - D when a firm sells off an entity that can operate and make profit on a standalone basis.
- 4 Quaternary production would include firms from the following sectors:
- A transport, media, tourism and banking
 - B manufacturing, building, retail and health care
 - C mining, farming, energy and media
 - D media, telecommunications, banking and education
- 5 Which one of the following is not true? The Queensland Office of Fair Trading seeks to:
- A educate, advocate and act on behalf of consumer complaints.
 - B improve competition by creating a fair, safe and equitable marketplace.
 - C enforce state licensing legislation for particular business industries.
 - D advise businesses on how to increase their market share.
- 6 What is the primary goal of firms, and how do they aim to achieve this goal?
- A to increase employment by hiring more workers, achieved through expanding their market share
 - B to maximise market share by increasing prices and reducing the number of products produced
 - C to generate profit by focusing on productivity and efficiency within the production process to reduce costs and maximise output
 - D to decrease costs by minimising the use of technology and capital equipment
- 7 Competition is important because it:
- A limits the working of the price mechanism.
 - B eliminates the profit motive.
 - C gives producers an incentive to be efficient.
 - D enables producers to control prices.
- 8 A few large firms dominate the motor-vehicle industry. As a result, competition:
- A does not exist.
 - B is based entirely on price.
 - C results in inefficient production.
 - D emphasises features other than price.
- 9 Market concentration is measured by the 'concentration ratio' – the percentage of total market sales accounted for by the largest four firms in a particular market. Typically in Australia, concentration ratios are very low in which market?
- A mining sector
 - B retail grocery sector
 - C communication services sector
 - D agriculture sector

- 10 Which of the following is an example of an external economy of scale?
- A A firm conducts specialisation via division of labour.
 - B A firm employs capital-intensive production techniques.
 - C A firm expands a local port facility and road network to improve distribution.
 - D A firm buys out one of its key suppliers.
- 11 When a sequence of stages or processes in the production of a commodity comes under the control of one firm, this is known as:
- A price leadership.
 - B vertical integration.
 - C a trade association.
 - D interlocking directorships.
- 12 The general objective of the ACCC is:
- A to eliminate large firms.
 - B to increase government regulation of business.
 - C to privatise government-owned business enterprises.
 - D to increase and maintain competition.
- 13 Which of the following would be deemed a barrier to entry for potential competitors in the retail grocery sector?
- A large initial capital requirements
 - B lack of economies of scale
 - C the two largest competitors controlling 75 per cent of the market
 - D all of the above
- 14 John Kenneth Galbraith argued that the real controllers of public companies are the:
- A owners.
 - B shareholders.
 - C managers.
 - D technostructure.
- 15 Which of the following provides the best example of 'countervailing power'?
- A a public company versus a national trade union
 - B a multinational versus an individual consumer
 - C a sole trader versus a large government department
 - D a large retail grocery chain versus a small independent farmer

R 7.3 Short response questions

- 1 **Recall** market failure and give two examples in which it can occur.
- 2 Using examples, **describe** two reasons why a government may intervene in a market.
- 3 **Distinguish** the economic concepts of 'diseconomies of scale' and 'internal economies of scale'. Provide examples of each in your response.
- 4 **Explain** market power. In your response, give an example of how Woolworths and Coles might employ their market power in the retail grocery sector.
- 5 **Explain** three options available to governments to reduce the market power of a firm.

- 6 Using your understanding of price mechanism theory, **explain**, with a demand and supply graph, how a government providing solar panels subsidy to households can assist the community to gain the benefits of a positive externality.
- 7 **Distinguish** between horizontal and vertical integration to **explain** how firms may gain control of a market and reduce competition.
- 8 **Explain** the barriers to entry that may potentially restrict a new firm from entering the Australian telecommunications market.
- 9 **Explain** how technology and specialisation help firms to achieve economies of scale in production.
- 10 **Explain** how countervailing power differs from ordinary market competition.

R 7.4 Activities

Calculations

The concentration ratio is used to help identify the level of competition within a given market, and it serves as a useful indicator of market power. The ratio represents the percentage of total market sales (or turnover) accounted for by the largest four firms in a particular market or industry.

Below are snapshots of five markets in a small hypothetical economy. The sales of the top four firms within each market are included in the table. Calculate the concentration ratio for each market (the first has been done for you) and answer the questions that follow.



Worksheet
R7.4
Calculations

Market	Total market sales	Firm A	Firm B	Firm C	Firm D	Total sales firms A to D	Concentration ratio
Retail grocery	\$229m	\$42m	\$28m	\$21m	\$16m	\$107m	46.7%

Market	Total market sales	Firm E	Firm F	Firm G	Firm H	Total sales firms E to H	Concentration ratio
Banking services	\$314	\$76m	\$71m	\$63m	\$62m		

Market	Total market sales	Firm I	Firm J	Firm K	Firm L	Total sales firms I to L	Concentration ratio
Beef	\$129m	\$22m	\$15m	\$7m	\$4m		

Market	Total market sales	Firm M	Firm N	Firm O	Firm P	Total sales firms M to P	Concentration ratio
Sugar	\$296m	\$40m	\$38m	\$19m	\$16m		

Market	Total market sales	Firm Q	Firm R	Firm S	Firm T	Total sales firms Q to T	Concentration ratio
Soft drinks	\$194m	\$52m	\$49m	\$43m	\$36m		

- 1 Which market has the highest concentration ratio and thus has the lowest level of competition?
- 2 In which markets would government be reluctant to allow a merger or takeover?
- 3 Which market would have the fewest barriers to entry for new competitors?
- 4 **Identify** what steps could be taken by regulatory bodies to help reduce market power in the banking services market.

Interpretation

Harry Stanley is a sole trader of a small furniture manufacturing business. He makes quality office furniture, ranging from boardroom tables to general office desks and cabinets. The designs are modern, with retailers able to select from more than 20 different finishes and colours. Because Mr Stanley's products are well priced in the market, demand is outstripping his ability to manufacture the products. Each of the 12 workers in the Stanley factory has a complete set of the necessary tools, and each is a highly skilled tradesperson.

To manufacture a set of furniture, the following procedure has been adopted.

- i Select raw materials from the storeroom.
- ii Move the materials to the work area.
- iii Mark out the patterns on the raw materials.
- iv Cut out the various pieces.
- v Assemble the pieces.
- vi Sand and polish the units.

Mr Stanley then inspects all of the completed work and arranges shipment to stores.

- 1 What disadvantages are evident from the factory's set-up?
- 2 Recommend how factory efficiency could be improved.
- 3 What would be the benefits from such recommendations?
- 4 Why would (a) the workers and (b) Mr Stanley be likely to object to your recommendations?
- 5 Recently, Mr Stanley had an interesting offer from Hills Furniture Barn, a small chain of four retail furniture outlets that specialises in the rental and sale of office furniture. Ms Jodie Hills who runs the enterprise would like to merge the Stanley factory with her furniture retail business to create a new partnership entity. She believes that a strategy of vertical integration would serve both their interests well.
 - A What advantages would there be for the factory? What advantages would there be for Hills Furniture Barn?
 - B What disadvantages might there be for the factory? What disadvantages might there be for Hills Furniture Barn?
 - C Would Mr Stanley improve or weaken his competitive position in the market? **Explain** your reasoning.
 - D What other business options could Mr Stanley consider to improve his market power?

R 7.5 Inquiry topics

Complete one or more of the following inquiries using a model of inquiry.

- 1 For Australian industry to be competitive in a global marketplace, there needs to be continuous adjustment and reform within a market. **Analyse** how the media publishing industry attempts to stay competitive, and **evaluate** the effectiveness of such strategies using two economic criteria.
- 2 Investigate and examine the role of the ACCC in reducing anti-competitive behaviour. Review one of its recent decisions in relation to its role in one of the following areas:
 - airports and aviation
 - the communications sector
 - the energy sector
 - monitoring fuel prices
 - railways
 - waterfront and shipping.
 - a **Evaluate** the private and social costs and benefits resulting from the ACCC decision.
 - b Conclude whether or not the ACCC has intervened to increase competition to achieve a more efficient market outcome.

Economics in Action worksheets:

- 7.1 Productivity
- 7.2 Australia's retail grocery sector
- 7.3 Market concentration

Economics Challenge worksheets:

- 7.1 Economics Challenge

Chapter 7 Review worksheets:

- R7.4 Calculations

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





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8

Environmental economics

Markets have delivered economic growth in ways that create environmental degradation and unsustainable use of environmental resources. Government intervention may offer a path to more environmentally sustainable economic activity.

Focus questions and inquiries

- How can economic growth be achieved in environmentally sustainable ways?
- In what ways are the economy and the environment linked?
- What are the major environmental impacts of economic activities?
- Why does the price mechanism fail to allocate environmental resources in environmentally sustainable ways?
- Can economic growth be achieved in ways that are sustainable and socially optimal?
- What interventions in the operation of markets and government strategies most effectively redress environmental degradation and promote economic and ecological sustainability?

This chapter will examine:

- the relationship between economic systems and the natural environment
- environmental impacts of economic activity
- ecologically sustainable development
- the failure of markets to allocate environmental resources efficiently and produce sustainably
- the trade-off between economic growth and ecologically sustainable development
- government interventions and strategies to address the failure of markets to deliver sustainable outcomes.

8.1 The environmental impacts of economic activities

CONCEPTS



Biological diversity: the variety of plants, animals and other biological organisms in an area

Ecological: dealing with the interdependencies between organisms and their environments

Ecological footprint: an estimate of how much biologically productive space is required to produce the goods and services a given population demands, and to absorb the resultant wastes, using current technology

Environmental amenity: the sources of satisfaction flowing from the aesthetic qualities of the environment

Environmental degradation: any deterioration in the quality of environmental resources, the destruction of ecosystems and the extinction of wildlife

Environmental resources: the support the environment gives the economy by the provision of natural resources and as a means of waste disposal

Resource depletion: the consumption of a resource at a faster rate than it can be replenished

KEY IDEA

The nature and scale of contemporary economic activities are causing environmental degradation and depleting many of the resources on which future production will depend.

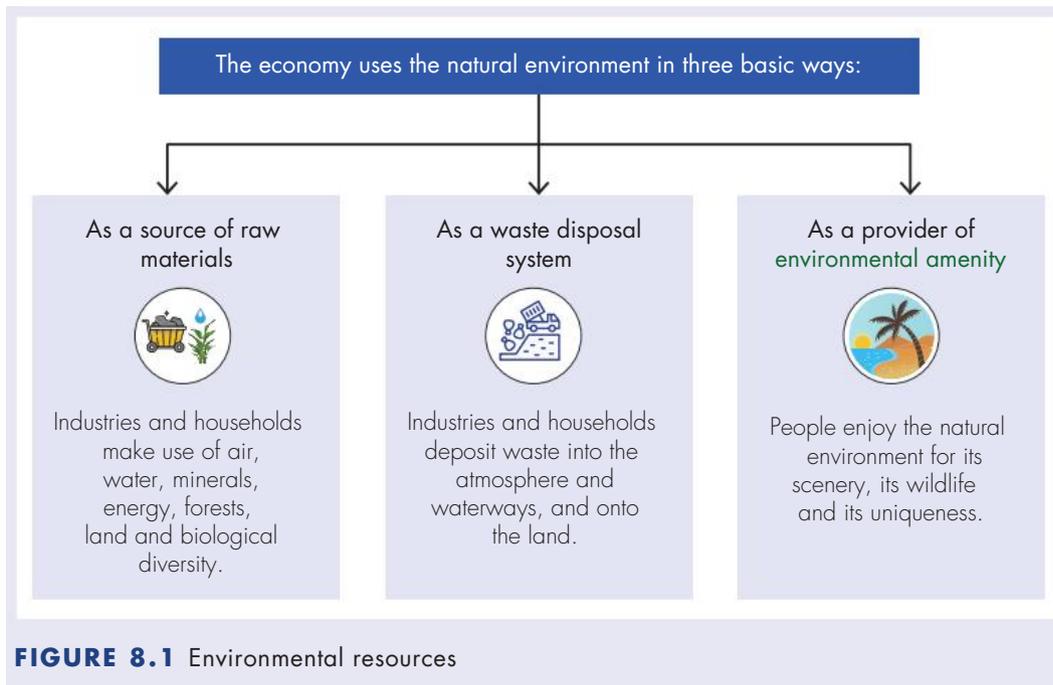
Environmental economics focuses on the extraction and use of natural resources, and the return of waste products from these activities to the environment. This includes an examination of the effects of economic incentives on the environment, and their potential to create more sustainable use of resources and to inform government policies that promote efficient and sustainable economic activity.

It is generally recognised that the world is experiencing many environmental problems, including unsustainable use of resources, resource degradation of natural environments, and loss of **biological diversity**. Modern industrial economic systems have used the environment to create economic growth and deliver a higher material standard of living, with inadequate consideration of the long-term effects.

The existence of environmental problems shows that markets have failed to deliver satisfactory environmental outcomes at the local, national and global levels. Market-based economies are inclined to allocate environmental resources inefficiently. The cost associated with the use of environmental resources is often externalised from the market price charged for a good or service. This failure of markets creates a need for government intervention to modify markets so as to deliver more **ecologically** sustainable outcomes that maximise social wellbeing.

8.1.1 The use of environmental resources

Economic activity involves combining natural resources and capital with the human resources of labour and enterprise to produce the goods and services demanded by consumers and other producers. Most production involves the use of **environmental resources**: see Figure 8.1.



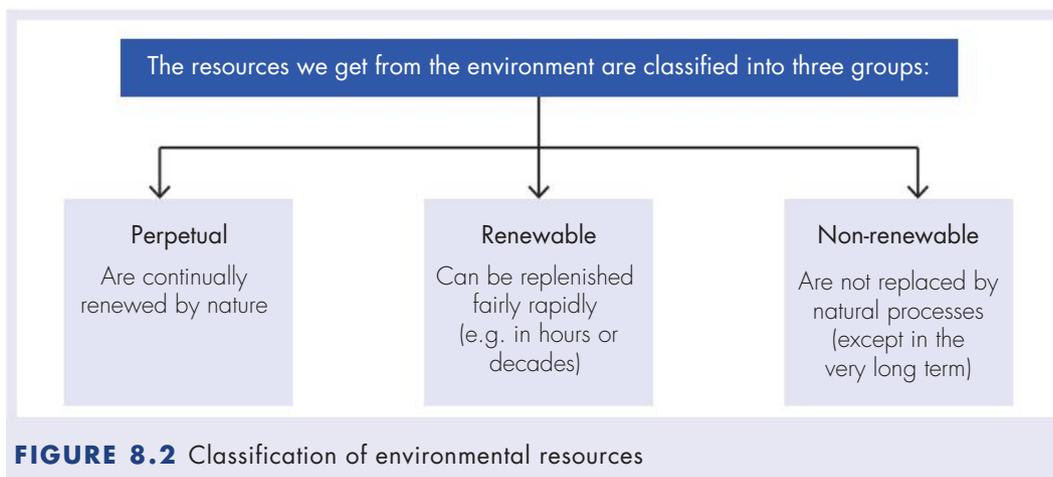
An environmental resource is anything that can be used:

- to help satisfy the wants of humans and the needs of other living organisms, or
- to serve environmental needs.

Some environmental resources are *directly available* for use. These include solar energy, fresh water, fertile soil, and edible wild plants and animals.

Some environmental resources are not directly available, but become useful through the application of human technology and effort. For example, oil deposits were not valued until people learnt how to extract crude oil and refine it into a range of products, such as petrol, aviation fuel, bitumen, plastics and pharmaceutical products. Other environmental resources that are not directly available include iron ore (steel), coal, silicone, fibre optics, farm animals and modern food crops.

As human knowledge and production methods develop, more things become resources. Figure 8.2 shows how environmental resources are classified.



Perpetual resources cannot be depleted. No matter how much we use, the amount still available is unchanged. These resources are renewed continuously through natural processes. Examples of perpetual resources include sunshine and wind.

Renewable resources can be depleted or degraded if human use of the resource exceeds its natural replacement rate. **Resource depletion** means the consumption of a resource at a faster rate than it can be replenished. The highest rate at which a renewable resource can be used indefinitely is called its *sustainable yield*. Examples of renewable resources include forests, grasslands, wild fish stocks, fresh water supplies, fresh air and fertile soil.

Overuse of renewable resources leads to **environmental degradation**, a process whereby either the available supply of the resource is depleted or the quality of the resource is degraded. Examples of environmental degradation include deforestation, excessive erosion of topsoil, and burying fertile farmlands under cities, freeways and holiday resorts.

Non-renewable resources exist in a fixed quantity or amount in the Earth’s crust. Although they are called ‘non-renewable’, over a period of millions of years these resources can potentially be renewed by geological processes. Non-renewable resources can be *fossil fuels* (such as coal and oil), *metallic minerals* (such as iron and copper) or *non-metallic minerals* (such as clay and sand).

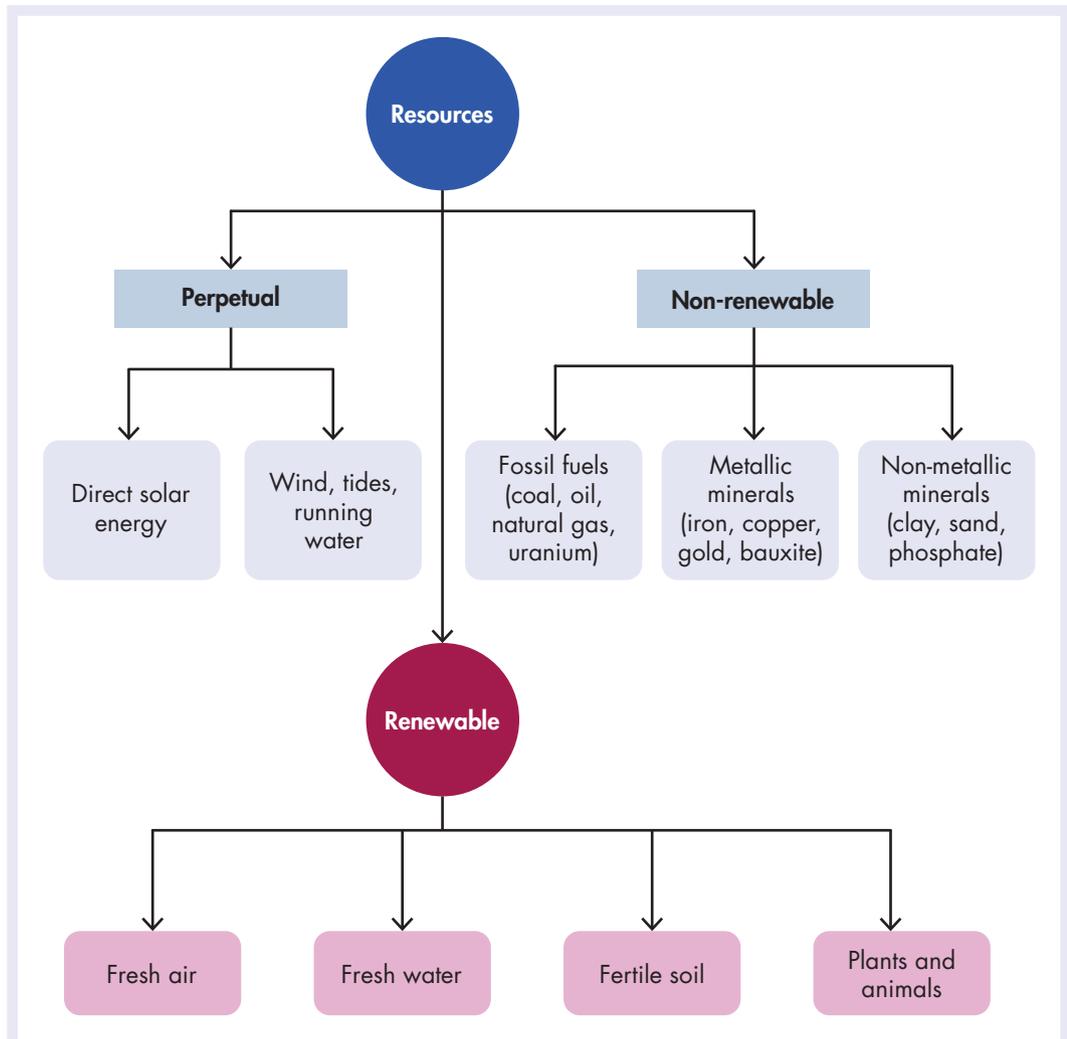


FIGURE 8.3 Types of resources

Some non-renewable resources can be recycled or reused to extend supplies.

- Recycling involves collecting and reprocessing a resource into new products; for example, aluminium cans and glass bottles can be crushed, melted and reshaped into new items.
- Reuse involves using a resource over and over again in the same form; for example, glass bottles and jars can be collected, washed and refilled many times.

Metallic minerals can be recycled, but fossil fuels cannot. Once fossil fuels have been burned, the useful energy is gone, leaving behind waste heat and polluting gases. Many non-metallic minerals are too difficult or costly to recycle.

Non-renewable resources are never completely exhausted, but become *economically depleted* when the costs of extracting and using what is left exceeds its economic value. A non-renewable resource is usually considered economically depleted when 80 per cent of it has been extracted and used. It generally costs too much to extract and process the remaining 20 per cent.

CHECK FOR UNDERSTANDING 8.1

- 1 **Explain** how you can judge whether a renewable resource is being used in a sustainable way.
- 2 **Identify** a renewable resource that is being degraded and devise a way of determining the extent of degradation.
- 3 Generate criteria to decide whether a renewable resource is being depleted or exhausted.
- 4 **Describe** what prevents the recycling of energy resources.

8.1.2 Some environmental problems associated with resource use

It is generally recognised that the world is experiencing many environmental problems, including:

- climate change induced by human activities
- rising sea levels
- rising levels of pollution of air, water, soil and oceans
- degradation of farmland
- overcrowding and congestion of many urban areas
- depletion of natural resources
- deforestation
- rapid destruction of flora and fauna leading to a loss of biodiversity.

These problems arise from the attempts of global economies to solve the economic problem in the face of rapid population growth – resulting in the production of an ever-increasing variety and quantity of consumer goods and services. This in turn results in more non-renewable resources being consumed, and renewable resources being used more rapidly than they are replenished.

Some depletion of environmental resources is unavoidable, as it is due to the basic economic problem of scarcity (see Chapter 1 at 1.1). Human wants are unlimited, but the resources used to make products to satisfy those wants are either scarce or non-renewable.

Any use of non-renewable resources reduces the amount that remains available for future production, raising concern about *intergenerational inequity*. This is the just sharing of economic benefits and costs between the present and future generations, and is discussed at 8.2.

The planet is endowed with vast but finite stocks of fossil fuels such as coal, oil and natural gas. Since the beginning of the Industrial Revolution in the 18th century, fossil fuels have been increasingly used to provide the energy to power industrial and agricultural production, as a source of heat for domestic users and as raw materials to be transformed into manufactured goods.

Furthermore, the environmental problems associated with resource use are far more extensive than issues of depletion of the Earth's stock of non-renewables. The use of energy derived from fossil fuels degrades the environments from which the oil, coal and gas are extracted. Additional environmental costs are associated with the manufacturing processes to convert these resources into forms of energy that can be used by the business sector and consumers.

The emissions from coal- and gas-fired power stations pollute local environments and are changing the makeup of the gases in the Earth's atmosphere. The distribution of electricity creates high-voltage transmission lines that are hazardous to humans and many species of animals. These transmission lines dissect natural and human environments and are often highly visible.

Gas is a key source of heating for many industries and households. It is also a vital input to many manufacturing processes, including the production of agricultural fertilisers. Storage and distribution of gas places large quantities of very flammable material in close proximity to densely populated areas.

The products refined from crude oil have powered most forms of land, sea and air transport for more than a century. Bitumen, which is a by-product of oil, is used to construct the roads on which more than a billion passenger vehicles and trucks travel each year, burning vast quantities of petrol and diesel fuel.

The burning of any fossil fuels in homes, factories or vehicles creates emissions that increase air pollution and add greenhouse gases to the atmosphere. Greenhouse gas emissions and their role in climate change have become major global environmental and economic issues.

Many of the plastics dumped in landfill sites and the plastic packaging that pollute waterways and endanger marine species are also by-products of oil.

ECONOMICS CHALLENGE



Use online sources to research developments being made in the electric vehicle industry to reduce pollution levels in line with global targets by 2050.

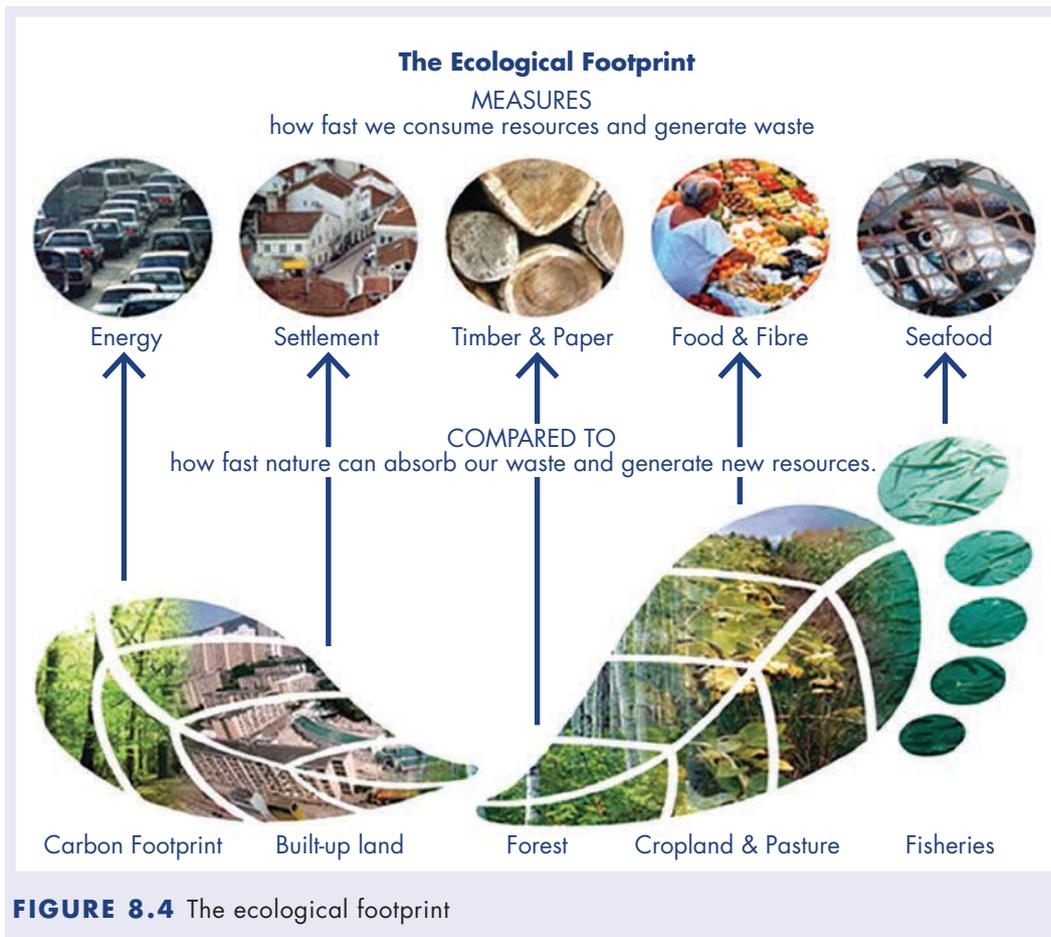
- **Analyse** electric vehicle registrations from 2016 to the present using the Our World in Data website.
- **Evaluate** the growth in electric cars using two economic criteria.



WebLink
Our World in Data

8.1.3 The ecological footprint

The idea of calculating people's **ecological footprint** was developed in 1990 by Mathis Wackernagel and William Rees at the University of British Columbia. The ecological footprint has been widely used since to monitor human use of environmental resources and promote sustainable development. The calculation of carbon footprints is a useful extension.



ECONOMICS IN ACTION



The weblinks provided on Nelson MindTap will allow you to calculate your ecological footprint by answering the following questions:

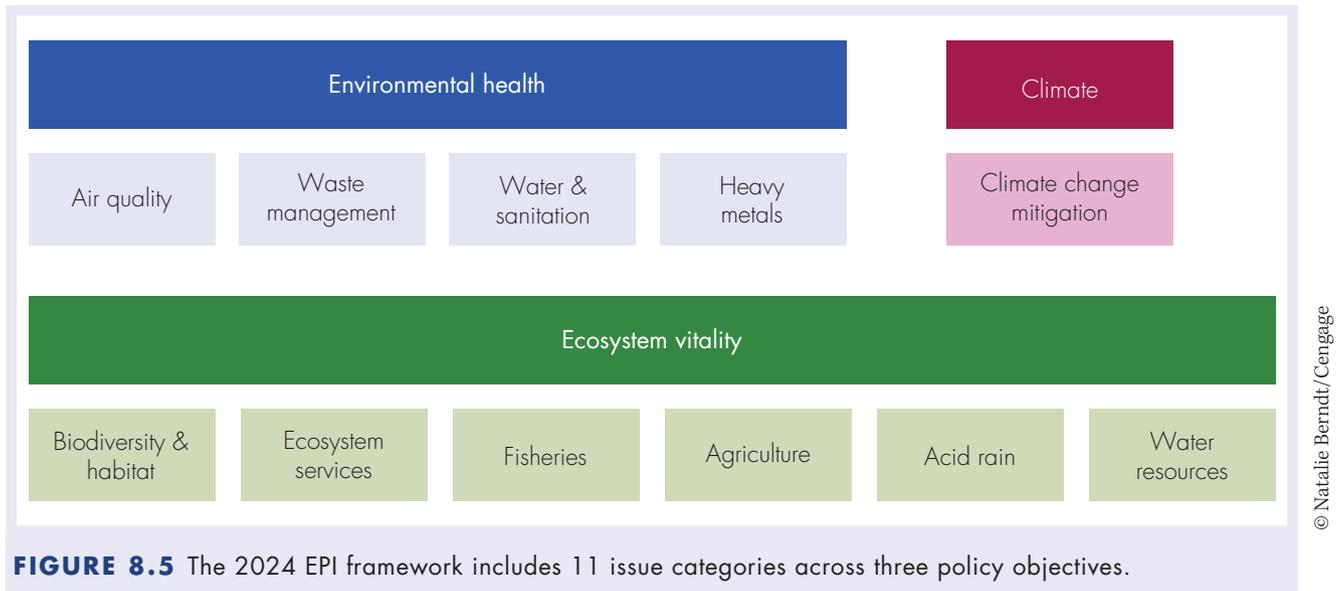
- 1 What is the biologically productive space (expressed in hectares) available for every human being?
- 2 Calculate your footprint and assess whether it is a sustainable one.
- 3 **Identify** personal actions you can take to reduce your personal footprint.
- 4 What is the average Australian footprint?
- 5 **Evaluate** whether this is fair, given that it implies that other people must have a footprint below the average.
- 6 **Identify** actions that Australian governments can take to reduce the size of their citizens' footprints.
- 7 What are the long-term implications of the size of the Australian footprint?



Weblink
The ecological
footprint

8.1.4 The Environmental Performance Index

Yale and Columbia Universities, in collaboration with the World Economic Forum, have developed an Environmental Performance Index (EPI). The EPI's authors have published a global and country-level report card every second year since 2006. The 2024 edition of the EPI ranked 180 countries on 58 performance indicators in a range of high-priority environmental issues. These fall within 11 areas or 'issue categories' across three policy objectives: see Figure 8.5.



However, EPI data indicates that many fundamental environmental problems exist and that clear progress is only being made on a few performance indicators.

The 2024 country ranking put Estonia in first place followed by Luxembourg, Germany and Finland. Australia was ranked 23rd.

CHECK FOR UNDERSTANDING 8.2

- 1 Recall** the term 'fossil fuels' and list the three most widely used types.
- 2 Distinguish** between renewable and non-renewable sources of energy.
- 3 Explain** the nature of the relationships between the rising level of greenhouse gases in the Earth's atmosphere, the Industrial Revolution and rapidly rising global population since the late 18th century.
- 4 Analyse** the findings in the 2022 EPI and decide which of them you find most concerning and which the most encouraging. Justify these choices.

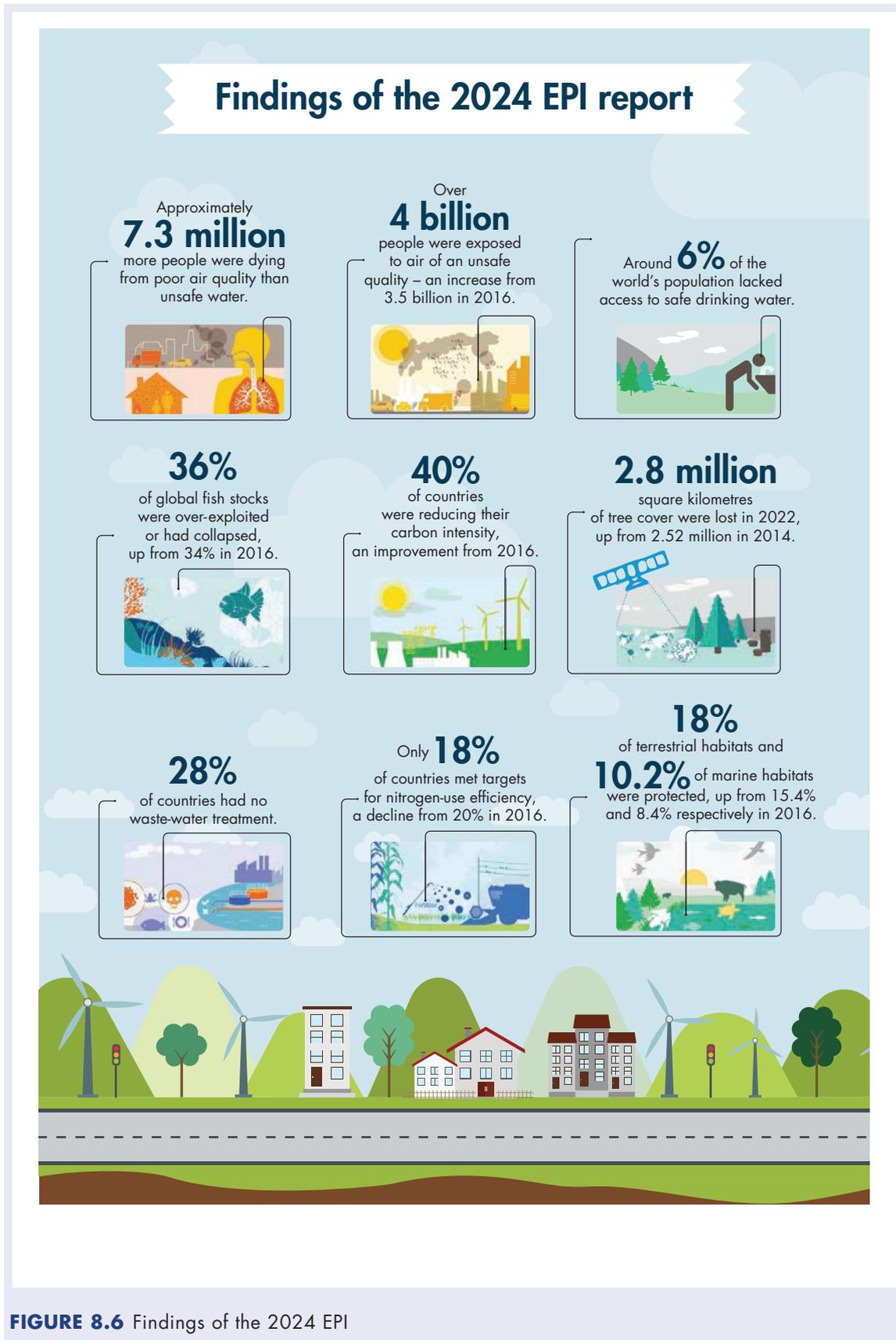


FIGURE 8.6 Findings of the 2024 EPI

ECONOMICS IN ACTION



WebLink
Environmental
Performance Index

Use the Internet to locate details of the latest EPI data, then complete the following tasks:

- 1 Update the issue categories in Figure 8.5.
- 2 **Identify** any new performance indicators that have been highlighted in the current report.

8.2 Ecologically sustainable development

CONCEPTS



Allocative efficiency: occurs where a country's productive resources are used in the economy in combinations that generate the maximum benefits for consumers and the country

Dynamic efficiency: the ability of an economy to respond to changing consumer demands by reallocating resources to new industries or production processes

Ecologically sustainable development (ESD): the use of natural resources for economic development in a way that does not compromise the current ecological balance, and ensures that these resources are maintained to improve the quality of life for present and future generations

Intergenerational equity: the just sharing of economic benefits and costs between the present and future generations

Productive efficiency: the ability of an economy to achieve the maximum quantity of output from a given quantity of productive resources

Quality of life: the overall wellbeing of individuals according to their material living standards and a range of other considerations, such as health standards, education levels, security and happiness

KEY IDEA

Ecologically sustainable development (ESD) is an economic and social objective requiring government intervention to manage natural resources in ways that ensure the environment is able to meet present and future needs.

The Australian *National Strategy for Ecologically Sustainable Development* (1992) defines **ecologically sustainable development (ESD)** as 'development that improves the total **quality of life**, both now and in the future, in a way that maintains the ecological processes on which life depends' (Australian National Strategy for Ecologically Sustainable Development. See <https://www.transparency.gov.au/publications/infrastructure-transport-cities-and-regional-development/national-capital-authority/national-capital-authority-annual-report-2021-22/3.-management-and-accountability/ecologically-sustainable-development-and-environmental-performance>).

ESD is a long-standing and internationally recognised concept. It first emerged in the *Report of the World Commission on Environment and Development: Our Common Future* (the Brundtland Report) in 1987.

From this concept, five principles guide the economic activities and decisions of governments, industry and consumers:

- 1 **Integrate economic and environmental goals in policies and activities:** The goals of economic growth, full employment and equitable distribution are to be pursued while ensuring adequate protection and maintenance of the environment.
- 2 **Ensure that environmental assets are appropriately valued.**
- 3 **Provide for equity within and between generations:** Social equity policies will need to accompany ESD strategies to ensure an equitable distribution of the costs and benefits of production and consumption. The principle of **intergenerational equity** needs to be applied to avoid passing on an impoverished environment to future generations, thus denying them options when deciding how they wish to live.
- 4 **Deal cautiously with risk and irreversibility:** The environment is a complex system of interdependencies. Our knowledge of the effects of human activity on the environment is still limited, particularly as it relates to long-term effects. This principle requires that when there is a reasonable risk of unacceptable damage to the environment, this risk should be avoided or reduced by further research, the application of new technologies and long-term planning.
- 5 **Recognise the global dimension:** The contribution of greenhouse gases to climate change, radioactive fallout from nuclear accidents and over-exploitation of ocean fisheries are examples of environmental problems that extend beyond the concern of a single nation. The adoption of ESD strategies among a nation's trading partners will also affect international trade and finance. If the ESD policies of one nation drive domestic production overseas to nations with less rigorous ESD standards, a race to the bottom in environmental standards may occur.

These principles give us a means of assessing how well our economic system makes use of the environment and how environmental resources should be managed. It is a balancing act, as illustrated in Figure 8.7.



© Natalie Berndt/Cengage

FIGURE 8.7 Managing environmental resources

8.2.1 The relationship between ESD and efficiency

The understanding of ecologically sustainable development outlined in the *National Strategy for Ecologically Sustainable Development* highlights the potential compatibility of ESD and concepts of economic efficiency. The development of better ways to maintain ‘the ecological processes on which life depends’ is consistent with an understanding that **allocative efficiency** occurs where a country’s productive resources are used in combinations that generate the maximum benefits for consumers and the country. If the full costs and benefits of using environmental resources are considered, including those externalised from market prices, then the most efficient ways to produce are going to be the most ecologically sustainable. However, this does not in itself guarantee that the planet’s resources can support an unlimited growth in population or a mindset that greater consumption is essential to improve people’s quality of life.

Productive efficiency is concerned with minimising costs by using the best mix of inputs at the lowest point on the short-run average cost curve. If users of environmental resources had to purchase inputs at a price that reflected their relative scarcity (and importance), many of the planet’s environmental problems would be reduced. Private and government-owned businesses would be forced to find ways to use more environmentally friendly production methods. This is a path towards environmentally sustainable production.

Dynamic efficiency has a key role to play in achieving more sustainable economic activity. Dynamically efficient firms or economies develop new products and production processes using new ideas and technologies to meet – or even lead changes in – consumer preferences and tastes. The development of new technologies and ways of organising production are driven by competitive pressures to reduce production costs and therefore increase productive efficiency. Such development can also improve the sustainability of economic activity. Examples include:

- innovation in global energy production – including new solar, wind and tidal power technologies – which is reducing the emission of greenhouse gases into the atmosphere
- a continuing wave of technological development in the design of electric cars, commercial vehicles, and air and sea transport, which is enabling the more environmentally sustainable movement of people, productive resources and goods.

The most efficient firms and markets at global and national levels do not necessarily produce the most socially desirable outcomes. It may be productively efficient to produce electricity from coal, gas or even nuclear power, but are these the best ways to allocate resources? The same question arises for many industries in which the leading firms operate with high levels of productive and dynamic efficiency. Arms manufacturing, palm oil production and rainforest logging are not the optimal ways to use the planet’s resources.

Allocative efficiency is essential to ESD. As noted above, allocative efficiency is achieved when resources go to the production of goods that people most want, in the quantities that provide the greatest social benefits. Environmental economics highlights the tendency for existing markets to discount the future by exploiting non-renewable resources, depleting renewable resource stocks and using natural systems for waste disposal. This is an inequitable use of *natural capital* (see 8.3.2) – leaving diminished stocks of environmental resources and degraded environments for future generations. If markets fail to allocate environmental resources in sustainable ways, then they are not truly delivering allocative efficiency.

The optimal distribution of resources and the output produced from them is achieved when the marginal cost and market price are at a level that consumers are willing to pay, because they are equivalent to the marginal utility that consumers gain. For an increasing number of consumers around the world, especially those with medium to high incomes, the utility of many products is increased if they are produced in an environmentally

sensitive way, using renewable resources sustainably. These consumers make mindful choices about the relative environmental merits of alternative ways to satisfy their wants, and are often willing to pay premium prices for the product with the lowest environmental footprint. Ecotourism, electric cars, 'grey water' safe detergents, biodegradable packaging, organically or bio-dynamically produced foods and low-energy-consuming white goods are examples. Sourcing sustainably grown timbers, building houses that are independent of outside sources of electricity and the urban gardening movement all involve consumers making a conscious effort to promote ESD.

Environmentally conscious business owners are able to differentiate themselves from competitors by developing more environmentally friendly production processes, or even developing whole new industries. If innovation and economic development result in a more efficient use of environmental resources, then this helps achieve ecological sustainability – even if the profit motive is a driving force.

CHECK FOR UNDERSTANDING 8.3

- 1 **Describe** three elements that need to be balanced in an economic system that sustainably manages environmental resources.
- 2 **Recall** the type of efficiency that is essential to achieving ESD.
- 3 **Distinguish** between the contributions that improvements in productive and dynamic efficiency can make to improving ecological sustainability, and discuss this in a paragraph of 75–100 words.

ECONOMICS CHALLENGE



Select a product you believe is not an efficient use of environmental resources and hypothesise about the following questions:

- 1 Is it manufactured (by a market-leading firm) in a productively efficient way?
- 2 How is it an inefficient allocation of resources?
- 3 What are the main environmental resources that are used to produce the selected good?
- 4 What is the optimal alternative use of those resources?
- 5 Why is it being produced despite being an inefficient and unsustainable use of resources?

Investigate these topics using digital sources to test the accuracy of your hypotheses.

8.3 The trade-off between economic growth and ecologically sustainable development

CONCEPTS



Flow: understanding productive resources as income items that can be used to produce goods and services indefinitely

Stock: understanding productive resources as capital items that need to be maintained for future use

KEY IDEA

A sustainable approach to economic activity needs to be based on an understanding of the world's resources as capital **stock** rather than an income **flow**.

Modern industrial economic systems have used the environment to deliver a higher material standard of living, but have traded off environmental quality and are threatening the sustainability of the environmental resources on which human life depends. Economic systems before the Industrial Revolution also achieved improvement of material wellbeing at the cost of environmental degradation, but their technology and a relatively small world population limited the scale of the problems created. The world population has increased from about six million in 1700 to more than eight billion today.



iStock.com/superjoseph

FIGURE 8.8 The consequences of unsustainable growth can be seen in the pollution in China.

The overriding focus of economic activity in modern market economies is on economic growth. Production and consumption are presented as ‘good’ things because the goal of an economic system is to maximise the satisfaction of human wants. Continual economic growth and the income it generates are pursued to meet the increased demand generated by an expanding population. This is also seen as the best way to increase standards of living.

Economic success is measured by the amount produced. A national economy that does not produce an increasing gross domestic product (GDP) is said to be ‘underperforming’. There is a widespread belief that economic growth is good, and more economic growth is better.

Since the evolution of modern markets began during the Industrial Revolution, there has been a growing correlation between the scale of economic production and the extent of

environmental problems. As a consequence, the environmental sustainability of economic activities has become a pressing issue for many people, businesses and governments. The history of the growth of national and world markets has been a history of market failure, and this has led to increasing priority being given to attempts to correct market failure with government interventions.

8.3.1 The relationship between economic growth and the environment

KEY IDEA

If sustainable development means sustainable growth, then it may be unattainable with existing technology and resources. The key question is not *whether* to embrace sustainable development, but *how* to do so.

The limits of growth

The 1972 report *The Limits to Growth* was largely responsible for bringing to global attention the question of whether the universal quest for continuous economic growth was sustainable. The report's central points are that 'the Earth is finite', and the quest for unlimited growth in population and the production and consumption of material goods would probably lead to a collapse of the existing civilisation by the mid- to latter part of the 21st century. The report's predictions were based on the research of a team working out of the Massachusetts Institute of Technology who built a computer model, called World3, to track the world's economy and environment. *The Limits to Growth* has been criticised as a 'doomsday fantasy' since it was published.

In 2014, Dr Graham Turner from the University of Melbourne gathered data from various sources – including United Nations' agencies, the US National Oceanic and Atmospheric Administration and the BP Statistical Review of World Energy – which showed that the world was tracking fairly closely to *The Limits to Growth's* worst-case scenario. This scenario assumed that a 'business as usual' attitude was adopted and that there were no modifications of human behaviour in response to the warnings in the report. Dr Turner's findings suggested that if global environmental data continues to track in line with the report's worst-case scenario, then we should expect the early stages of global collapse to start appearing soon.

These findings suggest that it is unlikely that the quest for ever-increasing growth can continue unchecked to 2100 without causing serious negative effects, and those effects might be already occurring. As *The Limits to Growth* concluded in 1972:

If the present growth trends in world population, industrialisation, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity (Reuse from Economics for the Real World 1&2, 4th ed, Cengage, 2017, 9780170407007, p 235).

The environmental Kuznets curve

The environmental Kuznets curve (EKC) is a hypothesis advanced by economist Simon Kuznets in the 1950s and 1960s. The EKC hypothesis is that the level of environmental degradation (pollution, resource depletion) increases as economies develop and increase their level of economic growth. As income and production levels rise, they reach a turning point where improved technology, government regulation, de-industrialisation and a greater emphasis on the importance of the environmental elements of living standards result in improving environmental quality.

As economies develop, the focus of their production shifts from farming to manufacturing. This increases environmental degradation and contributes to the steep rise in the environmental Kuznets curve, shown in Figure 8.9. Industrialisation increases productivity and real incomes, leading to a shift of economic activity to service provision. The service sector generally has a lower environmental impact than manufacturing, so as manufacturing's share of economic activity shrinks, so does the level of resource depletion and environmental damage. This is a key reason why the EKC might fall rapidly after passing the turning point.

Improved technology and higher productivity drive long-term economic growth, allowing higher levels of output to be produced using fewer resources. In the most developed economies, increased use of cars and air travel has been accompanied by technological developments

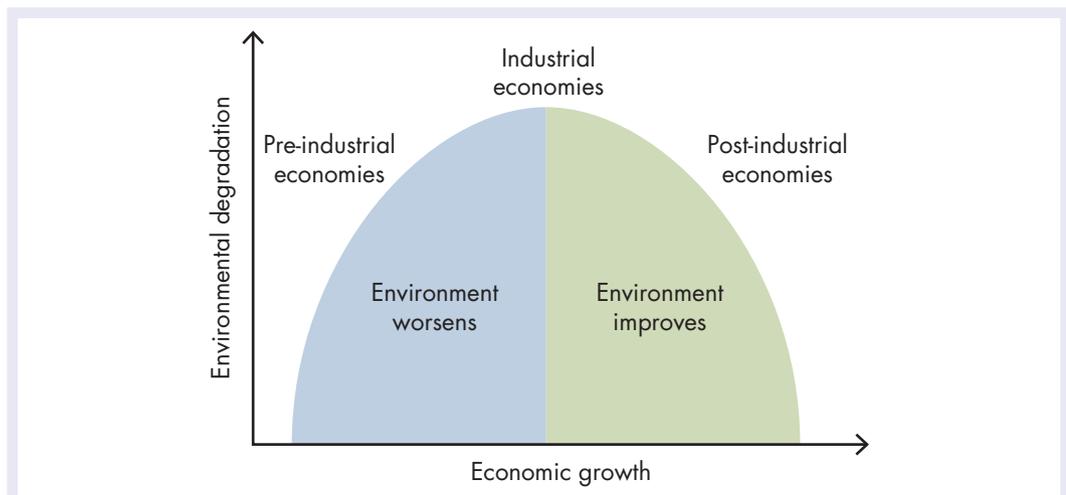


FIGURE 8.9 The environmental Kuznets curve

that continue to improve the fuel efficiency of cars, trucks and aeroplanes, while reducing their emissions of environmentally damaging gases and particles.

Industrial and agricultural processes in the world's most advanced economies also produce more while using fewer environmental resources, and may cause less environmental damage per unit of output. A shift to greater use of renewable energy sources in the generation of electricity has begun decreasing the carbon footprint of each unit of energy generated.

The growth of GDP and economic development has also been associated with a growth in government influence over an economy. The government sector's share of GDP increases, and taxes and regulations are used in an attempt to reduce harmful environmental externalities.

Testing the EKC hypothesis

A criticism made of the EKC hypothesis is that it suffers from *optimism bias* – it promotes the idea that continuing economic growth is sustainable based on optimism rather than the evidence. It can be characterised as a 'grow now and clean later' approach.

A considerable amount of academic research has tested the EKC hypothesis. There is clear evidence that air and water pollution levels in many developed economies have been reduced. China is an example of a developing economy that began this transition after pollution levels soared with the industrialisation of its economy. Many harmful chemicals used in agriculture, such as dioxin and DDT, have been banned in the USA, the euro area and Australia. The level of many environmental pollutants – such as untreated sewage, chlorofluorocarbons, sulfur dioxide, nitrogen oxide and lead – have also been greatly reduced in economies that have reached high levels of average income through sustained economic growth.

The traditional focus of economic policies on increasing rates of economic growth to raise material standards of living is increasingly being challenged in high-income nations. A growing focus on the quality of life is consistent with rational economic behaviour. Rising income has a diminishing marginal utility. At high income levels, gaining further increases in income is of little consolation if one lives in an increasingly degraded environment.

The evidence for the EKC hypothesis is mixed. There is little evidence that continued economic growth has led to a decrease in the levels of many pollutants. Countries with the highest levels of per capita carbon dioxide emissions are generally those with the highest levels of GDP. The biggest ecological footprints are still those of the high-income countries, and there is little evidence that they are falling with rising incomes. The ratio of energy per real unit of GDP has fallen in some high-income economies, but total energy use is still rising in most.

Australia illustrates the failure of rising incomes generated by economic growth to improve the health of key natural systems. The erosion of topsoil, degradation of river systems, increased landfill, declining health of coastal ecosystems (including the Great Barrier Reef) and loss of biodiversity all continue, while total greenhouse gas emissions continue to rise.

Depletion of environmental resources and degradation of environments are not simply a function of income. They are caused by many factors, including the level and effectiveness of government regulation, the nature of economic development, levels of consumption and the size of the population. EKC's have been found for some environmental health concerns, but not for others.

Much of the reduction in environmental damage in high-income economies is achieved by outsourcing the environmental damage to lower-income economies. Australia is closing coal-fired power stations while increasing its exports of coal and gas to developing Asian nations. As restrictions on the logging of the remaining Australian forests limit the supply of local timber that is available, demand is partly met by importing timber products sourced from the rainforests of Indonesia and Papua New Guinea. Restricting fishing zones and catch limits in Australia has led to unsatisfied demand being met by rapidly increasing imports of seafood. The outsourcing of heavy industrial production from advanced economies to developing ones does not reduce global environmental degradation; it shifts the environmental damage offshore. Many of the developing economies that are producing steel, cars, chemical products and white goods for export have much lower environmental standards and less government regulation than the developed economies that provide their export markets.

The link between levels of income and environmental degradation is quite weak. It is possible that economic growth will be compatible with an improved environment, but it requires a very deliberate set of policies and a willingness to produce energy and goods in the most environmentally friendly way. Some economists argue that there is a degree of reduced environmental degradation as economies shift from a manufacturing focus to service provision. It seems inevitable that an economy pursuing continuous economic growth can only achieve it at the cost of depleting and damaging some resources. There is no guarantee that long-term levels of environmental degradation will fall. Acceptance of the EKC hypothesis is based on a very optimistic view of likely environmental outcomes.

The World Bank's report *The Changing Wealth of Nations 2021* found that wealth increased significantly across the globe between 1995 and 2018, but that it did so by worsening inequality and risking future prosperity. Mari Pangestu, World Bank Managing Director for Development Policy and Partnerships, said: 'It is essential that renewable natural capital and human capital are given the same importance as more traditional sources of economic growth, so that policy makers take steps to enable long-term prosperity' (Global wealth has grown, but at the expense of future prosperity: World Bank - 2021 - World Bank Group. <https://www.worldbank.org/en/news/press-release/2021/10/27/global-wealth-has-grown-but-at-the-expense-of-future-prosperity-world-bank>).

CHECK FOR UNDERSTANDING 8.4

- 1 **Recall** four reasons why continued economic growth, according to the EKC hypothesis, may lead to a reduction in environmental deterioration.
- 2 Create a table that compares evidence that supports the EKC hypothesis with evidence from developed economies that contradicts this hypothesis.

8.3.2 The role of market failure in creating environmental problems

CONCEPTS



External costs: the social and environmental costs associated with the production and consumption of a good or service that are not included in the market price

Natural capital: the stock of resources provided by the natural environment from which humans gain amenity and

productive inputs; also called ecological or environmental capital

Private costs: the financial and opportunity costs paid by a firm or a consumer to produce or consume a good or service

Social costs: the total private and external costs of production and consumption of a good or service

KEY IDEA

Markets fail to allocate the Earth's natural capital in a sustainable and socially efficient way when products are sold at their private cost rather than their full social cost.

The **natural capital** of the planet comprises the gifts of nature, such as clean air, stable climatic conditions, unpolluted oceans, lakes and streams (stocked with fish), and a healthy atmosphere. They are capital 'stock' that produces a 'flow' of services, which are vital inputs into the productive process (see 8.3.5).

As modern market economies have evolved, they have increasingly failed to use natural capital in environmentally sustainable ways. Intervention in markets by governments and international organisations, such as the United Nations, have been unable to stop the continued deterioration of many aspects of the natural environment and the depletion of the productive resources derived from nature.

The causes of market failure centre on the externalisation of key social and environmental costs and benefits from the price mechanism. Environmental resources are free goods, resulting in unsustainable use. The stock of natural capital is being used as an income flow instead of a capital item.

8.3.3 The difference between private and social costs

The **private costs** of producing a good or service include the costs paid by the producing firm for capital equipment, labour, enterprise, raw materials, any intermediate goods used in the production process and an allowance for a normal profit. The level of these costs and the market price the firm can receive for the finished product determine the quantity it will produce and offer for sale.

The private costs to a consumer include the price of the good or service, the cost of any complementary goods connected with consuming that product, and any opportunity costs involved in consuming it. The costs of driving a car include fuel, oil, servicing and repairing the vehicle, road tolls, insurance, registration, and allowance for depreciation in the value of the vehicle over time. The time spent driving is an additional opportunity cost.

There are additional, **external costs** involved in the production and consumption of any good or service. The external costs are the social and environmental costs associated with the production and consumption of the good or service. Driving private vehicles on public roads involves the cost of the construction and maintenance of those road systems, the loss of amenity due to their impact on liveability and natural beauty, the social costs of road accidents, and the community costs of providing emergency services, policing and traffic management systems. Environmental costs include emissions of toxic exhaust fumes including greenhouse gases, noise pollution, habitat destruction, disruption of wildlife movements, and injury or death to creatures that are hit by vehicles. These costs are externalised because they are not included in the market price and are not paid for by either the producer or the consumer.

The real cost of any product is its **social cost**. This is the sum of private and external costs.

Many environmental resources such as fish, minerals, oil and timber are bought and sold in markets at prices reflecting their private cost. These prices are lower than their actual cost to society. These goods are 'owned' by the firms that extract, process and market them. However, the prices they are sold for ration their use. The scarcer the resource is, the higher its price will be, resulting in less of the resource being used. Increased world oil and energy prices have led to innovations that use less fuel or alternative energy sources. While markets ration the use of these types of natural capital, they are still over-consumed because they are sold at their private cost rather than their higher social cost.

Other environmental resources – such as the atmosphere, wilderness areas, oceans and inland waterways – are public goods that are nobody's to own or sell. As a result they are viewed as being free goods. Markets do not ration their consumption because they have no market price. This is the 'tragedy of the commons', identified in Chapter 5 as a major source of market failure. Profit-seeking businesses pollute the air and water with industrial emissions because there is no market price for doing so. To do so is cheaper than developing and installing effective anti-pollution systems or developing ways to use more sustainable resources. As the ocean's fish are free and there for the taking, over-exploitation and depletion of stocks is occurring. Natural resources may be overused and abused to the extent that they become depleted or degraded. This reduces people's quality of life and may even endanger human survival.

This is based on the assumption that the Earth is an open system with infinite reservoirs from which raw materials can be obtained and into which agricultural, industrial and consumer wastes can be deposited. Such an approach discounts the future.

If users of environmental resources had to purchase them at a price that reflected their relative scarcity (and importance), many of the planet's environmental problems would be reduced. Private and government-owned businesses would be forced to find ways to use more environmentally friendly production methods.

Figure 8.10 illustrates that socially efficient and environmentally sustainable use of natural capital will only be produced when all external costs are included in the price of goods and services.

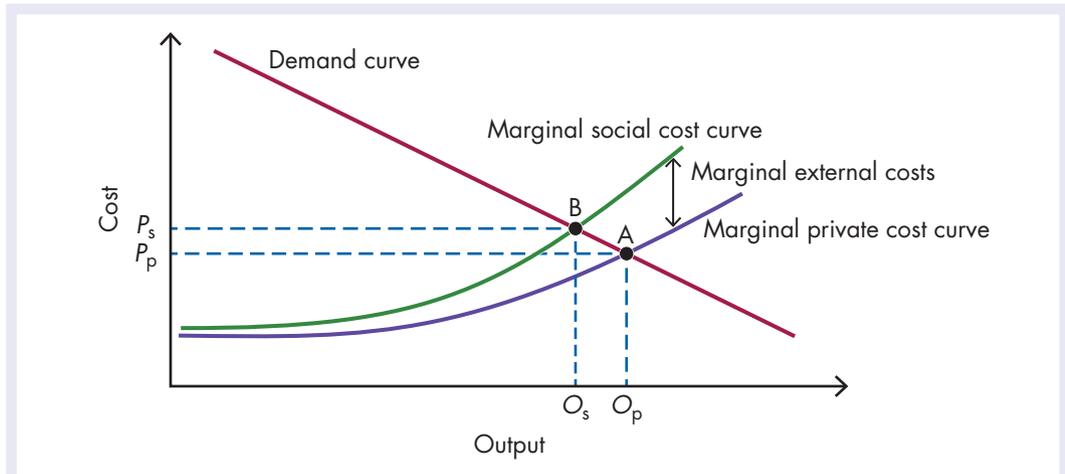


FIGURE 8.10 Internalising social costs in market prices

In Figure 8.10, the marginal social cost curve equals the marginal private cost curve plus the marginal external cost curve.

If firms pay only the private costs of production, then the equilibrium market price will be at point A. O_p units of output will be demanded at a price of P_p . This is an example of a market failing to deliver a socially (and environmentally) optimal outcome.

If government policy is effective in forcing firms to pay the private and external costs of producing, then the market will operate at point B. This is at a higher price (P_s), reflecting the real costs of producing this good, resulting in less output (O_s) being demanded.

Point B indicates a market allocating resources based on their full social cost and delivering optimal levels of output of this good or service. This is the socially efficient rate of production.

CHECK FOR UNDERSTANDING 8.5

- 1 **Recall** an example of a resource provided by the natural environment and **explain** some ways in which humans gain amenity from its use.
- 2 Select one or more of the following products, then **recall** all of the external costs you can think of that are not included in the price consumers pay for that good:
 - a litre of organically produced milk
 - a flight
 - a packet of cigarettes
 - a wild-caught fish.

8.4 Environmental degradation in Australia

Every five years, the Commonwealth of Australia publishes a *State of the Environment* report. The 2021 report provided a comprehensive summary of the extent of degradation of Australian environments, and areas where there has been improvement. A brief overview is provided below:

Overall, the state and trend of the environment of Australia are poor and deteriorating as a result of increasing pressures from climate change, habitat loss, invasive species, pollution and resource extraction. Changing environmental conditions mean that many species and ecosystems are increasingly threatened. Multiple pressures create cumulative impacts that amplify threats to our environment, and abrupt changes in ecological systems have been recorded in the past 5 years (2017-2021) (Key findings from State of the Environment report 2021, Commonwealth of Australia, <https://soe.dcceew.gov.au/overview/key-findings>).

8.4.1 Environmental pressures

The report covers the current state, pressures, impacts, management and outlook for twelve 'environmental themes'. You can explore each of these themes by following the weblinks supplied on Nelson MindTap.

Some key findings in relation to eight of the themes are outlined below. (In addition to these, the report covers the following: air quality, extreme events, heritage and Indigenous.)



Weblink
State of the
Environment report
2021

Climate

- Australia's land and seas are warming and much of the south has experienced reduced winter rainfall and severe drought in recent years.
- Rainfall is increasing in the north-west.
- Sea levels continue to rise faster than the global average and are threatening coastal communities.

Urban

- Australia's urban amenity is generally good. However, housing affordability and accessibility of services are issues in some areas.
- Continuing urban growth, climate change and waste processing are ongoing challenges.

Biodiversity

- Australia's biodiversity is continuing to decline.
- Threatened plants and animals are generally in a poor and deteriorating state due to increased land clearing, urban expansion and invasive species.

Land

- Soil and land condition is generally poor as a result of high overall loss of soil organic carbon.
- The trend in condition is deteriorating as a result of land clearing, unsustainable agricultural practices and erosion, and climate change, although there have been some recent improvements in soil under forests.

Inland water

- Low levels of rainfall in southern Australia, combined with demand for town water and irrigation, have reduced both groundwater and surface water levels, particularly in the south-east.
- In northern Australia, water resources were reduced by the late onset of the monsoon seasons in 2017–19, with associated poor rainfall during the wet season over consecutive years.

Coasts

- Waterways, beaches and shorelines are generally in poor condition in areas near urban centres, due to coastal development and climate change, but in good condition in more remote areas.
- Rocky shorelines, mudflats and sandbars are vulnerable to ongoing pressures.

Marine

- The marine environment is predominantly in a good condition overall, but nearshore reefs are in poor condition and deteriorating as a result of the effects of climate change and cumulative pressures.
- Many habitats and communities that are in good condition overall are highly impacted in some locations.
- Climate change continues to warm and acidify the ocean, and we have experienced several major marine heatwaves over the past five years, resulting in an overall deteriorating trend.

Antarctica

- The state of Antarctica is generally good, although signals of change and variability are continuing to emerge.
- Most significantly, the ice sheet is providing an increasing contribution to global sea level rise; sea ice is showing large regional variability; and changes are occurring in the acidity, salinity and temperature of the Southern Ocean.

In the 2024 EPI rankings (see 8.1.4), Australia placed 23rd out of 180 countries examined. Australia was ranked 60th overall in the climate and energy category.

ECONOMICS IN ACTION



Visit the EPI website to find the latest country rankings, and then complete the following tasks.

- 1 **Analyse** the environmental performance of the Australian economy on a range of key indicators.
- 2 Compare Australia's performance with other nations:
 - a of similar income level
 - b that are less economically developed
 - c that have similar levels of GDP growth.

Worksheet
8.1 Environmental
Performance
Index

Weblink
Environmental
Performance
Index – Country
Rankings

8.5 The path to ecologically sustainable development

In a 2012 report titled *Inclusive Green Growth: The Pathway to Sustainable Development*, World Bank economists set out an economic argument and framework for 'green growth', which is about making growth processes resource-efficient, cleaner and more resilient, without necessarily slowing them:

The current model is not just unsustainable, it is inefficient. Improving it is good economics, so let's fix market failures, internalize externalities, assign property rights, improve governance, and influence behaviors (Reuse from *Economics for the Real World 1&2*, 4th ed, Cengage, 2017, 9780170407007, p 244).

Any solution based on a free-enterprise economic model and retaining the price mechanism as the central tool for economic decision making must begin by internalising the complete costs and benefits of production and distribution in the price mechanism.

In addition, market economies need to develop strategies that modify market behaviours so that they treat the Earth as a closed system that has limited resources of everything except perpetual resources. Markets need to use environmental resources as stocks to be maintained, rather than income flows to be maximised, which is what the current growth-centred approach does. The future needs to be at the forefront of economic decisions – the future lives of humans living today, the needs and aspirations of future generations, and the sustainability of natural systems.

8.5.1 The circular flow of income and the environment

KEY IDEA

If an economy is to deliver sustainable improvements in living standards and quality of life, then 'restructuring expenditures' are needed to maintain natural assets and processes.

Economic models do not usually include the environment. Figure 8.11 shows how the circular flow of income model can be adapted to incorporate the environmental system, and illustrates that the household and production sectors will need to incur *restructuring expenditures* to aid the environment's natural regeneration processes.

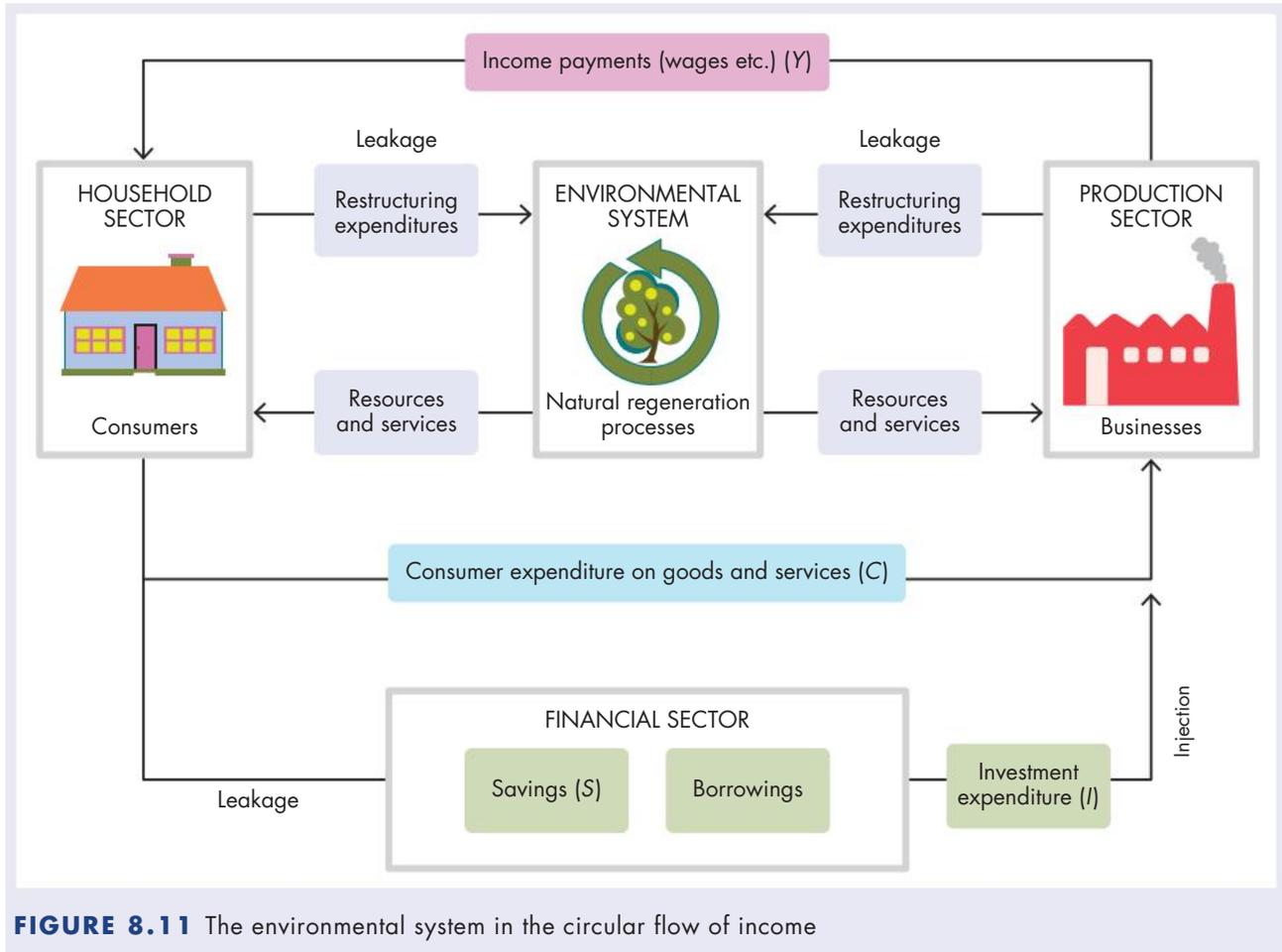


FIGURE 8.11 The environmental system in the circular flow of income

Figure 8.11 shows that as a result of the economic activities of the household and production sectors, the economic system draws resources and amenity services from the environment, and creates waste. The environmental system has a capacity to regenerate itself to continue to provide these resources and services. However, there are limits. If renewable resources are used sustainably, they can continue to provide inputs to production, and environmental processes can continue to break down and absorb many types of waste.

As we have seen in 8.1.1, non-renewables are exhaustible, but their supply can be extended by limiting their use and by recycling. The environmental system needs to be kept in balance if it is to continue to provide the environmental services that enable human life and economic activity. To maintain the environmental balance, the regeneration processes of the environment 'need a hand'. The household and production sectors need to incur restructuring expenditures. This spending acts as leakage to the standard expenditure flows. They are expenditures and resources that would otherwise have been spent on increasing production, but are now spent on protecting and maintaining the environment. They do not necessarily need to cause a reduction in economic growth, but they will redirect economic activity to be more socially and environmentally sustainable and deliver a different type of economic growth.

8.5.2 Government strategies and/or interventions

Three forms of intervention are available to governments wanting to influence the management of environmental resources to redress environmental degradation.

Voluntary action

Governments can encourage consumers and producers to take environmentally conscious action to limit the environmental effects and future impacts of their economic behaviour. This might involve supporting public education and promotional campaigns, funding research, improving data and information flows, and providing support services. Governments need to model environmentally sound practices in their own operations and reflect this in the goods and services they buy.

Voluntary action is useful when responding to community emergencies, such as disasters, water shortages, epidemics or an energy crisis. They are vital in areas where regulation of environmental degradation is difficult to enforce, such as dealing with littering, preventing erosion and maintaining biodiversity on privately owned lands. A weakness of voluntary action is that initial enthusiasm and levels of cooperation are difficult to maintain over time.



Jose Calsina/Shutterstock.com

FIGURE 8.12 Regulation of environmental degradation is difficult to enforce, like littering.

Direct regulation

Regulations that limit the activities of consumers and producers are most effective where there is a clear social objective, with little room for compromise. They have been applied in Australia with some success to protect valuable species and ecosystems (such as the Great Barrier Reef and rainforests), and to reduce harmful emissions from vehicles and industry. Banning the extraction of resources such as uranium, the capture or killing of certain native species, and the use of dangerous pesticides and herbicides has reduced certain environmental problems.

Direct regulation can involve restraints or total bans, quality standards, planning requirements or emission controls. Land-use zoning, ecologically centred building codes, regulation of fishing and biosecurity measures can reduce environmental degradation and directly increase sustainability. Governments can provide merit goods such as national parks

and conservation areas, and mandate the rehabilitation of environments that have been mined or cleared of native vegetation. Urban renewal and environmentally sensitive planning measures can increase the amenity of urban living.

However, the application of regulations is limited by high enforcement and administrative costs, and they are only as effective as the courts that enforce them. Prosecuting breaches of regulations can be a slow and costly process. In addition, regulations can also be inflexible and politically difficult to change.

Market-based measures

Taxes and charges, quotas, subsidies and tradeable permits work by altering the relative price of inputs and outputs. They aim to encourage individual consumers and producers to change their behaviour and economic decisions to attain a more environmentally desirable outcome. They influence consumption patterns through price signals that reduce the demand for selected goods and services without needing to change consumers' level of environmental awareness or concern. Economists regard incentives for humans to change their decisions and behaviour as more effective than regulation, education or appeals to human altruism. Any changes in behaviour are likely to endure while the incentive remains.

Such measures may also be more flexible than direct regulation, and have the advantage (except for subsidies) of increasing government revenue that could be spent on environmental projects, or to compensate consumers disadvantaged by the higher private costs/prices caused by the measures. A key advantage of this type of government intervention is that it makes the price mechanism work more effectively – by allocating resources in a more socially efficient way – rather than replacing it.

A tax on carbon emissions, targeted taxation concessions, and tradable permits to emit environmentally harmful materials are examples of market-based measures with considerable potential to improve the ecological sustainability of contemporary economic activity. Quotas are suited to restricting the extraction of non-renewable resources such as fossil fuels and minerals. Limiting the use of renewable resources – such as fish, forest products and agricultural land – to their sustainable yield can be achieved by a range of market interventions. The use of quotas, tradeable permits and subsidies for using substitute resources may be effective ways to increase the sustainability of renewable environmental resources.

Consider the market for electricity, where electricity generated using renewable sources is more expensive than energy generated from non-renewable sources such as coal or gas (as the full social costs are externalised from their costs). In this case the aim of a subsidy is to compensate the producers for their higher production costs: see Figure 8.13. This would allow them to reduce their price to P_s (the amount of the subsidy is equal to P minus P_s). At a price of P , they would attract some electricity consumers who were not previously prepared to pay a higher price for more sustainably produced energy. The effect would be to increase production from renewable sources from Q to Q_s , thus increasing their market share and decreasing the environmental damage created by producing enough electricity to satisfy market demand.

Market-based measures are not effective for the things that suit direct regulation. In addition, they can produce inequitable side effects. They generally cause market prices to rise, and this hurts the poorest people because they spend a higher proportion of their income on consumption. A major danger, especially in the short term, is that firms may move their production to economies that have less interference in the price mechanism and lower production costs. Consumers may also choose imported goods from economies with lower environmental standards, creating a 'race to the bottom' in environmental standards. Environmental protectionist policies to counter this have many disadvantages, both theoretical and practical.

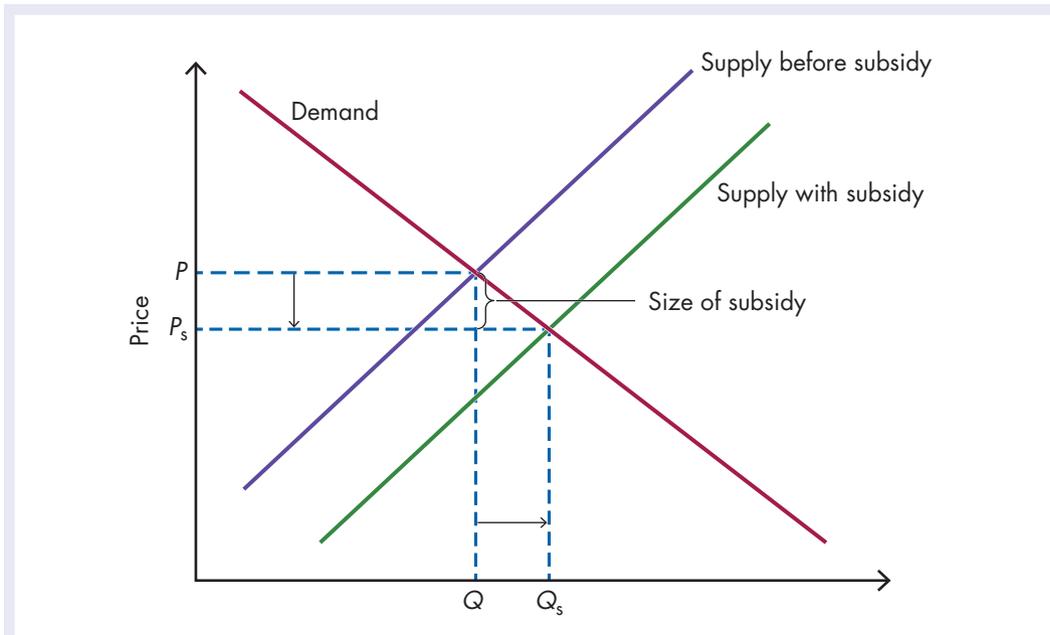


FIGURE 8.13 Subsidy to producers of electricity using renewable sources

Conclusion

Creating an economy that encourages innovations that reduce the negative impacts of economic activity can involve any of the approaches mentioned above. This type of *dynamic efficiency* can be fostered by well-focused education, training and industrial policies. It can be assisted by subsidies, grants and tax concessions. It may come from entrepreneurs motivated by the possibility of super-normal profits in start-up industries, or from environmentally conscious and activist business owners. Many environmentally friendly products are developed in response to demand from environmentally aware or health-conscious consumers. Organically produced, biodegradable and low-energy-consuming products are examples of these.

CHECK FOR UNDERSTANDING 8.6

- 1 **Describe** how the circular flow of income model might be adapted to show the role the government sector might play in promoting ESD.
- 2 **Recall** five examples of restructuring expenditures for consumers who choose to buy goods and services with lower environmental impacts and carbon footprints.
- 3 **Explain** why economists argue that market-based measures are more effective in promoting more sustainable use of environmental resources than direct regulation.
- 4
 - a **Describe** two contemporary examples of Australian governments promoting voluntary actions by either producers or consumers that improve environmental outcomes. **Evaluate** their effectiveness.
 - b Select an environmental problem that concerns you, and suggest how government regulations could be used to promote more socially responsible outcomes.
 - c Create a list of five examples of restructuring expenditures for firms that choose to produce goods or services with lower environmental impacts and carbon footprints.

R 8.1 Terminology

Write the correct term (which may be more than one word) for each of the following definitions.

- 1 a type of resource that can never be depleted because it is continually renewed by nature
- 2 how fast we can safely consume resources and generate waste
- 3 the sources of satisfaction flowing from the aesthetic qualities of the environment
- 4 the overall wellbeing of individuals according to their material living standards and a range of other considerations such as health standards, education levels, security and happiness
- 5 the just sharing of the economic benefits and costs between the present and future generations
- 6 understanding productive resources as income items that can be used to produce goods and services indefinitely
- 7 the economic approach that treats the planet as an open system, with access to unlimited resources, from which material can be obtained and into which wastes can be deposited
- 8 the stock of resources provided by the natural environment from which humans gain amenity and productive inputs
- 9 the financial and opportunity costs paid by a firm or a consumer to produce or consume a good or service
- 10 the social and environmental costs associated with the production and consumption of a good or service that are not included in the market price

R 8.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 What role have modern industrial economic systems played in environmental issues?
 - A They have prioritised environmental conservation over economic growth.
 - B They have successfully managed natural resources for sustainable development.
 - C They have utilised the environment to drive economic growth without adequate consideration of long-term effects.
 - D They have strictly regulated environmental practices to prevent degradation.
- 2 What is the suggested solution to the failure of markets to deliver ecologically sustainable outcomes?
 - A increased privatisation of environmental resources
 - B strict regulation of market activities
 - C government intervention to modify markets
 - D reduction of social wellbeing to prioritise environmental preservation
- 3 What defines an environmental resource?
 - A anything that satisfies only human wants
 - B anything that satisfies the needs of humans and other living organisms
 - C anything that serves human needs exclusively
 - D anything that serves environmental needs exclusively

- 4 What distinguishes renewable resources from perpetual resources?
- A Renewable resources can be depleted, while perpetual resources cannot.
 - B Renewable resources are directly available, while perpetual resources are not.
 - C Perpetual resources are continuously renewed through natural processes, while renewable resources have a limited replacement rate.
 - D Renewable resources include sunshine and wind, while perpetual resources include coal and oil.
- 5 What happens when a non-renewable resource becomes economically depleted?
- A It is completely exhausted and cannot be used anymore.
 - B It becomes less valuable than renewable resources.
 - C Its extraction and processing costs exceed its economic value, making further extraction impractical.
 - D It becomes subject to strict government regulations regarding its use.
- 6 How has the use of fossil fuels changed since the Industrial Revolution?
- A The use of fossil fuels has declined significantly.
 - B Fossil fuels have been used less for energy production.
 - C The use of fossil fuels has remained the same.
 - D Fossil fuels have been used increasingly to power industrial and agricultural production.
- 7 What does the principle of equity within and between generations aim to ensure?
- A maximising profits for the current generation
 - B avoiding the impoverishment of the environment for future generations
 - C reducing the costs of production regardless of environmental impact
 - D focusing only on the needs of the present generation
- 8 What is the relationship between dynamic efficiency and sustainable economic activity?
- A Dynamic efficiency leads to higher production costs.
 - B Dynamic efficiency has no impact on sustainable economic activity.
 - C Dynamic efficiency involves using outdated technologies.
 - D Dynamic efficiency involves developing new products and processes to meet changing consumer preferences.
- 9 What is the role of allocative efficiency in ecologically sustainable development (ESD)?
- A to focus solely on the production of goods that are cheapest to produce
 - B to ensure that resources are used to produce goods that provide the greatest social benefits
 - C to ignore the environmental impact of production methods
 - D to prioritise short-term gains over long-term sustainability
- 10 What is the environmental Kuznets curve (EKC) hypothesis?
- A Environmental degradation decreases as economies develop.
 - B Environmental degradation increases as economies develop and grow economically.
 - C Economic growth has no impact on environmental degradation.
 - D Economic growth leads to immediate improvement in environmental quality.

R 8.3 Short response questions

- 1 **Recall** the basic ways in which the economy uses the natural environment.
- 2 **Distinguish** between natural capital and environmental resources.
- 3 **Distinguish** between intergenerational equity and intragenerational equity.
- 4 **Explain** why sustainable resource management requires a balancing of economic growth and prosperity, equity and environmental sustainability.
- 5 **Describe** how improvements in dynamic efficiency support the achievement of more environmentally sustainable economic growth. Include real-world examples in your explanation.

R 8.4 Activities

- 1 Construct a graph that uses demand and supply analysis to demonstrate the effects of the government setting a quota on the amount of fish that can be legally extracted from Australia's ocean fisheries.
- 2 Draw and fully label graphs to illustrate how the imposition of a carbon tax would reduce carbon emissions. This will require two graphs:
 - one based on marginal costs (in the style of Figure 8.10)
 - one based on demand and supply curves (in the style of Figure 8.11).
 This should be accompanied by brief explanations of how this tax will achieve its goal.



Worksheet
R8.4 Activities

R 8.5 Investigation – research topics

- 1 Create a research report analysing one current or one past climate change policy of the federal government. Apply the environmental circular flow of income model in Figure 8.11, and **evaluate** the policy using different viewpoints.
- 2 In 2023, Victoria announced its Gas Substitution Roadmap. Create a research report **analysing** the roadmap's key patterns and trends, and **evaluate** its impact using environmental, social and governance principles.

Economics in Action worksheets:

8.1 EPI website

Chapter 8 Review worksheets:

R 8.4 Activities

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap





Gianni Diliberto/Getty Images

9

Inequality

This chapter examines inequality of income and wealth – indicators, causes, costs and benefits – and government policies to address such inequality.

Focus questions and inquiries

- Why do the poor tend to stay poor and the rich tend to remain rich?
- Could changes in the taxation system alter the distribution of wealth in Australia?
- Should people with higher incomes support people with lower incomes?
- Why is the gap between the 'haves' and 'have nots' widening in Australia?
- How can the inequality of income and wealth in Australia be resolved?
- How does the government help lower-income families escape poverty?

This chapter will examine:

- the pattern of income distribution and wealth in Australia and how it has changed in recent years
- the measurement of income distribution and wealth
- the causes and effects of income and wealth inequality
- factors that impact particular groups of society; for example, Aboriginal and Torres Strait Islander peoples, migrants and people living with disabilities
- some government strategies and/or interventions to address income and wealth inequality
- the private and social costs of addressing inequality.

9.1 Income inequality

CONCEPTS



Income: payments to households in the form of wages, rent, interest and profit

Income distribution: the allocation of returns (rent, wages and salaries, interest, profits) from the four factors of production (land, labour, capital, enterprise) among the population of the country

Income inequality: the degree to which income is unevenly distributed among people in the economy

Interest: the price paid for the use of capital

Poverty: the situation of people whose resources (material, social and cultural) are so limited as to exclude them from the minimum acceptable way of life in the country in which they live

Profits: payments in return for enterprise or entrepreneurial ability resulting from running a business enterprise in which revenues received exceed the costs of running the business

Rent: payments in return for the use of land or other natural resources used in the production process

Salaries: payments to higher level employees and professionals, calculated

on an annual basis; not usually related to production achieved or hours worked

Standard of living: a measure of the material wellbeing of individuals within a country, usually measured by GDP per capita; based on material and quantitative indicators such as possessions, income, education and health standards, and quality of housing

Transfer payments: payments received by individuals and families from the federal government in the form of cash social service benefits, such as pensions, unemployment benefits and family allowances

Wages: payments to employees as a return for the provision of labour or human effort to the production process (usually calculated on the basis of actual production or hours worked)

Wealth: the total assets owned by an individual or income unit, and the nation as a whole, at any one time; it includes physical assets such as real estate and consumer durables (car, boat, jewellery) as well as financial assets (shares, bonds, debentures)

A major objective in managing the Australian economy is to improve the **standard of living** of everyone in the community. While economic growth provides the means for a rise in the general standard of living, the benefits and costs must be shared equitably before we can be satisfied that there has been a change in living standards.

There are two basic factors that determine people's standard of living: their **income** and their **wealth**. Access to material goods and services and environmental resources – particularly if market-based methods are used – is determined by income.

The market system, and market failure in particular, is one cause of the unequal distribution of income and wealth in Australia. It does not automatically result in employment for all, and it does not automatically result in a fair and equitable allocation of society's income and wealth.

Income inequality refers to the degree to which income is unevenly distributed among people in the economy. The extent of income inequality can range from almost no inequality (where people receive a similar proportion of income) to a high degree of inequality (where there is a large gap between high- and low-income earners).

The Australian Council of Social Service (ACOSS) reports that about one in every eight Australians lives in *income poverty* today, which is measured as having a household *disposable income* – that is, income after accounting for tax and housing costs – below 50 per cent of the median. This amounts to 3.3 million people in Australia. The risk of **poverty** among children is slightly more severe than it is among adults. There are almost 800 000 children living in families below the *poverty line* (see 9.3.1).

ECONOMICS CHALLENGE



Beliefs and value judgements regarding poverty

Before we consider the economic aspects of income and wealth in Australia, it is useful to consider current societal attitudes to poverty.

Below are some common views about poverty and wealth in Australia, published by the Brotherhood of St Laurence (Reuse from Economics for the Real World 1&2, 4th ed, Cengage, 2017, 9780170407007, p 254). Conduct a survey within your class, among other students in your school and/or in the wider community. Ask people in your survey to respond to each of the statements (1–14) using one of the following descriptions: strongly agree, agree, neutral, disagree, and strongly disagree.

- 1 Lack of thrift by poor people keeps them in poverty.
- 2 Failure of society to provide good schools for many people causes poverty.
- 3 Most poor people could improve their condition if they only tried.
- 4 The government should reduce poverty by taxing wealth more to increase pensions and benefits.
- 5 Too many people receiving government benefits spend their money on alcohol and cigarettes.
- 6 Generally speaking, the rich have little idea how difficult life is for the poor in this country.
- 7 It is part of the natural order that some people are poor and others are rich.
- 8 In this country there is one law for the rich and one law for the poor.
- 9 There are too many people receiving government benefits who should be working.
- 10 Being rich in this country has to do with knowing the right people.
- 11 When people get things for free, it tends to destroy initiative and makes them lazy.
- 12 Poor people are generally powerless to change their situation.
- 13 People receiving unemployment benefits for more than a few weeks should be compelled to do some sort of community work.
- 14 More often than not, people are poor because of circumstances beyond their control.

Use the results of your completed survey to:

- collate, tabulate and graph the data
- analyse the results to determine trends and draw conclusions regarding opinions
- hypothesise reasons for similarities and differences
- predict how results such as those you have collected in this survey influence decisions made by governments
- reflect on how well your survey was conducted; if you were to conduct this survey again, how might you modify the approach you used in the first attempt?
- conduct further research on the views of people in the community as expressed in newspapers, magazines, on the Internet and on television.



Worksheet
9.1 Economics
Data

Weblink
Income and
wealth data

ECONOMICS DATA 

Use online sources, such as those of the organisations listed below, to answer the questions that follow. Your answers will provide current economic data for your studies.

- Australian Bureau of Statistics
- Australian Council of Social Service
- Queensland Council of Social Service
- Brotherhood of St Laurence
- Anglicare
- National Centre for Social and Economic Modelling (NATSEM)
- The Smith Family

Questions

- 1 What is the number and percentage of people in Australia living in poverty?
- 2 What is the number of children living in poverty?
- 3 What is the proportion of children living in poverty?
- 4 What are the current Henderson poverty line income levels? (You can read about the Henderson poverty lines at 9.3.4.)
- 5 What is the percentage share of each source of household income?
- 6 What is Australia’s wealth per capita?
- 7 What are the current individual taxation rates?
- 8 What is the average weekly income? (You can read about the Gini coefficient at 9.3.3.)
- 9 What is the current Gini coefficient?

9.2 Sources of household income

In the Australian economy, households have two functions concerned with income: receipt of income and expenditure. Recall from Chapter 1 that a market economy such as Australia’s distributes income in exchange for the factors of production – land, labour, capital and enterprise – according to the contribution those factors make to the value of production. The reward from these factors will therefore determine the primary **income distribution** in the economy in the form of **wages, salaries, rent, interest** and **profits**.

FIGURE 9.1 The factors of production and their rewards

Factor of production	Reward
Land	Rent can be received from people using your property.
Labour	Wages are a form of payment to workers on an hourly or weekly basis, e.g. a worker at a fast-food shop may receive \$18.50 per hour in wages. Salaries are a form of income paid to workers, usually in jobs requiring higher qualifications than those for wage earners, e.g. a business manager may receive a salary of \$100 000 per year.
Capital	Interest is income received from banks or borrowers of your funds.
Enterprise	Profits can be in the form of <i>dividends</i> earned from ownership of shares or <i>capital gains</i> from selling an asset – e.g. land or a work of art – for a sum of money greater than the original purchase price.

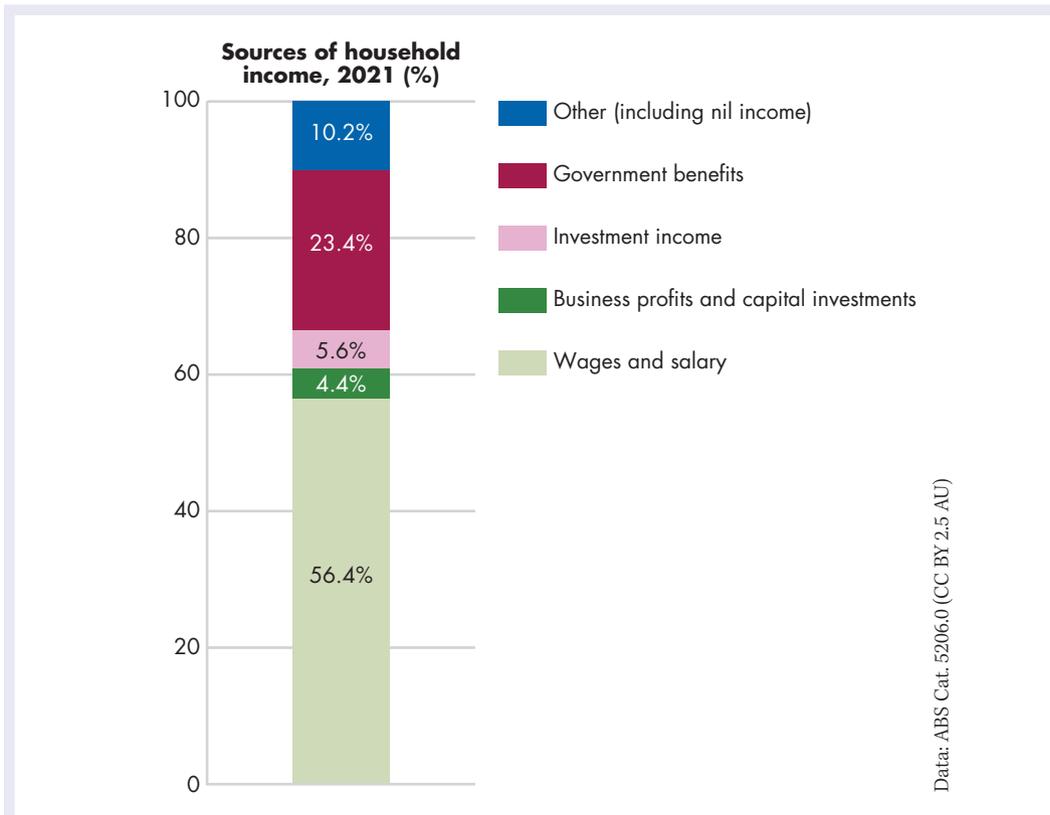


FIGURE 9.2 Sources of household income, 2021. Note the effects of a COVID year inflating the proportions attributable to government benefits and nil income.

In most cases, a person's earnings depend on the supply and demand for that person's labour, which in turn depend on natural ability and *human capital* (the economic value of a worker's experience and skills). Because earnings make up a large part of total income in the Australian economy, factors that determine wages are also responsible for determining how the economy's income is distributed among the various members of society.

The secondary distribution of income is in the form of unearned incomes, such as government cash benefits and superannuation.

- Government cash benefits are **transfer payments** paid directly to individuals and families in need. These benefits can be spent in whatever way the recipients see fit. They can be in the form of pensions, sole parent allowances, childcare allowances and so on.
- Superannuation consists of payments made to retired or disabled people who have contributed to a superannuation fund while they were working. The government encourages contributions to superannuation funds by requiring that employers make a contribution to employee superannuation funds and by providing taxation incentives.

Unlike income, wealth is the stock of goods and assets owned by individuals, and the nation as a whole, at a given point in time. As well as actual possessions, individuals may have human capital that can contribute to their incomes, such as education, or particular skills in sport, art or music. Because the latter is difficult to measure, we will concentrate on the more tangible elements.

Wealth and income determine who is rich and poor in the community.

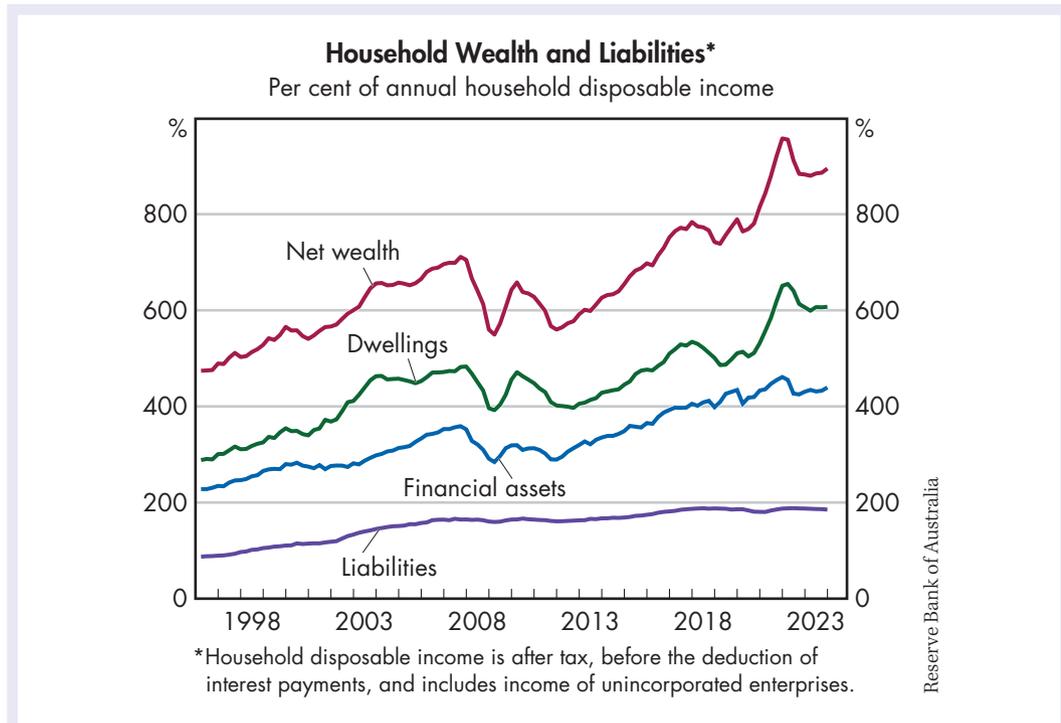


FIGURE 9.3 The growth in household wealth

CHECK FOR UNDERSTANDING 9.1

- 1 **Recall** the major objectives of the Australian economy.
- 2 Define 'income'.
- 3 **Explain** the role of public attitude in shaping government policy regarding income distribution.
- 4 **Distinguish** between salaries and wages.
- 5 **Distinguish** between savings and superannuation.
- 6 **Describe** which sector in the household wealth graph you would expect to grow most in the future, and why.

9.3 Measurement

CONCEPTS



Equivalence scales: scales that indicate the income levels needed by different types of family units to attain the same, or equivalent, standard of living

Gini coefficient: a numerical measure of the degree of inequality involved in any income distribution of a country, based on the areas under the Lorenz curve

Continued

Continued

Henderson poverty lines: the minimum desirable levels of household income, established by Professor Henderson in the Commission of Inquiry into Poverty in 1975; these minimum levels are revised to accommodate changing economic conditions

Lorenz curve: a graphical representation of the inequality of a nation's income distribution

Poverty line: a level of income giving a minimum standard of living for a particular group of people in a society

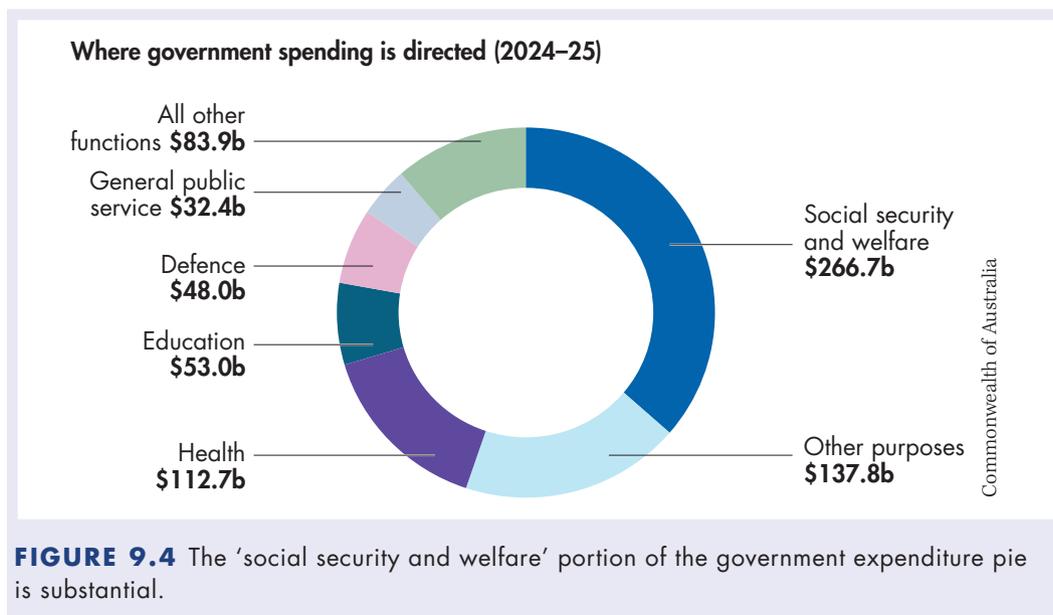
Social security: a system of social welfare payments provided by the federal government to eligible Australian citizens, permanent residents and limited international visitors

KEY IDEA

Income and wealth inequality in the Australian economy can be measured in a variety of ways.

When economists seek to measure and analyse household income distribution, they sort income into four basic categories: wages and salaries; remuneration from own business, trade or profession; other private income; and government pensions and benefits.

Wages and salaries are the most important determinants of income, and the next most important category is government pensions and benefits. The latter have become increasingly critical in the 21st century as the unemployed, the aged and sole-parent households become reliant on income support and non-wage benefits. In 2024–25, 36.3 per cent of the federal budget was spent on social assistance benefits in cash to Australian residents: see Figure 9.4.



Non-wage benefits received by **social security** recipients may include transport, housing and health benefits.

9.3.1 Poverty

Statistics used for comparing incomes are arranged into categories, such as incomes of individuals, families and households. The incidence of poverty can be seen in Figure 9.5. This table shows the number of people reported by ACOSS as living in poverty. ACOSS sets a benchmark for the adequacy of household income of 50 per cent of the median household disposable income. This is the **poverty line**. For comparative purposes, ACOSS also reports the number of people whose income is below 60 per cent of the median household disposable income.

FIGURE 9.5 The proportion and number of people and children with household disposable income below 50 per cent and 60 per cent of median

	50% of median	60% of median
Percentage of people below the poverty line	13.4	20.1
Percentage of children below the poverty line	16.6	19.3
Number of people below the poverty line	3 319 000	4 989 000
Number of children below the poverty line	761 000	1 093 000

Source: Poverty in Australia 2020: Overview (HTML version) – Poverty and Inequality. Updated data from <https://povertyandinequality.acoss.org.au/poverty-in-australia-2020-overview-html-version>

Another way of looking at income distribution is by dividing *income units* into *quintiles* according to ascending order of income. An income unit is a group of people living together to form a spending unit; for example, couples, families and individuals. A quintile is a grouping of 20 per cent of a population. What patterns emerge from studying Figure 9.6? Consider which quintiles have increased their share of income, and which quintiles have had their share of income decreased. Why do you think these changes have happened?

FIGURE 9.6 Average Australian household income by quintile (\$)

	Income	Lowest	Second	Third	Fourth	Highest	All households
2017–18	Mean household annual gross income	25 064	54 860	91 468	140 036	289 484	120 120
2019–20	Mean household annual gross income	25 012	56 212	93 132	143 156	288 028	121 108
	\$ increase	–52	1 352	1 664	3 120	–1 456	988
	% increase	0%	2%	2%	2%	–1%	1%

Source: Updated data from ABS website, Household Income and Wealth, Australia 2019-2020. Source: www.abs.gov.au/statistics/economy/finance/household-income-and-wealth-australia/latest-release and ABS website, Household Income and Wealth, Australia 2017-2018. Source: <https://www.abs.gov.au/statistics/economy/finance/household-income-and-wealth-australia/2017-18>

9.3.2 The Lorenz curve

A convenient way of showing the degree of inequality of income is through a visual technique known as the **Lorenz curve**. The set of data in Figure 9.7 is hypothetical, simplified data for personal income distributions for Australia.

In Figure 9.7, Australia is assumed to consist of 20 people. These people are ranked in ascending order according to their incomes.

- The first column is the ranking of the individuals.
- The second column is the actual income in dollars earned by each person. The lowest-income recipient earned \$14 000 per annum and the highest earned \$121 000 per annum (note that income units are in thousands). Adding the figures in the second column gives a total – or national – income of \$1 million, or 100 units.
- In the third column, the income earners are grouped into quintiles – that is, each group is one-fifth or 20 per cent of the total population – which represents four individuals.
- In the fourth column, the income earners are grouped into *deciles* – that is, tenths – which represents two individuals.
- A cumulative percentage is shown in the fifth column.

FIGURE 9.7 Hypothetical data approximating personal income distributions for Australia

Individual	Income (\$000)	Quintile (%)	Decile (%)	Cumulative percentage (%)
1	14	8.7	3.2	3.2
2	18			
3	25		5.5	8.7
4	30			
5	32	14.4	6.7	15.4
6	35			
7	37		7.7	23.1
8	40			
9	42	18	8.5	31.6
10	43			
11	46		9.5	41.1
12	49			
13	51	22.6	10.5	51.6
14	54			
15	57		12.1	63.7
16	64			
17	68	36.3	14.1	77.8
18	73			
19	101		22.2	100
20	121			
20 (people)	\$100.00 (national income)	100.0	100.0	100.0

Let us look at the third column – the total income earned by each group of four.

- The first quintile earns 8.7 units out of a national total of 100. In other words, the lowest fifth or 20 per cent of the population earns 8.7 per cent of the national income.
- The second quintile, or next lowest 20 per cent, earns 14.4 per cent, and so on up the ranking.
- The richest 20 per cent of the population earns 36.3 per cent of the national income.

The ratio of incomes of the top earners to the bottom earners can be used as an indicator of inequality. In this example it is 4 to 1.

Other common measures are derived from the deciles (fourth column):

- by comparing the incomes of the top 10 per cent to the bottom 20 per cent – that is, 22.2 compared to 8.7 – a ratio of 2.6 to 1, or
- by comparing the incomes of the top 20 per cent to the bottom 40 per cent – that is, 36.3 compared to 23.1 – a ratio of 1.6 to 1.

As noted above, the Lorenz curve provides a visual technique for measuring inequalities. The Australian data from Figure 9.7 has been drawn as a Lorenz curve in Figure 9.8.

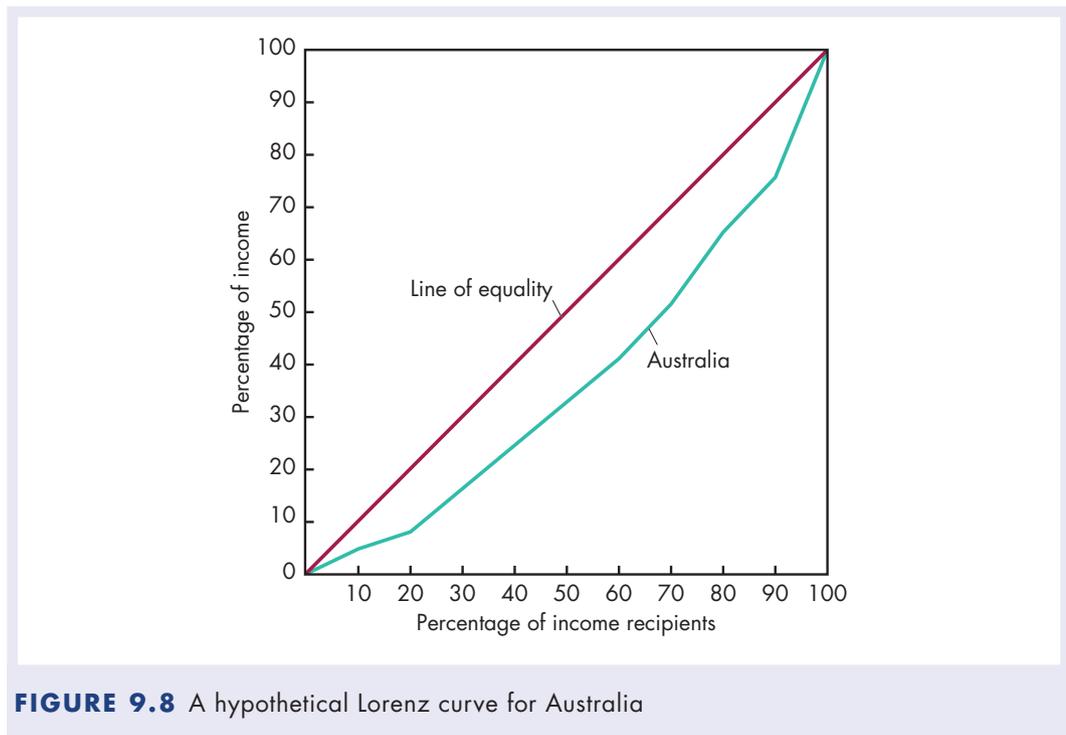


FIGURE 9.8 A hypothetical Lorenz curve for Australia

The Lorenz curve is set in a square (i.e. the axes are of equal length). On the horizontal axis, the cumulative percentages of income recipients are entered from the lowest to the highest, left to right; that is, the point 30 represents the bottom 30 per cent, 60 represents the bottom 60 per cent and 100 is the bottom 100 per cent, which of course is the total population.

On the vertical axis, the cumulative percentages of total income are entered. These have been calculated in the fifth column of Figure 9.7 based on the deciles. They can be derived from the fourth column or directly from the second column (e.g. the bottom 30 per cent of people earn 1.4 per cent + 1.8 per cent + 2.5 per cent + 3.0 per cent + 3.2 per cent + 3.5 per cent = 15.4 per cent). On the graph, 15.4 per cent would be plotted on the vertical axis against 30 per cent on the horizontal axis. From the fifth column, a series of points can be plotted (bottom 10 per cent of income recipients and 2 per cent of income, bottom 20 per cent and 8.7 per cent, bottom 30 per cent and 15.4 per cent, bottom 40 per cent and 23.1 per cent and so on). A smooth curve is drawn to link up all the plotted points.

Two plots are common to all Lorenz curves: 0 per cent of the population get 0 per cent of the income and 100 per cent of the population get 100 per cent of the income.

The diagonal drawn from the origin (bottom-left corner) to the top-right corner has a special meaning. It represents the line of equality in the distribution of income. Reading points on the diagonal, the bottom 10 per cent of the population receive 10 per cent of the income, the bottom 20 per cent receive 20 per cent and so on up the ranking. The ratio of the incomes of the top 20 per cent to the incomes of the bottom 20 per cent would be 1 to 1.

The further the Lorenz curve deviates from the diagonal, the greater the degree of inequality in the income distribution. This is shown in Figure 9.9.

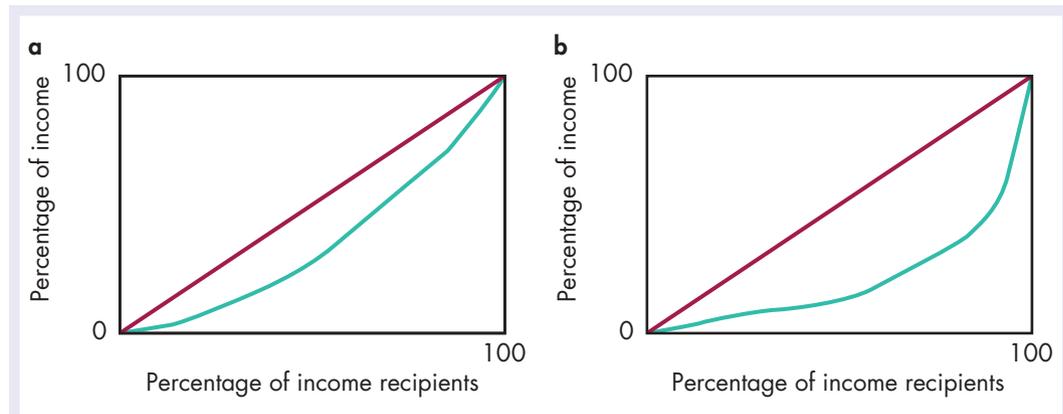


FIGURE 9.9 The Lorenz curve as a measure of inequality: (a) Relatively equal distribution; (b) Relatively unequal distribution

Figure 9.10 shows the Lorenz curve for Australia in 2017–18.

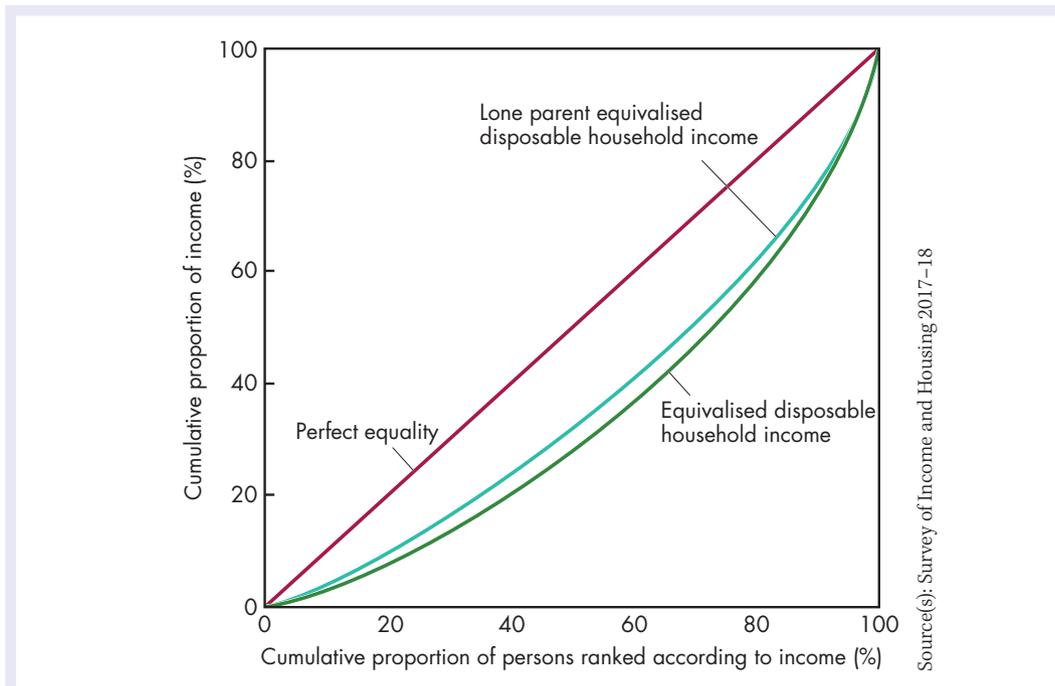


FIGURE 9.10 The Lorenz curve situation for Australia in 2017–18

9.3.3 The Gini coefficient

An alternative method economists can use to obtain a numerical measure of inequality for a given distribution of income is the **Gini coefficient**. This provides a ratio of the area between the Lorenz curve and the diagonal line to the total area under the diagonal line.

$$\text{Gini coefficient} = \frac{\text{area between the Lorenz curve and the diagonal}}{\text{total area under the diagonal}}$$

The Gini coefficient measures the degree of variance of the Lorenz curve from the diagonal line of perfect equality. The greater the bow in the Lorenz curve, the greater the level of inequality. The Gini coefficient is measured on a scale between 0 (perfect equality; the Lorenz curve overlays the diagonal) and 1.0 (perfect inequality). The higher the Gini coefficient, the greater the degree of inequality.

In Australia, the Australian Bureau of Statistics (ABS) has conducted income distribution surveys and has found variations in the Gini coefficient from year to year. Figure 9.11 shows the Gini coefficient for Australia. Although statistical changes mean the lines cannot be joined, over the long term we can see a slight positive trend in the Gini coefficient. This suggests that the income distribution in Australia has become more unequal since the early 1980s.

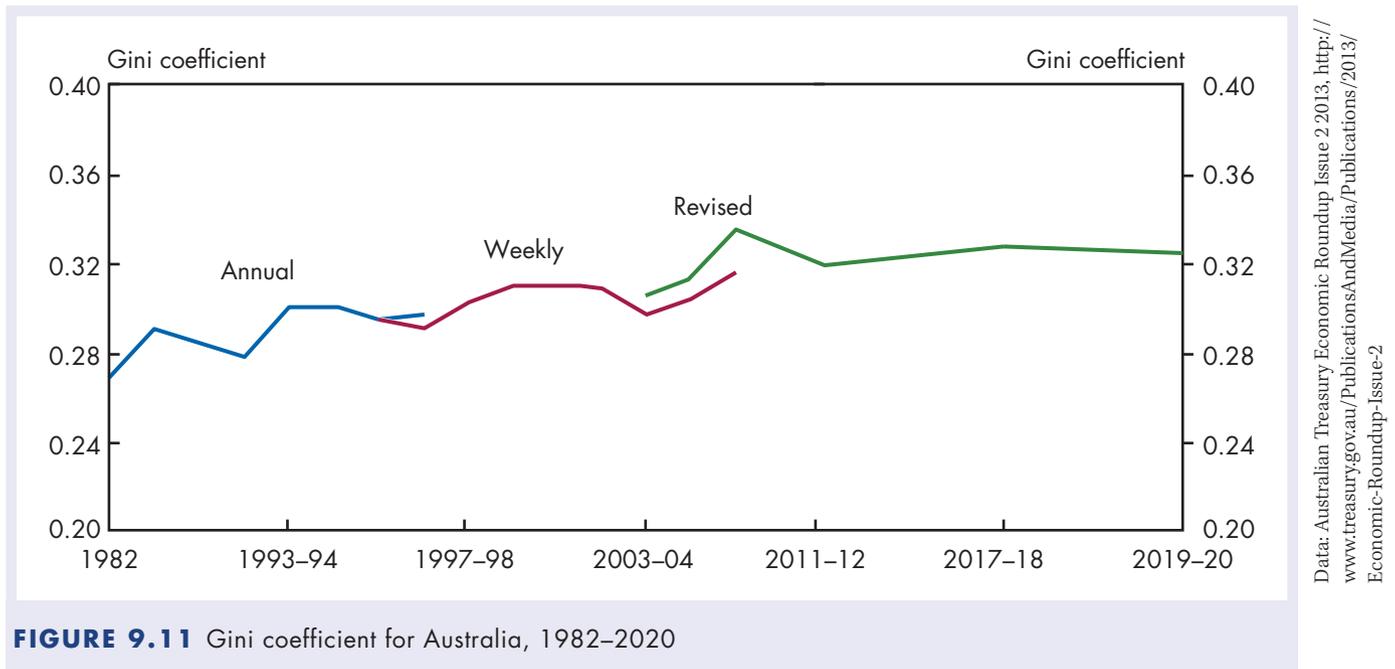


FIGURE 9.11 Gini coefficient for Australia, 1982–2020

9.3.4 Henderson poverty lines

Poverty lines (see 9.3.1) are established on the basis of surveys of current living standards. The most widely used poverty lines in Australia are those developed by the Commission of Inquiry into Poverty headed by Professor Henderson in 1975: the **Henderson poverty lines**. Each quarter, the poverty lines are adjusted to take account of changes in average incomes. They could be adjusted according to changes in the Consumer Price Index (CPI).

This difficulty can be addressed with the use of **equivalence scales**, which are used to take into account the circumstances of an income unit, and to group income units according

to their size and needs. For example, many 'poor' Australians are self-employed people who invest much of their earnings back into their businesses and receive non-cash incomes. Furthermore, many elderly people have relatively low incomes, but may be able to live on the pension adequately because their needs are not great. They usually do not have to pay off their homes or their cars, and they do not have families to support. But when equivalence scales are used, it is important that definitions are consistent; in Australia, the Henderson scales and a set of scales produced by the Organisation for Economic Co-operation and Development (OECD) deliver different sets of results.

ECONOMICS IN ACTION



Find the current levels for the Henderson poverty lines by accessing them at the Melbourne Institute of Applied Economics and Social Research. Draw some conclusions about how easy you would find living in Australia for:

- 1 an income unit similar to yours
- 2 a single person
- 3 a couple.



Weblink
Melbourne
Institute of Applied
Economics and
Social Research

CHECK FOR UNDERSTANDING 9.2

- 1 **Recall** the terms 'decile' and 'quintile'.
- 2 **Describe** what is measured on the horizontal axis of the Lorenz curve.
- 3 **Describe** the diagonal of the Lorenz curve.
- 4 **Describe** some of the difficulties encountered in measuring income distribution and poverty in Australia. Is deprivation a more useful measure?
- 5 **Describe** why there might be variations in the Gini coefficient over time.
- 6 Investigate the measurements of poverty used by different bodies and organisations. Include in your research the ABS, the Smith Family, Anglicare, the Salvation Army, St Vincent de Paul, Centrelink and ACOSS. Why do you think organisations use different methods of measuring poverty? Which organisations tend to use broader measures of poverty?

9.4 Income and wealth distribution: an economic problem

As we saw at 9.2, wealth is the accumulated stock of assets in the economy. Wealth is measured in terms of the monetary value given to natural resources, produced assets (capital), enterprise (goodwill), labour force quality, and net debt to or from foreigners.

9.4.1 Wealth accumulation and distribution

The wealth of a nation changes over time due to a number of factors. These include: increases in the production of capital (increased investment); increases in the quality and quantity of the factors of production; higher levels of economic growth; increases in foreign trade, investment or borrowings; and the activities of foreign entrepreneurs who can stimulate economic growth in the domestic economy by providing investment and technology.

Wealth is very unequally shared in Australia. Accumulated earnings are best represented by net worth, and this is where the changing economic landscape is even more dramatically presented. Figure 9.12 shows the mean household net worth over time, revealing a significantly positive trend.

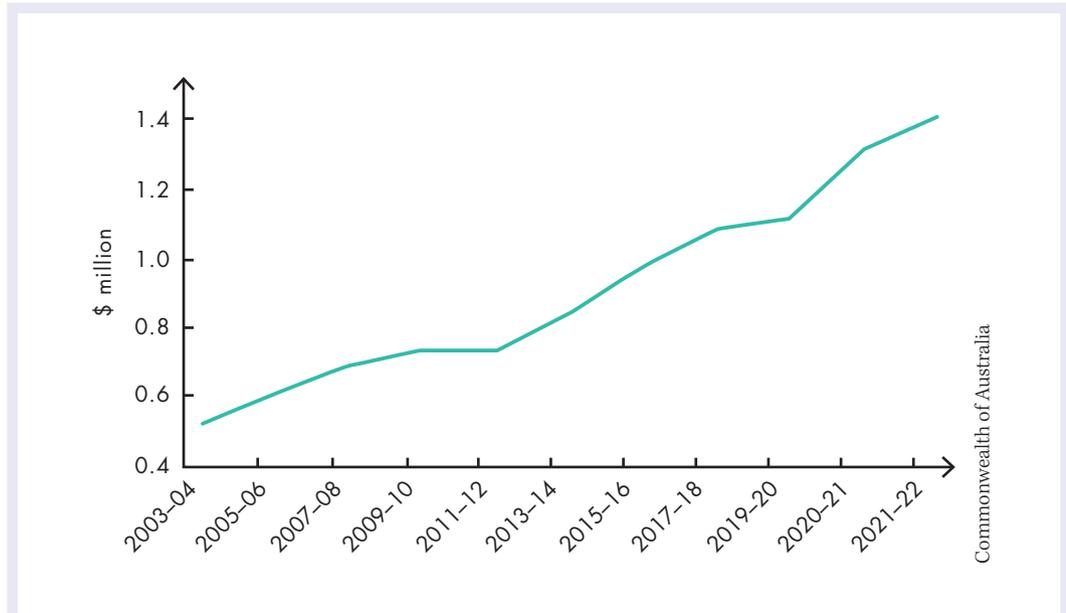


FIGURE 9.12 Net worth per household: 2003–04 to 2021–22

It should be understood that there is a connection between income and wealth, and that personal wealth is the result of many factors. Personal wealth is accumulated by individuals and households as a result of:

- a surplus of income over expenditure, which facilitates savings; this obviously depends on the size of income, and the level of needs and wants of the individual or household, and savings can be invested to generate more individual wealth
- family inheritance of wealth; children of wealthy parents can expect to inherit more than those from lower-income families
- personal qualities such as motivation, willingness to take risks, skills and level of education, and personal contacts, which can all assist in wealth creation.

There is ample evidence to suggest that inequality in the distribution of wealth in Australia is much greater than inequality of income distribution.

CHECK FOR UNDERSTANDING 9.3

- 1 *Business Review Weekly* publishes an annual list of Australia's wealthiest people. Find the most recent 'Rich list', and note the degree of wealth of these people. Do you think it is fair that some are so wealthy while many live in poverty?

Continued

Continued

- 2 **Distinguish** between income and wealth?
- 3 For many Australians, the level of education attained is the single greatest determinant of likely future wealth. How do you think education level determines wealth?

ECONOMICS CHALLENGE



Worksheet
9.1 Economics
Challenge

Use Figure 9.13 to respond to the following.

- 1 Graph the figures shown for each quintile.
- 2 What changes were evident between Year X and Year X+30? Suggest reasons for these trends.

FIGURE 9.13 Distribution of personal wealth in Ozland Year X, Year X+10, Year X+20, Year X+30

Wealth quintiles and percentages	Year X (%)	Year X+10 (%)	Year X+20 (%)	Year X+30 (%)
1st quintile	0.0	0.9	0.4	1
2nd quintile	0.4	7.8	4.0	6
3rd quintile	2.0	15.1	11.1	12
4th quintile	7.8	22.7	21.6	20
5th quintile	89.7	53.5	62.8	61
Top 5%	66.2	24.6	28.8	n.a.
Top 1%	39.5	9.3	10.4	n.a.

Use Figure 9.14 to respond to the following.

- 3 Do these figures suggest that wealth will become more concentrated or more evenly distributed over time? Why do you think this will happen?
- 4 Which quintile is likely to gain most as a result of these changes? Which quintile is likely to benefit least? Why?

FIGURE 9.14 Gini coefficient for wealth, Ozland

Year	Gini coefficient
Year X	0.339
Year X+10	0.341
Year X+20	0.333
Year X+30	0.360

9.5 Causes of income inequality

CONCEPTS



Mobility of labour: the ease with which the labour force can be transferred from one occupation to another or from one geographic region to another

Primary labour market: part of the labour market that has little likelihood of unemployment, and has defined career paths, high and rising real wages, and skilled and well-educated workers

Real wages: income expressed in terms of purchasing power

Relative poverty: the situation of people whose income and lifestyle have fallen below, by more than a certain degree,

the average income and lifestyle enjoyed by the rest of society

Secondary labour market: part of the labour market that has frequent unemployment, casual employment, low and declining real wages, no career path, and unskilled workers with minimal education qualifications

Underemployment: when workers in a labour force are employed at less than full-time or regular jobs, or in work that is inadequate with respect to their training or economic needs

Unemployment: the state of being out of work or not having paid employment

KEY IDEA

Any explanation of inequality needs to take account of market factors, as well as social and institutional influences.

There are many causes of **relative poverty** in Australia today. When evaluating any change in the distribution of income, policy makers must look at the reasons for that change before deciding whether it presents a problem for society. The main factors are discussed below.

Standard of education attained

Access to education and training has a significant influence on the ability to earn an income and, consequently, on income distribution in Australia. Workers with a higher level of education and training tend to be paid higher wages and salaries. Those who do not have education and training beyond the compulsory years of schooling will often be on lower wages. Such workers will often be part of the **secondary labour market**, which usually has frequent unemployment, casual employment, lack of career paths, and low and declining **real wages**. This results in income instability and high income insecurity. Such instability and insecurity is seldom found among those in the **primary labour market**, where workers tend to be skilled and well educated, and operate with high levels of technology.

According to the international education and advocacy organisation Global Citizen: 'Lack of access to education is a major predictor of passing poverty from one generation to the next, Understanding How Poverty is the Main Barrier to Education' by Leah Rodriguez 7 Feb 2020 on the Global Citizens website. Source www.globalcitizen.org/en/content/poverty-education-statistics-facts/ and receiving an education is one of the top ways to achieve financial stability.'

Occupational conditions

The number of hours worked, the degree of danger and risk, the amount of shift work involved, and the extent of unpleasant working conditions will all affect the amount a worker is paid. The more these factors are involved, the higher amount the worker is paid.

Personal attributes

The personal attributes of workers affect their ability to be employed. These include factors such as innate talents, developed skills, interpersonal relationships, communication abilities, managerial abilities, and many other workplace skills and talents.

Work opportunities, unemployment and underemployment

Unemployment is a key cause of poverty in Australia. The lack of work experience and fewer educational opportunities reduce the chances of low-income people finding a job even further. The very fact that a person is in poverty can affect their ability to be able to seek employment. Globalisation and economic restructuring have greatly affected jobs across both industries and regions. The decline of primary industry and the manufacturing sector has meant that some suburbs and towns formerly reliant on these industries have become pockets of unemployment and disadvantage. Cities such as Newcastle, Maryborough, Geelong and Whyalla have suffered the effects of economic change more than most. They have seen substantial increases in long-term unemployment and in the accompanying demand for social services.

The increasing use of casual labour instead of full-time employment has resulted in **underemployment**. Being underemployed reduces the ability of a worker to earn higher levels of income.

Involuntary factors such as physical disability

The inability of many people to participate fully in the workforce has obvious impacts on their ability to earn enough income to survive. This inability may be a result of becoming unemployed, or because of ill-health or disability.

This can be explored through the data in Figure 9.15, which shows that, in 2019, 53 per cent of people aged 15–64 with disability participated in the labour force, compared with 83 per cent of people aged 15–64 without disability.

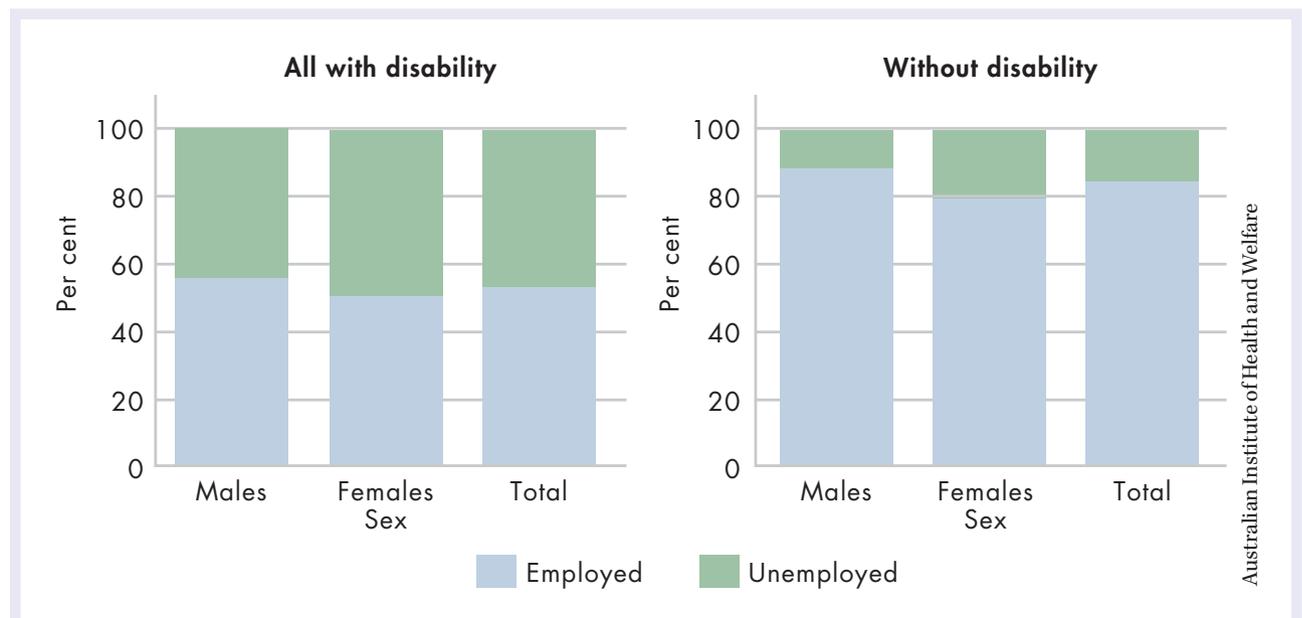


FIGURE 9.15 The participation in the labour force of those with disability in Australia falls short of those without.

Generally, males are more likely to be in the labour force than females. This is true for people with and without disability. In 2019:

- 56 per cent (563 000) of working-age males with disability participated in the labour force, compared with 51 per cent (535 000) of females with disability
- 89 per cent (or 6.2 million) of working-age males without disability participated in the labour force, compared with 80 per cent (or 5.6 million) of females without disability.

The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability held public hearings on employment to ‘investigate what employers are doing to build inclusive workplaces and address systemic barriers to employment experienced by people with disability’. <https://disability.royalcommission.gov.au/news-and-media/media-releases/sobering-employment-rate-people-disability-be-examined> It was noted in one public hearing, held in 2020, that ‘Australia has one of the lowest employment rates for people with disability in the OECD’.

The Royal Commission estimated that the economic benefits of employing people with disability would add over \$50 billion to GDP by 2050 – but only ‘if Australia were to move up into the top eight OECD countries for employment of people with disability ... Research conducted in 2010 indicated that Australia was ranked 21st out of 29 OECD nations.’ Willing to Work National Inquiry Into Employment Discrimination Against Older Australians and Australians With Disability - 2016 - Australian Human Rights Commission, Brandis, Ryan. https://humanrights.gov.au/sites/default/files/document/publication/WTW_2016_Full_Report_AHRC_ac.pdf

Age and gender

Over time, women’s participation in the Australian workforce has grown, as can be seen in Figure 9.16.

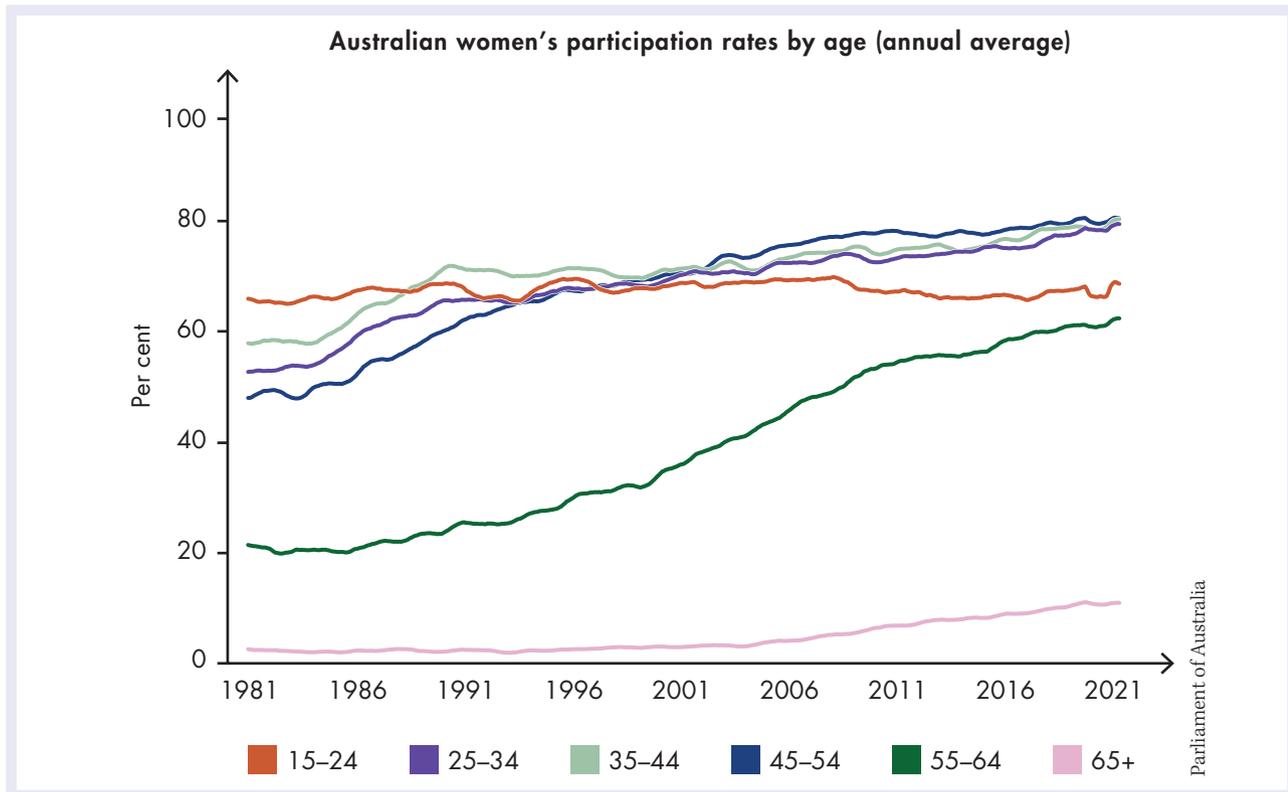


FIGURE 9.16 There have been significant shifts in women’s participation in the workforce since the 1980s.

An article by the federal parliament, 'Snapshot of women in the Australian workforce 2021', talks of the *participation gap*:

The participation gap is the difference between men's and women's workforce participation rates. The gap has steadily declined in the past forty years, apart from intermittent periods where it has stalled or briefly increased due to labour market volatility, such as in the first half of 2020 due to COVID-19. In 2014, the Australian Government committed to a 2025 target to reduce the participation gap by a quarter, from 12.1% to 9.1%. This target was reached during 2019 ... and at June 2021 the gap was estimated at 8.0% ... In contrast, globally in 2018, the International Labour Organization (ILO) found the participation gap was 26%, though this was as high as 50% in some countries (Women in the Australian workforce - 2022 - Contact. https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/FlagPost/2022/February/Women_in_the_Australian_workforce).

Historically, most of the growth in women's participation has been in part-time employment. However, since mid-2017 growth has been stronger for full-time employment ... Increased roles in industries with lower than average part-time rates, such as Professional, Scientific and Technical Services, have influenced the composition of women's employment.

Another issue relevant to gender is the *gender pay gap*. The *gender pay gap* is often misunderstood, and it is important to know that it is not the same as *equal pay*. According to the Workplace Gender Equality Agency:

Equal pay is where women and men are paid the same for performing the same role or different work of equal and comparable value (What is the gender pay gap? | WGEA. <https://www.wgea.gov.au/the-gender-pay-gap>).

In Australia, this has been a legal requirement since 1969.

Gender pay gaps are not a comparison of like roles. Instead, they show the difference between the average median pay of women and men across organisations, industries and the workforce as a whole ...

The gap between women and men's average earnings is the result of social and economic factors that combine to reduce women's earning capacity over their lifetime ...

These factors include:

- conscious and unconscious discrimination and bias in hiring and pay decisions
- women and men working in different industries and different jobs, with female-dominated industries and jobs attracting lower wages
- lack of workplace flexibility to accommodate caring and other responsibilities, especially in senior roles
- high rates of part-time work for women
- women's greater time out of the workforce for caring responsibilities impacting career progression and opportunities
- women's disproportionate share of unpaid caring and domestic work ...

Australia has seen steady improvement in reducing the pay gap according to two different datasets – from ABS survey data and from the Workplace Gender Equality Employer Census – as seen in Figure 9.17.

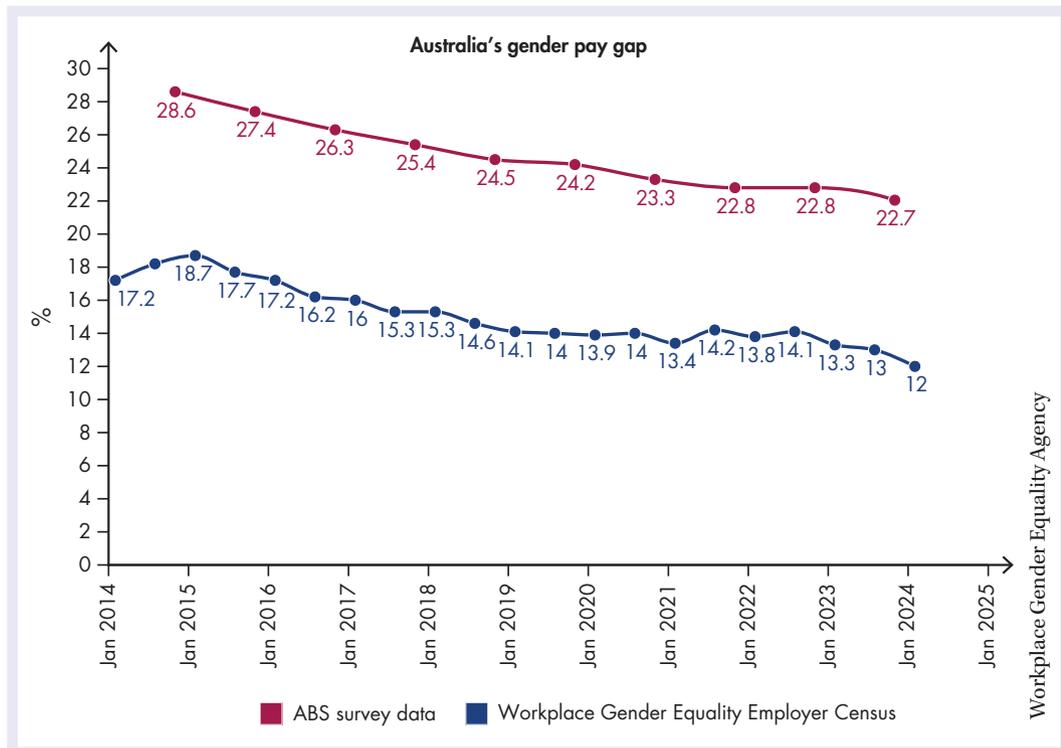


FIGURE 9.17 The gender pay gap, while persisting, has seen a declining trend over time.

Australia’s population is growing older and living longer. By 2056, people aged 65 years and over will make up 25 per cent of the population. The incomes of the elderly will largely depend on their savings habits in earlier years, and the amount of superannuation they have accumulated. As their savings are exhausted, retirees will increasingly be dependent on superannuation and welfare assistance.

Geographical location

The differences in the amount of income going to the different units of labour are due in part to the restrictions on the **mobility of labour** between different areas and different occupations. This lack of mobility means that, in certain locations or more profitable industries, labour can command and obtain higher incomes than in other locations and industries. The differences may also be due to the fact that the incomes for some types of work are increased by various other factors, such as overtime rates, danger money and bonuses. Differences may arise for other reasons as well, such as high living costs in remote areas and lack of infrastructure.

Migrants and minority groups

The 2022 Grattan Institute report *Migrants in the Australian Workforce* states that one in three workers in Australia were born overseas and that one in five currently hold either a temporary or permanent visa.

Temporary migrants – including working holiday makers, skilled temporary residents and international students – make up 7 per cent of the Australian workforce. Sectors such as hospitality tend to rely on those with temporary visas to fill less-skilled jobs at low wages.

Those with a permanent visa make up 12 per cent of the Australian workforce. The report shows that Australia's permanent migration program has become more skills-based in recent decades. Migrants are likely to be highly educated and more likely to work in professional roles compared to people born in Australia. Many industries rely heavily on migrant workers in professional and health services in particular.

Figure 9.18 shows the growth in temporary migrants since 2012.

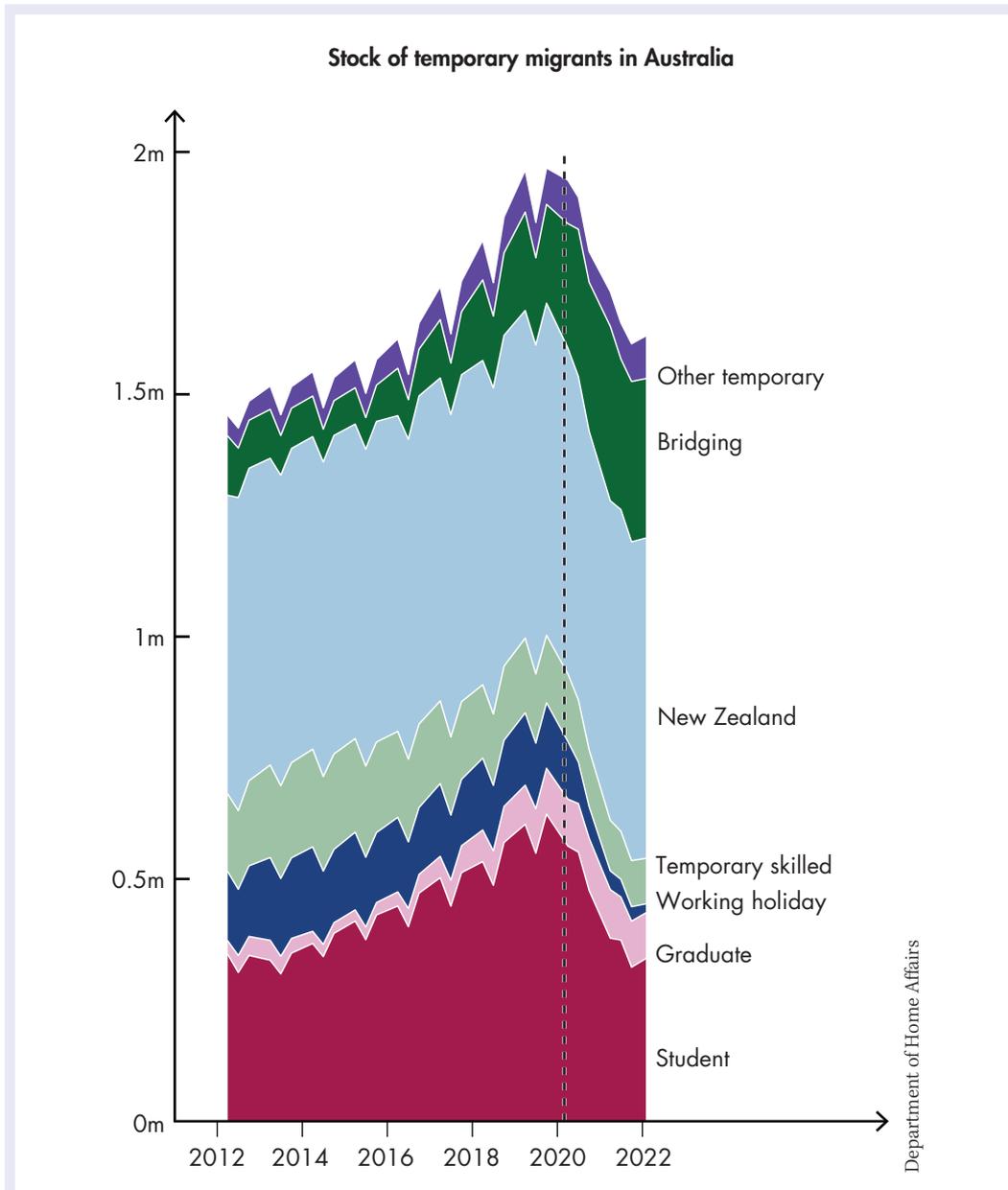


FIGURE 9.18 The stock of temporary migrants in Australia increased by about 50 000 each year between 2012 and 2022. The vertical line indicates border closures due to the COVID-19 pandemic.

Lower-skilled temporary migrant workers – in particular, international students – can be vulnerable to exploitation. A 2020 report on wage theft and international students in Australia by Farbenblum and Berg showed:

Underpayment of international students was systemic and widespread (Farbenblum, Bassina and Berg, Laurie, International Students and Wage Theft in Australia (June 30, 2020). Available at SSRN: <https://ssrn.com/abstract=3663837> or <http://dx.doi.org/10.2139/ssrn.3663837> pp 8–9). Among those aged 20 and above at the time of their lowest paid job:

- A half (49%) were paid below the basic statutory minimum wage.
- Over three quarters (77%) were paid below the minimum casual hourly wage.

... Underpayment was reported by a greater proportion of those with self-reported poor or fair English but was not confined to this cohort ...

Underpayment was not linked to international students' level of education or program of study ... [and] was experienced by international students across a range of nationalities.

Indigenous Australians face greater barriers to employment, including a lack of access to high-quality and relevant training, limited access to supportive workplaces, inconsistent mentoring for young Aboriginal and Torres Strait Islander job seekers and few long-term job opportunities. More frequent interactions with the justice system and remote areas also present additional barriers limiting employability and access to employment opportunities (2.07 employment. <https://www.indigenoushpf.gov.au/measures/2-07-employment>).

Figure 9.19 shows that, in 2021, the employment rate for Indigenous Australians aged 15–64 was lowest in very remote areas (at 32 per cent) and highest in major cities (at 58 per cent).

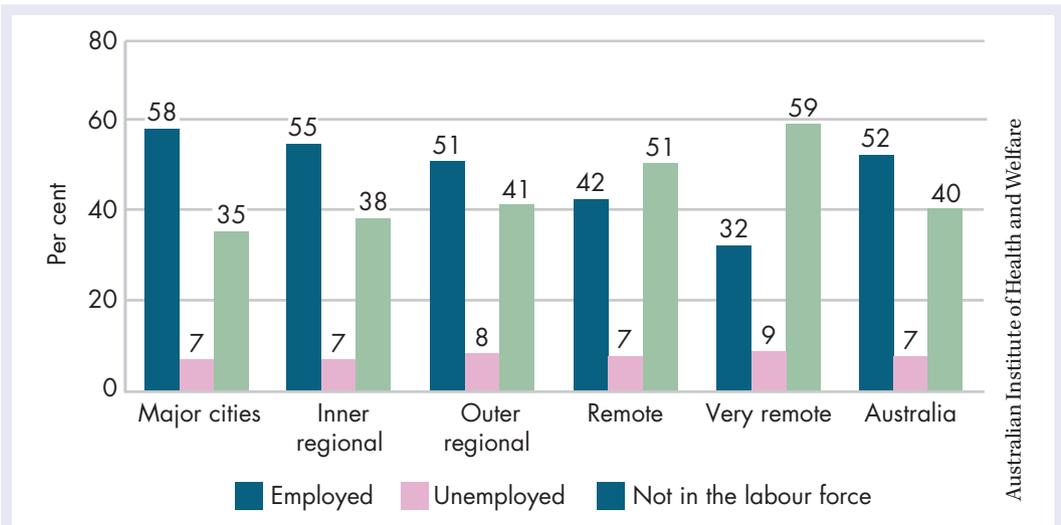


FIGURE 9.19 The labour force status of Indigenous Australians aged 15–64, by remoteness, 2021

The National Agreement on Closing the Gap (2020) specifies the following target: ‘By 2031, increase the proportion of Aboriginal and Torres Strait Islander youth (15–24 years) who are in employment, education or training to 67 per cent’ (National Agreement on Closing the Gap | Closing the Gap. <https://www.closingthegap.gov.au/national-agreement/national-agreement-closing-the-gap>).

According to the 2021 census, the proportion of Indigenous Australians aged 15–24 who were fully engaged in employment, education or training was 58 per cent (80 500 of 138 800 people). This was an increase from 57 per cent in 2016.

Differing returns on capital

The property that people own may be in the form of either capital or land. Different incomes from land may be due to differences in fertility or situation, or in the prices offered for the products grown on the land. They may also be due to some windfall, such as rural land being re-zoned for residential or industrial purposes.

Different incomes from capital are largely due to the immobility of capital between different uses, which means that it cannot always be readily transferred from lower- to higher-profit uses. However, the greatest single factor responsible for the differences in the incomes people receive from capital is probably the fact that different people own different amounts of this factor of production.

There are numerous reasons for differences in the incomes from businesses, which in turn affect the incomes of their owners. The actual size of the enterprise and the demand for its product will be important. Some business owners are people of greater energy and expertise than others, or they may be the first to exploit new methods or produce new products. In addition, lack of competition and the extent to which any one producer has monopoly control over the supply and therefore the price of a product or service will greatly influence the income an owner will ultimately receive from the business.

CHECK FOR UNDERSTANDING 9.4

- 1 **Recall** what determines the amount of a person’s earnings.
- 2 **Analyse** the extent to which women are discriminated against in the distribution of income.
- 3 Graph the relative proportion of wealth of people in different age brackets for the total population. Are there any age groups that appear to have an inequitable share of income?
- 4 **Describe** how unemployment affects income distribution. Is it correct to say that a recession would worsen the inequality of income in Australia?
- 5 **Explain** why some workers receive very high incomes compared to others. Use demand and supply diagrams to support your explanation.
- 6 **Explain** why discrimination often results in a more unequal distribution of income.
- 7 **Explain** to what extent the federal government has a responsibility to maintain economic conditions that assist low-income earners to improve their standard of living.

9.6 Effects of inequality of income and poverty

Economists argue that there can be costs and benefits of inequality of income.

Essentially, inequality in income and wealth tends to divide the population into distinct social classes and to place some people in a situation of poverty with all of its associated difficulties. Relative poverty (see 9.5) is one of the most difficult problems that policy makers face.

Economically, if there is less income equality in a community, there will be less income available for consumption and so aggregate demand would decrease. Reduced demand could lead to a slowing of economic activity and a reduction in employment. Reduced income equality would place higher demands on the welfare component of the federal budget, which could be as high as 60 per cent of the total budget. So, a smaller pool of funds would be available for other government expenditure, such as health care, education and industry development.

There is, however, an alternative view. The opportunity to achieve greater rewards for developing skills, taking on added responsibility and working longer hours serves as an incentive for workers to achieve their needs and wants through their work. In addition, higher wages can be an incentive that will encourage workers to move to new work locations where and when they are needed. This can result in more efficient allocation of resources, increased competitiveness and a higher rate of economic growth, improving the community's overall standard of living. Higher wages are also an incentive for workers to improve their skills, which adds to the productivity of the workforce. Equality of income between highly skilled and unskilled jobs would remove the incentive for workers to improve their skills and raise their productivity, and economic growth would be affected.

Income inequality can also encourage entrepreneurs to take risks. Removing the incentive of high income for successful decisions would result in fewer entrepreneurs. This would lead to lower production levels, a loss in the quality of finished products, fewer jobs and a lower rate of economic growth.

Higher-income earners tend to save a higher proportion of their wages and salaries. Such savings are an important source of investment in the economy, as they increase the capacity of the economy to produce goods and services.

The adoption of technology is also increased as a result of income inequality. The higher level of savings facilitates the more rapid adoption and replacement of technology, increasing the economy's ability to satisfy consumers' needs and wants. There is also encouragement for workers and management to improve their skills to advance and speed up the pace of technological change.

It can also be argued that inequality of income has social benefits. Inequality can promote change in a society by encouraging innovation (e.g. the adoption of air travel), which makes the society a dynamic one, and by stimulating beneficial social change. Additional motivation is given to members of a society to fulfil their individual goals.

The government is faced with policy decisions relating to equity and economic efficiency. Clearly, the government is responsible to some extent for social justice.

Analysis of the groups that are experiencing changes in the level of poverty provides a guide to the types of government assistance that could be most beneficial for reducing poverty. For example, people with dependants, single parents and non-working people suffer a high incidence of poverty. Income-enhancing policies such as retraining and childcare facilities, together with increased dependant allowances and a general upturn in the economy, would assist people in these groups.

9.7 Redistributing income

CONCEPTS



Absolute poverty: the situation of people whose deprivation is extreme because they do not have access to the basic necessities of food, clothing and shelter

Egalitarian society: a society that believes in treating people equally through giving people equal rights and opportunities

Merit goods: goods and services that are not produced in sufficient quantities by markets because individuals do not value them highly enough to pay for them; private goods with positive externalities

Progressive taxation system: a taxation system in which the percentage of tax

payable increases as income rises (as opposed to proportional taxation, where the percentage remains constant, and regressive taxation, where it decreases)

Redistribution of income and wealth: the transfer of money and assets from one group in the economy to another

Taxation: a method of financing government activities that involves compulsory payments to the government by individuals, companies or other organisations, usually based on income earned, and goods and services sold

KEY IDEA

Governments intervene in an economy to redistribute income in a modified market economy. Consideration of equity, social justice and welfare, and the terms of intervention, are weighed up by policy makers.

Given that in Australia the degree to which there is an inequitable distribution of income and wealth is increasing, there is often debate as to the private and social benefits of the government's policy relating to social security and the **redistribution of income and wealth** within the economy.

The objectives of income redistribution are to increase economic stability and opportunity. Those in the lower income groups, such as the unemployed, pensioners and the poorly educated, benefit from a redistribution of income. They are able to participate more fully in the economy, enabling them to purchase goods and services, and contribute to economic growth.

Any movement of income to those on lower incomes is designed to give them an economical advantage and thus result in a more **egalitarian society**. Usually, such redistribution involves the government transferring income from those receiving higher incomes to those with lower incomes through **taxation**. Such payments are referred to as *transfer payments* (see 9.2).

Those on lower incomes also benefit through the provision of **merit goods** by the government. Again, the government uses money collected through taxation to provide services such as public libraries, state primary and secondary schools, employment services and defence forces.

9.7.1 Costs and benefits

While those on lower incomes benefit from receiving transfer payments to maintain a basic standard of living, those on high incomes are taxed more highly, thus reducing their purchasing power in the economy. When a good or activity is taxed, people will often reduce the amount of that good or activity that they use. However, this is not always true.

If you tax people’s labour, they may work less because of the decreased value of an hour of work, or they may work *more* because they are poorer than they were before. But in general, taxation reduces economic activity. Taxing investment reduces investment, and taxing consumption reduces consumption.

Redistribution allows citizens to feel a sense of fairness. It is good for both the rich and the poor. When the disparity between the rich and poor is too large, economic inefficiencies occur. Redistribution can also help contribute to the peace and stability of the nation. When the disparity between the rich and poor is too great, society falls out of balance.

On the other hand, redistribution works against Australia’s economic system of free market capitalism. Government interference and redistribution oppose the fundamental values of capitalism. Also, redistribution may take away from a society’s growth opportunities. It may mean that the rich cannot start new businesses or hire new employees, and end up hurting the economy.

9.8 Government policies to redistribute income

Governments have a variety of policies they can use to reduce **absolute poverty** and income inequality. The aim of each policy is to achieve the same outcome – enhance the standard of living of those on lower incomes.

There are three main categories of transfer payments:

- pensions (such as the Age Pension, Carer Payment and Disability Support Pension)
- allowances (such as the Jobseeker Allowance and Youth Allowance)
- family payments (such as Family Tax Benefits, Parental Leave and the Childcare Subsidy).

Eligibility for most transfer payments is determined by a combination of income and/or assets tests. Unlike Australia’s health and education systems, access to transfer payments is not a universal right.

Transfer payments are captured in the federal budget and can be seen graphically in Figure 9.20.

Source: Australian Government, Budget Strategy and Outlook: Budget paper No.1: 2020-2021, Statement 6: Expenses and Net Capital Investment, p.6-49 and Australian Government, Final Budget Outcome 2019-20, p.12

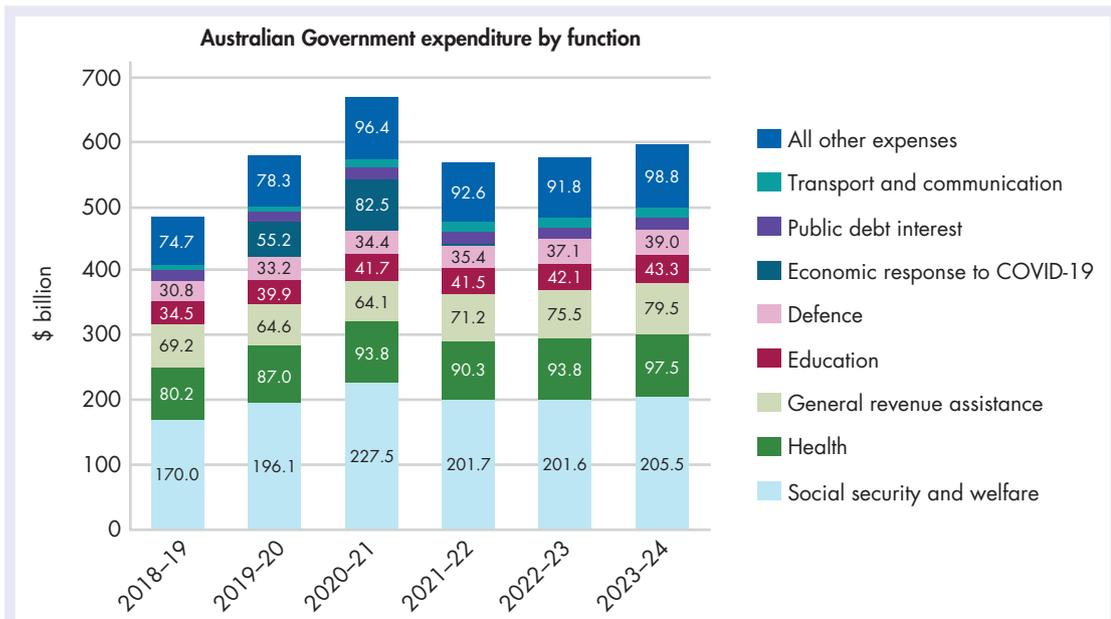


FIGURE 9.20 This graph shows the funding of transfer payments (social security welfare) as a portion of the total budget between 2018 and 2024 (estimated).

Non-cash benefits are also provided to most people of low incomes. These benefits are not paid in cash, but are provided in the form of free or subsidised services, or discounted services. Examples of these include subsidised public transport services, discounts or rebates on rates and electricity, subsidised medical prescriptions, and merit goods such as library services, health care and education services. These benefits are usually subject to age limitations (e.g. seniors' bus discounts) or are means tested, meaning higher-income earners cannot receive these services. Exceptions are health care and education, which are free to everyone.

A **progressive taxation system** is used in Australia. A progressive personal income tax is one in which the percentage of income paid in tax progressively increases with increases in income. In Australia in 2024–25, all taxpayers were allowed a tax-free threshold of \$18 200 per year, and then for personal incomes in excess of this limit, there were four marginal rates of tax (see Figure 9.21).

FIGURE 9.21 Australia's personal income taxation rates, 2024–25. The taxation system in Australia is progressive, meaning you pay more tax the higher income you earn.

Taxable income	Tax on this income
0–\$18 200	Nil
\$18 201–\$45 000	16c for each \$1 over \$18 200
\$45 001–\$135 000	\$4 288 plus 30c for each \$1 over \$45 000
\$135 001–\$190 000	\$31 288 plus 37c for each \$1 over \$135 000
\$190 001 and over	\$51 638 plus 45c for each \$1 over \$190 000

The above rates **do not** include the Medicare levy of 2 per cent.

Source: Australian residents tax rates 2023–24, <https://www.ato.gov.au/tax-rates-and-codes/tax-rates-australian-residents#ato-Australianresidentstaxrates2020to2024>

Such an income tax system ensures that higher-income earners pay more tax, thus redistributing some of their income to allow payments to lower-income recipients.

From time to time, governments run programs to allow workers and potential workers to gain skills, education and motivation to allow them to be better equipped to obtain employment. This makes the workforce more productive and more competitive on a global scale, and boosts Australia's living standards. Most Australians who participate in these programs come from lower-income groups, resulting in them being more able to earn a higher income.

CHECK FOR UNDERSTANDING 9.5

- 1 **Recall** two positive and two negative effects of income inequality.
- 2 How does a progressive taxation system result in a redistribution of income?
- 3 Is it fair that high-income earners should, in effect, subsidise those on low incomes? Why or why not?



Worksheet
9.1 Analysis,
comparison and
induction

ECONOMICS IN ACTION



Analysis, comparison and induction

Economists frequently use the skills of analysis, comparison and induction. To practise these skills, examine the graphs in Figure 9.22 relating to the hypothetical economy, Ozland, and answer the questions that follow.

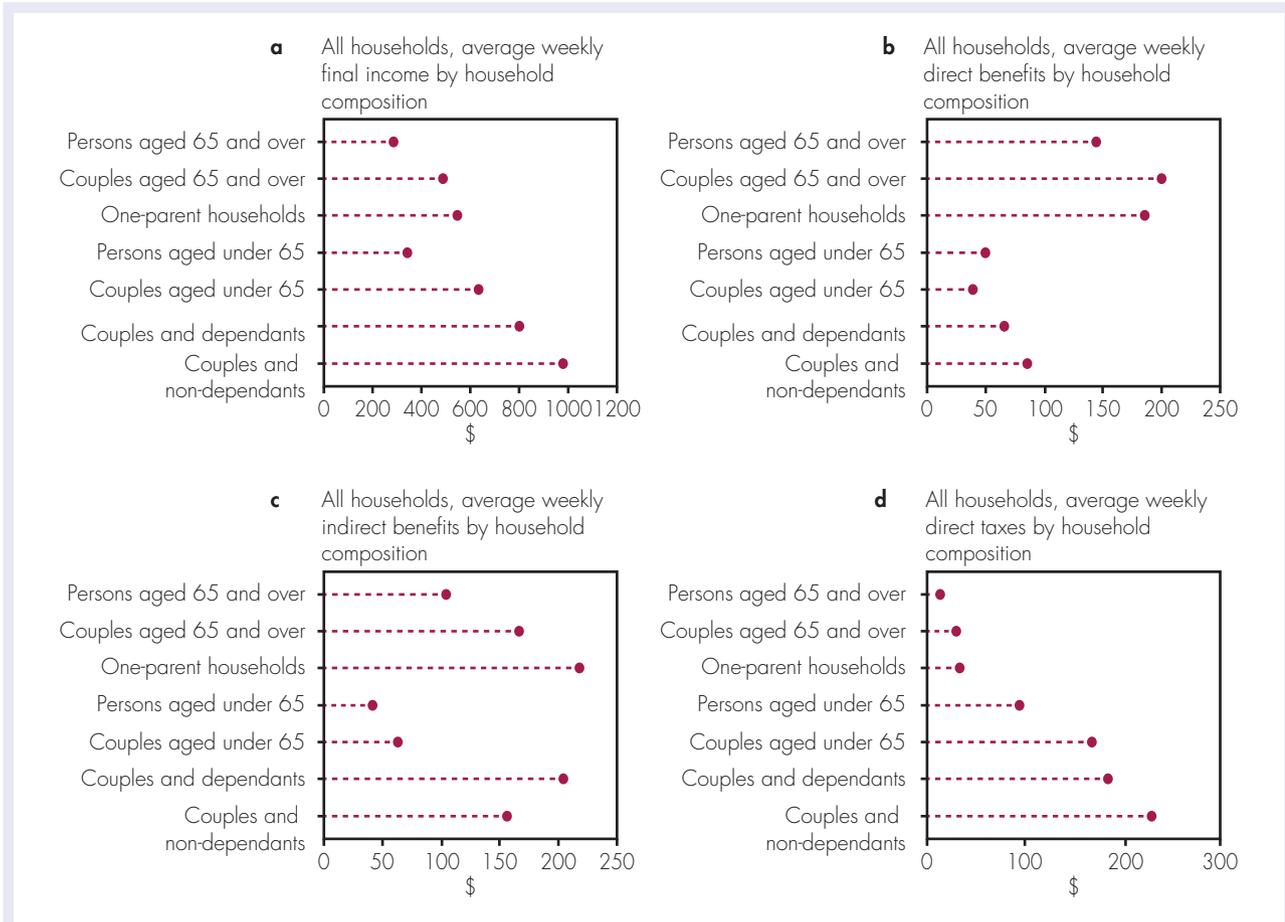


FIGURE 9.22 Incomes for select groups within Ozland

Questions

- 1 a What is the average weekly final income for persons aged 65 years and over?
- b What is the average weekly direct benefit for couples under 65?
- c What types of households, on average, receive more than \$200 worth of indirect benefits per week?
- d Which types of households, on average, pay direct taxes between \$100 and \$200 per week?

Continued

Continued

- 2** Compare income, direct and indirect benefits, and direct taxes by choosing a range of particular household types, and copying and completing the table below.

Household type	Income	Direct benefits	Indirect benefits	Direct taxes
Persons aged 65 and over				
Couples aged 65 and over				
One-parent households				
Persons aged under 65				

- 3** Justify the government's approach to redistribution of income for one or more household types in Ozland. You should have enough observations in order to make a simple inference. Make more comparisons if you feel you have insufficient data.
-

R 9.1 Terminology

Select the correct term from the list below that describes each statement.

- | | | |
|-----------------------|---------------------------|-------------------------------|
| A poverty line | D Gini coefficient | G progressive taxation |
| B wealth | E absolute poverty | H relative poverty |
| C Lorenz curve | F income | |

- 1 the situation of people whose deprivation is extreme because they do not have access to the basic necessities
- 2 a graphical representation of the inequality of a nation's income distribution
- 3 the situation of people whose income and lifestyle have fallen below by more than a certain degree, the average income and lifestyle enjoyed by the rest of society
- 4 a numerical measure of the degree of inequality involved in any income distribution of a country
- 5 the total assets owned by an individual or income unit, and the nation as a whole, at any one time
- 6 a level of income giving a minimum standard of living for a particular group of people in a society
- 7 payments to households in the form of wages, rent, interest and profit
- 8 a taxation system in which the percentage of tax payable increases as income rises

R 9.2 Multiple-choice questions

Select the correct response to each of the following:

- 1 Which of the following statements best describes a major objective in managing the Australian economy?
 - A** ensuring that everyone has access to free education and health care
 - B** improving the standard of living for everyone in the community by promoting equitable distribution of income and wealth
 - C** maximising economic growth regardless of income distribution
 - D** reducing government intervention in the market system to ensure efficiency
- 2 A common measure of poverty is:
 - A** the Lorenz curve.
 - B** income gap index.
 - C** GDP per capita.
 - D** shadow prices.
- 3 What is the main reason put forward as to why inequalities of income should be maintained?
 - A** Very few people actually starve in Australia.
 - B** Women are discriminated against in the distribution of income.
 - C** Inequality rewards initiative and promotes incentive.
 - D** Inequalities can be reduced through redistribution.

- 4 What would it mean if the redistribution of income leaves the top 20 per cent of income earners with less than 20 per cent of total income?
- A The top 20 per cent of income earners must have lower living standards.
 - B The lowest 20 per cent of income earners must have higher living standards.
 - C The lowest 80 per cent of income earners must be relatively better off.
 - D The distribution of income must be more equal.
- 5 Real GDP per capita figures tell us nothing about a nation's:
- A standard of living.
 - B income distribution.
 - C rate of economic growth.
 - D level of economic development.
- 6 The government could encourage income earners to prepare for their retirement by:
- A indexing pensions.
 - B extending people's working age.
 - C providing tax incentives for people to take out superannuation policies when they commence work.
 - D developing facilities for aged care.
- 7 In Australia, the poverty line is:
- A the cost incurred for buying basic needs.
 - B the minimum award wage.
 - C the income that provides a minimum acceptable living standard for a family.
 - D the number of people classed as poor.
- 8 A situation in which a pensioner loses a considerable amount of income through tax and loss of pension if they take a part-time job is known as:
- A an equivalence scale.
 - B vertical equity.
 - C a poverty gap.
 - D a poverty trap.
- 9 Indexation of pensions means that they are:
- A means tested for income and assets.
 - B adjusted for changes in average weekly earnings.
 - C kept at a rate just above the poverty line.
 - D increased regularly in line with CPI increases.
- 10 Relative poverty is a situation in which:
- A poverty in one country is compared with that in another country.
 - B the incidence of poverty is measured relative to a standard unit of measure.
 - C people's level of poverty is measured relative to their income distribution.
 - D deprivation is extreme because people do not have access to the basic necessities.

- 11 Which of the following statements is true for Australia in relation to the distribution of wealth and income?
- A The inequality in wealth has been stable in the last 10 years but income inequality has fallen.
 - B Income is less evenly distributed than wealth.
 - C Wealth is less evenly distributed than income.
 - D Income inequality has been stable in the last 10 years but wealth inequality has risen.
- 12 Why do people in cities tend to have higher average incomes than people living in rural areas?
- A Employees in major cities face greater competition for jobs.
 - B Rural areas have higher unemployment rates than cities.
 - C Businesses pay higher wages to workers to entice them to work in rural areas.
 - D Rural workers have a higher level of skill and education than their city counterparts.
- 13 Income inequality in Australia would widen if this policy were introduced.
- A a decrease in interest rates
 - B deregulation of the labour market
 - C a lowering of the age for the aged pension
 - D the introduction of increased superannuation rates
- 14 Equity in the distribution of personal incomes does not mean:
- A everyone should have an equal amount of money as income.
 - B everyone should be able to have access to basic needs.
 - C the elimination of poverty.
 - D the rich should be taxed at a higher rate than people on lower incomes.
- 15 What is the main objective of income redistribution in Australia?
- A to reduce government expenditure on social services
 - B to increase economic stability and opportunity for lower income groups, resulting in a more egalitarian society
 - C to promote economic growth solely by increasing the wealth of higher income groups
 - D to eliminate all forms of taxation in the economy

R 9.3 Short response questions

- 1 Define 'income inequality'.
- 2 **Describe** three ways that income inequality can be measured.
- 3 **Recall** the four main sources of household income.
- 4 **Explain** the difference between absolute poverty and relative poverty.
- 5 **Distinguish** between income and wealth.
- 6 **Recall** two reasons for income inequality and **explain** how each contributes to such inequality.

- 7 **Explain** two effects of income inequality.
- 8 **Explain** how progressive taxation assists the redistribution of income in Australia.
- 9 **Distinguish** between cash payments and non-cash benefits. Which one is the more effective way of redistributing income?
- 10 In what ways could the federal government use fiscal policy as an instrument to reduce income inequality?
- 11 **Explain** possible effects on the distribution of income in the Australian economy of the following scenarios.
 - a There is a return to centralised wage fixing in the labour market.
 - b The Reserve Bank of Australia increases interest rates by more than 5 per cent in 12 months.
 - c The government abolishes negative gearing for investment properties in the housing market.
 - d Unemployed youth are entitled to unemployment benefits for only six months.
 - e The inflation rate doubles.

R 9.4 Graphing exercise

- 1 Examine the table below and complete the following activities.
 - a Construct Lorenz curves for countries X and Y.
 - b Compare the hypothetical curves for the two countries. Which country has the greater inequality of distribution of personal income? **Explain** your response.

Decile class	Actual income share (%)	Actual income share (%)	Cumulative income share (%)	Cumulative income share (%)
	Country X	Country Y	Country X	Country Y
Lowest	0.5	1.0	0.5	1.0
2nd	2.4	3.2	2.9	4.2
3rd	3.6	4.7	6.5	8.9
4th	4.7	6.1	11.2	15.0
5th	6.9	8.3	18.1	23.3
6th	9.5	12.6	27.6	35.9
7th	12.0	14.3	39.6	50.2
8th	14.5	15.8	54.1	66.0
9th	17.8	16.0	71.9	82.0
Highest	28.1	18.0	100.0	100.0

R 9.5 Investigation research topics

- 1 **Analyse** the key patterns, trends and relationships from 2021 to 2023 surrounding the macroeconomic objective of the economic prosperity and welfare of the people of Australia. **Evaluate** the extent to which the federal government has achieved the objective of economic prosperity and welfare of the people of Australia, using two criteria to draw a conclusion.
- 2 **Analyse** the key patterns, trends and relationships from 2020 to 2022 surrounding the macroeconomic objective of the maintenance of full employment in Australia. **Evaluate** the extent to which the federal government has achieved the objective of full employment as a catalyst to lift people out of poverty, using two criteria to draw a conclusion.
- 3 **Analyse** the key patterns, trends and relationships from 2021 to 2024 surrounding the participation of Australians with a disability. **Evaluate** the extent to which the federal government has achieved the objective of inclusive participation in the labour market, using two criteria to draw a conclusion.

Economics in Action worksheets:

9.1 Analysis, comparison and induction

Economics Challenge worksheets:

9.1 Economics Challenge

Economics Data worksheets:

9.1 Economics Data

 Nelson MindTap

To access resources above, visit
cengage.com.au/nelsonmindtap



Glossary

Absolute poverty: the situation of people whose deprivation is extreme because they do not have access to the basic necessities of food, clothing and shelter

Aggregate demand: the total expenditure on the goods and services produced in an economy in a period of time

Aggregate supply: the total value of goods and services available for sale in an economy in a given period of time

Allocative efficiency: occurs where a country's productive resources are used in the economy in combinations that generate the maximum benefits for consumers and the country

Amalgamation: the combination into a single business entity of firms that were previously independently owned and controlled, in order to enhance competitive strength

Asymmetric information: the situation where one party to an economic transaction has more or better knowledge than the other party; consumers are less informed than suppliers in almost all economic transactions

Australian Securities Exchange (ASX): a national business that operates the stock market for the trading of shares and other securities

Balance of payments: the summary of a nation's payments to, and receipts from, the rest of the world over a year

Balanced budget: a budget in which current revenue is equal to current expenditure; that is, $T = G$

Barriers to entry: cost-based, market-based and legal-based factors that prevent the entry of a new firm to an industry on a competitive level equivalent to that of existing firms

Basis points: a common unit of measure for interest rates and other percentages in finance; one basis point is equal to 100th of 1 per cent, or 0.01 per cent, and is used to denote the percentage change in a financial instrument

Biological diversity: the variety of plants, animals and other biological organisms in an area

Boom: the phase of the business cycle where the general level of economic activity is above average; it is characterised by full employment and inflationary pressure due to demand being in excess of supply

Business confidence: how optimistic firms are about the state of the economy and the future of their business

Business cycle: alternate but irregular periods of prosperity and recession of an economy; also called the trade cycle or the economic cycle

Capital: the factor of production comprising the stock of human-made resources used to create further goods and services

Capitalism: an ideology based on the importance of the market system, private ownership of most of the means of production and limited government intervention, and underpinned by the belief that economic activity is motivated by profit and individual interests; often used synonymously with the term 'free enterprise'

Capitalist market economy: an economic system in which important economic questions are decided by interaction between individual buyers and sellers in the marketplace

Cartel: a formal arrangement among firms to enhance their market power and profits by collectively controlling production levels, prices and market shares

Ceteris paribus: a Latin phrase that means 'all other things being equal'

Coefficient: a value that multiplies another value

Collusion: cooperation among independently owned and controlled firms to limit competition; for example, by collusive tendering

Common property goods: goods or resources for which there are no clearly defined property rights, so no price can be attached to their use (e.g. the ocean, the atmosphere, the wilderness and space)

Competition: the pressure that market forces place on businesses to reduce prices and improve the quality of their products

Competition and Consumer Act 2010 (Cth): the legislative vehicle for competition law in Australia; administered by the Australian Competition and Consumer Commission (ACCC)

Competition policy: all relevant government policies that affect the nature and extent of competition in the economy

Competitive wants: goods/services that can be substituted for each other; for example, butter and margarine

Complementary wants: wants that go together; for example, a house, furniture and plants

Concentration ratio: the percentage of the total sales accounted for by the largest four firms in a particular market or industry

Consumer confidence: how optimistic consumers are about the state of the economy and their personal financial situation

Consumer price index (CPI): a measure of changes in the average level of prices of goods over a certain period

Consumer protection: government or legal assistance that, in addition to self-help, may protect consumers from unscrupulous business dealings

Consumer sovereignty: the theory that consumer preferences will determine the production of goods and services

Consumption expenditure: the total spending on goods and services by the household sector

Contraction: the slowing down in aggregate output and income levels due to a rise in uncertainty; also known as a 'downturn'

Cost-benefit analysis: a process through which decisions are analysed to decide which decisions to make and which to forgo

Countervailing power: the influence that other groups can exert on a firm's decisions; for example, powerful customers, political interest groups or trade unions

Cross elasticity of demand: measures the likely response for the demand of one good to a change in the price of a related good

Current account: a measure of the inflows and outflows of money resulting from buying and selling goods and services, and from earning income, in the international marketplace

Deadweight welfare loss: the cost to society created by market inefficiency

Deficit budget: a budget in which current revenue is less than current expenditure; that is, $T < G$

Demand: the quantity of a commodity that will be purchased in a market over a given time at a given price

Demerit goods: private goods with negative externalities

Deregulation: a process of removing a set of government laws and rules imposed on a market

Direct tax: tax that is borne by the person or firm on which it is levied; for example, income tax

Discretionary fiscal policy: the deliberate manipulation of government expenditure and revenue to achieve economic objectives

Diseconomies of scale: occur when a firm grows so large that the costs per unit increase; this happens when economies of scale no longer function for a firm

Disequilibrium: a situation in the circular flow where injections do not equal leakages, causing fluctuations in output, income, expenditure and employment

Disposable income: the amount of income available to an individual after payment of tax

Dividend: a payment made by a firm to its shareholders for providing capital; a distribution of a firm's profits to its shareholders

Division of labour: the separation of work into tasks so that each individual worker becomes expert at a specific task, thus ensuring maximum efficiency

Downturn/contraction: the slowing down in aggregate output and income levels due to a rise in uncertainty

Dynamic efficiency: the ability of an economy to respond to changing consumer demands by reallocating resources to new industries or production processes

Ecological: dealing with the interdependencies between organisms and their environments

Ecological footprint: an estimate of how much biologically productive space is required to produce the goods and services a given population demands, and to absorb the resultant wastes, using current technology

Ecologically sustainable development (ESD): the use of natural resources for economic development in a way that does not compromise the current ecological balance, and ensures that these resources are maintained to improve the quality of life for present and future generations

Economic growth: a sustained increase in the productive capacity of an economy over a specific period of time, usually indicated by the increased availability of goods and services in the economy

Economic indicators: economic variables whose patterns of fluctuation portray, in a reasonably consistent and predictable way, the general course and level of aggregate economic activity; for example, employment levels, inflation levels and economic growth

Economic model: a simplification of a complex situation in the real world, usually represented in the form of a diagram, graph or mathematical equation

Economic problem: the problem of deciding or choosing how to satisfy unlimited wants with limited resources

Economic system: the organisational and institutional pattern through which choices are made about which wants to satisfy, and how to allocate resources to do this

Economics: the study of the ways in which a society decides to use its scarce resources to satisfy unlimited wants

Economies of scale: the cost-saving advantages that a firm gains by increasing its scale of production

Efficiency: using the least amount of resources to produce the goods and services that people value the most; how cheaply and productively firms can combine land, labour, capital and enterprise resources to maximise output while generating profits

Egalitarian society: a society that believes in treating people equally through giving people equal rights and opportunities

Elastic demand: where the percentage change in the quantity demanded exceeds the percentage change in price

Elasticity: the relative amount that one variable changes, given a change in another variable

Enterprise: the factor of production that is the ability to initiate and manage the production process by combining and organising the other factors of production (land, labour and capital)

Entrepreneur: the innovator who supplies enterprise to the productive process

Environmental amenity: the sources of satisfaction flowing from the aesthetic qualities of the environment

Environmental controls: direct regulations that restrain or ban actions harmful to the environment, and indirect controls through taxes and charges; together, they encourage desirable environmental practices

Environmental degradation: any deterioration in the quality of environmental resources, the destruction of ecosystems and the extinction of wildlife

Environmental resources: the support the environment gives the economy by the provision of natural resources and as a means of waste disposal

Equilibrium: a balanced situation from which there is no tendency to change; for example, where supply equals demand in the market, or, in the circular flow, where injections equal leakages, causing output, income, expenditure and employment to remain unchanged

Equilibrium market price: a price from which there is no tendency to change; a price just high enough for sellers and just low enough for buyers, at which supply and demand are equal

Equivalence scales: scales that indicate the income levels needed by different types of family units to attain the same, or equivalent, standard of living

Exchange rate: the value of a nation's currency expressed in terms of the currency of another nation

Exclusion principle: when consumers or firms that do not pay for a good or service are excluded from any benefits derived from that good or service

Exclusive dealing: the imposition by a supplier of conditions on the supply of goods and services

that limit the purchaser's freedom to choose alternative suppliers

Exports: goods and services sold to foreign countries

External costs: the social and environmental costs associated with the production and consumption of a good or service that are not included in the market price

External economies of scale: the cost-saving advantages shared by firms in the same industry or region as a result of the overall growth and development of that industry or region

Externalities: indirect costs and benefits associated with the production and consumption of certain goods and services that the market fails to take into account

Factor mobility: the ability of factors of production to move, usually to an industry or location where they can operate at a higher level of economic efficiency

Factors of production: the broad categories under which the resources that go into creating goods and services to satisfy human wants can be classified; that is, land, labour, capital and enterprise

Final goods: final products in a state ready for sale; for example, a washing machine is a final good

Firm: the basic unit of organised production, which can range in size from a sole trader to a global corporation employing hundreds of thousands of people; also called a business

First-mover advantage: the competitive advantage gained by firms that are first to enter a new market, including access to the best customers and suppliers, brand loyalty and economies of scale

Fiscal policy: measures undertaken by governments in relation to raising revenue through taxation and determining the nature of government expenditure, aimed at influencing a nation's aggregate demand

Float: the initial raising of capital for a firm by selling shares in the primary market of the stock market

Flow: understanding productive resources as income items that can be used to produce goods and services indefinitely

Free-rider problem: when consumers or firms in a society can derive a benefit from the consumption of a good or service without having contributed directly to the cost of that good or service

Full employment: the situation where everyone who wants a job, has a job (there will always be some level of unemployment)

Gini coefficient: a numerical measure of the degree of inequality involved in any income distribution of a country, based on the areas under the Lorenz curve

Government expenditure: the total spending on goods and services by governments at local, state and national levels

Government intervention: action by the government that affects economic activity, resource allocation and normal market operations to help achieve economic goals; for example, provision of subsidies, change in tax rates, changes in government expenditure, regulation of foreign investment

Gross domestic product (GDP): a measure of the monetary or market value of goods and services produced in an economy in a given period (usually one year) after deducting the cost of intermediate goods and services used in their production

Henderson poverty lines: the minimum desirable levels of household income, established by Professor Henderson in the Commission of Inquiry into Poverty in 1975; these minimum levels are revised to accommodate changing economic conditions

Holding company: a company that owns and controls a number of subsidiary companies

Horizontal integration: where a single firm gains control of one stage of the production that serves many producers or industries; for example, owning all the abattoirs or all the export finance services

Import controls: tariffs or other protective devices, such as quotas, that make domestic products more competitive in comparison with imported products

Imports: goods and services purchased from foreign countries

Income: payments to households in the form of wages, rent, interest and profit

Income distribution: the allocation of returns (rent, wages and salaries, interest, profits) from the four factors of production (land, labour, capital, enterprise) among the population of the country

Income elasticity of demand: the way in which demand changes following an increase in household income

Income inequality: the degree to which income is unevenly distributed among people in the economy

Indirect tax: tax that can be passed on to others by the person or firm on which it is levied; for example, goods and services tax or customs duty

Industry: a collection of firms that produce the same type of product

Inelastic demand: where the percentage change in the quantity demanded is less than the percentage change in price

Inequality: a relative concept concerned with differences in welfare, such as in income, wealth and opportunity

Infrastructure: the basic physical and organisational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise.

Injection: an inflow of expenditure into the circular flow of income

Interest: the price paid for the use of capital

Interest rate: the price paid for the use of capital, expressed as an annual percentage of the value of the capital

Intergenerational equity: the just sharing of economic benefits and costs between the present and future generations

Intermediate goods: goods that are used in the production of final goods; for example, steel is an intermediate good used in the construction of houses and other products

Internal economies of scale: the cost-saving advantages that a firm experiences as it increases its scale of production

Internal stability: a state of the economy when there is full employment and price stability

Investment: spending either on new assets or additions to stocks used in the production process

Investment expenditure: spending to produce goods and services (including capital goods) by the production sector

Invisible hand: the unobservable market force that allocates resources based on consumers acting in their self-interest, reaching equilibrium automatically

Job rotation: a system of moving workers between different duties and tasks to reduce the risk of boredom due to repetitive work practices

Labour: the factor of production that includes all kinds of human effort, both mental and physical

Land: the factor of production that includes all naturally occurring resources (except human labour); for example, minerals, fuels, plants, water and fish

Law of demand: the proposition that the quantity demanded of a good or service is inverse to the price of that good or service

Law of diminishing marginal productivity: the proposition that once the most efficient level of production has been reached, adding an extra factor of production (such as a new employee) will cause a relatively smaller increase in output than that gained from each existing factor of production; the marginal productivity will decrease; also called the principle of diminishing returns

Law of supply: the proposition that the quantity supplied of a good or service varies positively with the price of the good or service

Leakage: an outflow of expenditure from the circular flow of income

Lorenz curve: a graphical representation of the inequality of a nation's income distribution

Macroeconomic policy: legislation, taxation or spending measures implemented by governments to influence broad variables in the economy; for example, consumption or investment

Marginal cost: the addition to total cost that occurs when one more unit of output is produced and sold

Marginal producer: a firm whose income just covers costs

Marginal utility: the added satisfaction a consumer receives from consuming one more unit of a good or service

Market: a place or situation where buyers and sellers interact for purposes of trade or exchange

Market failure: the inability of the market to determine the use and allocation of resources in the way society most desires, because certain conditions are lacking; for example, limited market power, externalities and public goods

Market mechanism: the interaction of the forces of demand and supply to determine the price at which a commodity is sold

Market power: the ability to control and influence the market in one's own self-interest

Market sharing: where the market is divided between firms that agree not to compete in each other's areas

Market structure: features of a market that determine the level of competition

Merit goods: goods or services that are not produced in sufficient quantities by markets because individuals do not value them highly enough to pay for them; private goods with positive externalities

Mixed economy: an economy or economic system that relies on both markets and governments to allocate resources

Mobility of labour: the ease with which the labour force can be transferred from one occupation to another or from one geographic region to another

Monetary policy: policy measures implemented through the Reserve Bank of Australia to bring about changes in aggregate demand by influencing money supply and interest rates

Monopolistic competition: the market situation in which a large number of buyers and sellers are exchanging similar but not identical products

Monopoly: the market situation in which one seller sells a product for which there is no close substitute, allowing it to be the price setter

Natural capital: the stock of resources provided by the natural environment from which humans gain amenity and productive inputs; also called ecological or environmental capital

Natural monopoly: arises in a market in which the costs of production are minimised when one firm supplies the market

Needs: things that are essential for life in our society

Net exports: the income earned by exports less the spending on imports into Australia

Oligopoly: the market situation in which a small number of firms are selling similar but not identical products

Opportunity cost: the best alternative opportunity forgone when a choice is made (often referred to as 'real cost' or 'economic cost'); for example, being unable to study chemistry because you chose to study economics

Optimal outcome: the best or most favourable outcome under a particular set of circumstances

Paradox of thrift: occurs when people try to save more in times of recession, which leads to a fall in both aggregate demand and economic growth

Pareto efficiency: when the allocation of resources is optimal; one person cannot be made better off without making another person worse off

Perfect competition: a theoretical market structure in which many buyers and sellers trade a homogenous product, there are no barriers to entering the market and all producers are price takers

Physical market: a place where buyers and sellers actually meet to exchange goods and services

Pigovian tax: a form of taxation that is imposed on any commercial activity in a marketplace that produces negative externalities; the purpose of the tax is to correct a suboptimal and socially undesirable outcome

Point elasticity method: measures the degree of elasticity of demand using the coefficient of elasticity

Poverty: the situation of people whose resources (material, social and cultural) are so limited as to exclude them from the minimum acceptable way of life in the country in which they live

Poverty line: a level of income giving a minimum standard of living for a particular group of people in a society

Predatory pricing: a temporary price reduction by a dominant firm to discourage the entry of new firms and to force less-established firms out of the industry

Price: the sum of money paid for goods or services in a market

Price ceiling: a price fixed by the government at a lower level than what would be established by the free operation of the price mechanism

Price controls: the setting of minimum or maximum prices by the government so that prices are unable to adjust to the equilibrium established by the free operation of the price mechanism

Price discrimination: the charging of different prices to different customers of the same firm; for example, by way of selective discounts

Price elasticity of demand: the responsiveness of the quantity demanded to a change in price

Price elasticity of supply: the responsiveness of the quantity supplied to a change in price

Price floor: a price fixed by the government at a higher level than what would be established by the free operation of the price mechanism

Price leadership: where the price is set by the dominant firm in an industry that all other firms follow, thereby limiting price competition

Price mechanism: the system or process by which price changes bring about equality between supply and demand in a market

Price signals: the messages that market prices provide to producers and consumers about what to produce, how to produce it and whom to distribute the outputs to

Price surveillance: the overseeing by government regulatory bodies of price rises in markets where competition is not strong

Primary labour market: part of the labour market that has little likelihood of unemployment, and has defined career paths, high and rising real wages, and skilled and well-educated workers

Primary market: the new-issue market where companies are first floated; their shares are sold by stockbrokers (or a nominated adviser) on behalf of the company

Primary production: includes all industries involved in the cultivation of land, the grazing of animals and the extraction of raw materials from the land and sea

Private costs: the financial and opportunity costs paid by a firm or a consumer to produce or consume a good or service

Private goods: goods or services provided by the business sector for use and consumption by individual consumers, usually for personal benefit and utility

Private investment expenditure: the purchase of new equipment and plant, buildings and vehicles to increase the ability to produce goods and services

Product differentiation: when producers try to give a good or service some characteristics that make it seem different from essentially similar products of competitors, to lessen the degree of substitutability and increase brand loyalty

Production: the process of combining land, labour, capital and enterprise to provide goods and services in an economy

Productive efficiency: the ability of an economy to achieve the maximum quantity of output from a given quantity of productive resources

Productive or technical efficiency: occurs when use of a country's resources generates the maximum output possible

Productivity: a measure of the efficiency of production, expressed in terms of the rate of output per unit of inputs

Profit maximisation: the seeking of profit by firms; the basic stimulus for economic activity in a free market economy

Profits: payments in return for enterprise or entrepreneurial ability resulting from running a business enterprise in which revenues received exceed the costs of running the business

Progressive taxation system: a taxation system in which the percentage of tax payable increases as income rises (as opposed to proportional taxation, where the percentage remains constant, and regressive taxation, where it decreases)

Propensity: a term used to describe a person's tendency or desire to act in a certain way; for example, 'propensity to save' is a person's willingness or desire to save

Property rights: legislated measures created by governments to administer the ownership, uses and disposal of property and resources

Public final demand: government spending consisting of both consumption and capital expenditure

Public goods: goods or services provided by the government sector for societal use and benefit, usually in response to a market unable to supply those goods or services at a reasonable cost

Quality and health standards: standards imposed by governments or standards bodies to ensure safe and high-quality products and services

Quality of life: the overall wellbeing of individuals according to their material living standards and a range of other considerations such as health standards, education levels, security and happiness

Quaternary production: includes all industries involved in the production of services relating to information and communication

Real wages: income expressed in terms of purchasing power

Recession/trough: the phase of the business cycle where the general level of economic activity is below the economy's potential; it is characterised by high unemployment, reduced level of inflation, and low business and consumer confidence

Recurrent wants: wants that are never satisfied and keep recurring; for example, food

Redistribution of income and wealth: the transfer of money and assets from one group in the economy to another

Regressive taxation: a tax system in which the ratio of tax to income is lower with large incomes than with small incomes

Regulated monopoly: where a government grants exclusive privilege to a private individual or firm to be the sole provider of a good or service

Regulation: a process of imposing a set of government laws and rules on a market

Relative poverty: the situation of people whose income and lifestyle have fallen below, by more than a certain degree, the average income and lifestyle enjoyed by the rest of society

Relative scarcity: where we do not have enough resources to satisfy all our wants and needs

Rent: payments in return for the use of land or other natural resources used in the production process

Resale price maintenance: where a supplier specifies a minimum price to a reseller, below which goods and services cannot be resold or advertised

Reserve Bank of Australia: the central bank within the Australian economy, which sets the cash rate and aims to maintain financial stability

Resource depletion: the consumption of a resource at a faster rate than it can be replenished

Restrictive trade practices: actions by people, businesses or governments that restrict competition in a market, and may increase market power and monopoly control

Salaries: payments to higher level employees and professionals, calculated on an annual basis; not usually related to production achieved or hours worked

Savings: that part of present income that is not spent on consumption, but set aside for future use

Scarcity: insufficiency relative to wants; this is a universal problem because the resources available for

the satisfaction of human wants are limited while wants are unlimited

Secondary labour market: part of the labour market that has frequent unemployment, casual employment, low and declining real wages, no career path and unskilled workers with minimal education qualifications

Secondary market: the market in which shares in existing companies are bought and sold by investors (often through stockbrokers, but individuals can also buy and sell their own shares through various online trading accounts, such as CommSec)

Secondary production: includes all industries involved in processing raw materials and producing goods

Sectors: divisions of the economy in the circular flow of income model

Share: part ownership in a company; a share (commonly referred to as a 'stock') is a type of security that indicates the holder has proportionate ownership in the issuing company

Signalling: actions taken not for the sake of their direct results, but to inform a party of their intention

Social costs: the total private and external costs of production and consumption of a good or service

Social security: a system of social welfare payments provided by the federal government to eligible Australian citizens, permanent residents and limited international visitors

Socialism: an ideology based on the view that most of the means of production should be publicly owned and directed towards the satisfaction of community needs rather than private profit; in theory, an economy that is in transition between communism and capitalism

Socialist/command economy: an economic system in which decisions about what to produce, and the way the proceeds of production should be distributed among members of the society, are made by a central planning authority

Socialist/market economy: an economic system based on government, rather than individual, ownership of key resources, deemed critical to the operation of the economy; it allows some decentralised decision making

Specialisation: the use of the factors of production to perform narrowly defined, specific functions, such as assigning specific production tasks to a worker

Standard of living: a measure of the material wellbeing of individuals within a country, usually measured by GDP per capita; based on material and quantitative indicators such as possessions, income, education and health standards, and quality of housing

Stock: understanding productive resources as capital items that need to be maintained for future use

Stock market: the market that involves an auction of securities such as shares, debentures and bonds

Stockbroker: a member or agent of the Australian Securities Exchange, who is authorised to buy and sell securities for investors in the stock market

Subsidies: grants made by the government to industries whose survival is considered to be beneficial to the public, to enable them to compete with imported goods

Subsistence economy: an economy in which individuals produce commodities primarily for their own use and not for exchange through the market

Super-normal profits: the excess profits a firm makes above the normal level of profit in a market

Supply: the quantity of a commodity that will be offered for sale in a market over a given time at a given price

Surplus budget: a budget in which current revenue is greater than current expenditure; that is, $T > G$

Tariff: a tax applied to the import or export of goods

Taxation: a method of financing government activities that involves compulsory payments to the government by individuals, companies or other organisations; usually based on income earned, and goods and services sold

Taxation criteria: criteria for judging whether a tax is a good tax or not; for example, equity, efficiency and simplicity

Technical efficiency: the ability of a firm to produce the maximum output from the minimum quantity of inputs, such as labour, capital and technology

Term deposit: a fixed-term investment that is a type of savings account which pays a defined amount of interest over a set period (the 'term')

Tertiary production: includes all industries involved in the provision of services rather than the production of goods

Total revenue method: calculated by multiplying price (P) per unit and quantity (Q) of the good sold

Tradeable permit system: a government tool whereby allocated pollution permits are created, allowing firms to emit a certain amount of pollution;

these permits are then tradeable on an open market between competing firms

Tragedy of the commons: the overuse or destruction of a common property good because it has no price and so markets do not ration its consumption

Transfer payments: payments received by individuals and families from the federal government in the form of cash social service benefits, such as pensions, unemployment benefits and family allowances

Underemployment: when workers in a labour force are employed at less than full-time or regular jobs, or in work that is inadequate with respect to their training or economic needs

Unemployment: the state of being out of work or not having paid employment

Unit elasticity: where the percentage change in the quantity demanded is the same as the percentage change in price

Upswing/recovery: where the economy moves into a period of prosperity and healthy business activity; it is characterised by increasing confidence on the part of business and consumers

Utility: satisfaction gained by consumption of goods and services

Value judgement: a decision based not just on facts, but on personal opinions or values

Vertical integration: where a single firm gains control of all of the stages of production and marketing distribution

Virtual market: a non-physical market where exchanges occur through digital interactions

Wages: payments to employees as a return for the provision of labour or human effort to the production process (usually calculated on the basis of actual production or hours worked)

Wants: things we desire because they give us satisfaction – various types of goods and services

Wealth: the total assets owned by an individual or income unit, and the nation as a whole, at any one time; it includes physical assets such as real estate and consumer durables (car, boat, jewellery) as well as financial assets (shares, bonds, debentures)

Welfare: a measure of how well off people are from both a quantitative and a qualitative point of view

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