UNIT 3
Australia’s economic prosperity

AREA OF STUDY 1
An introduction to microeconomics: the market system, resource allocation and government intervention (duration about 6–7 weeks)

OUTCOME 1
On completion of area of study 1, the student should be able to explain how markets operate to allocate resources, and discuss the effect of government intervention on market outcomes.

AREA OF STUDY 2
Domestic macroeconomic goals (duration about 5–6 weeks)

OUTCOME 2
On completion of area of study 2, the student should be able to analyse key contemporary factors that may have influenced the Australian Government’s domestic macroeconomic goals over the past two years and discuss how achievement of these goals may affect living standards.

AREA OF STUDY 3
Australia and the world economy (duration about 4–5 weeks)

OUTCOME 3
On completion of area of study 3, the student should be able to explain the factors that may influence Australia’s international transactions and evaluate how international transactions and trade liberalisation may influence the current account balance, the Australian Government’s domestic macroeconomic goals and living standards in Australia.

SCHOOL-ASSESSED COURSEWORK (SAC)
In SACS 1, 2 and 3 for unit 3, the student’s performance on each outcome should be assessed using one or more of the following:
• structured questions
• a folio of applied economic exercises
• a case study
• media analysis
• a report
• an essay.
SAC 1 will be worth 40 per cent, SAC 2 will be worth 30 per cent and SAC 3 will be worth 30 per cent of unit 3 school-based assessment. These tasks should be part of the normal teaching program and completed mainly in class within a limited timeframe.

These three SACs will contribute 25 per cent to the overall study score, with another 25 per cent coming from the two SACs in unit 4 and 50 per cent from the two-hour, end-of-year examination.

**KNOWLEDGE FOR UNIT 3**

**AREA OF STUDY 1, OUTCOME 1**
- relative scarcity: needs, wants, resources and opportunity cost
- the nature of, and conditions for, a perfectly competitive market
- the law of demand and the demand curve including movements along, and shifts of, the demand curve
- factors likely to affect demand and the position of the demand curve: changes in disposable income, the prices of substitutes and complements, preferences and tastes, interest rates, changes in population and consumer confidence
- the law of supply and the supply curve including movements along, and shifts of, the supply curve
- factors likely to affect supply and the position of the supply curve: changes in the cost of production, technological change, productivity growth and climatic conditions
- the effects of changes in supply and demand on equilibrium prices and quantity traded
- the role of relative prices in markets on the allocation of resources and the effect on living standards
- the meaning and significance of price elasticity of demand and supply
- factors affecting price elasticity of demand: degree of necessity, availability of substitutes, proportion of income and time
- factors affecting price elasticity of supply: spare capacity, production period and durability of goods
- the meaning and significance of economic efficiency: allocative efficiency, productive efficiency, dynamic efficiency and intertemporal efficiency
- the effect of competitive markets on the efficiency of resource allocation
- reasons for market failure: public goods, externalities, asymmetric information and common access resources
- the role and effect of indirect taxation, subsidies, government regulations and government advertising as forms of government intervention in the market to address market failure
- one contemporary example of government intervention in markets that unintentionally leads to a decrease in the efficiency of resource allocation

**AREA OF STUDY 2, OUTCOME 2**

The nature and purpose of economic activity:
- the difference between material and non-material living standards
- factors that may influence living standards including access to goods and services, environmental quality, physical and mental health, life expectancy, crime rates and literacy rates
- the circular flow model of income including the role of households, businesses, government, financial institutions and the external sector in an open contemporary macroeconomy
- the nature and causes of the business cycle
- the meaning and importance of aggregate demand and the factors that may influence the level of aggregate demand in the economy: changes in the general level of prices, disposable income, interest rates, consumer confidence, business confidence, the exchange rate and rates of economic growth overseas
- the aggregate demand curve
- the meaning and importance of aggregate supply and the factors that may influence the level of aggregate supply in the economy: changes in the general level of prices, quantity and quality of the factors of production, cost of production, technological change, productivity growth, exchange rates and climatic conditions
- the aggregate supply curve
- the effects of changes in aggregate demand and aggregate supply on the level of economic growth, employment and price levels.

The Australian Government’s domestic macroeconomic goals:
- the meaning of the goal of low inflation (price stability)
- measurement of the inflation rate using the Consumer Price Index (CPI) including the difference between the headline and underlying (core) rate of inflation
- causes of inflation including demand and cost inflation
- consequences of a high inflation rate: erosion of purchasing power, redistributive effects, resource misallocation, savings and investment and international competitiveness
- the meaning of the goal of strong and sustainable economic growth
• measurement of the rate of economic growth using real Gross Domestic Product (GDP)
• the reasons for pursuing strong and sustainable economic growth including lowering of the unemployment rate, growth in real income and increased ability of government to provide essential services
• the meaning of the goal of full employment and classifications within the labour force: employed, unemployed, hidden unemployment, disguised or under-employed
• measurement of the labour force including the participation rate, the unemployment rate and the labour force underutilisation rate
• types and causes of unemployment: cyclical, structural, frictional, seasonal and hard-core unemployment
• the consequences of unemployment including loss of GDP, loss of tax revenue, reductions in living standards and greater income inequality
• aggregate demand and aggregate supply factors that have influenced inflation, economic growth, the unemployment rate and living standards in the past two years.

AREA OF STUDY 3, OUTCOME 3
• the relationship between trade and living standards including lower prices for consumers, greater choice for consumers, the ability of businesses to achieve economies of scale and access to more resources for business and government
• the balance of payments and its components
• causes of Australia’s current account deficit including cyclical and structural factors
• the relationship between the current account and the capital and financial account
• the composition and cause of net foreign debt and net foreign equities
• the terms of trade: meaning and measurement and the factors that may influence the terms of trade
• the effect of movements in the terms of trade on the current account balance, the domestic macroeconomic goals and living standards
• factors affecting the value of the exchange rate including relative interest rates, demand for exports and imports, capital flows, the terms of trade and relative rates of inflation
• the effect of exchange rate movements on the current account balance, the domestic macroeconomic goals and living standards
• factors that may influence Australia’s international competitiveness including productivity, production costs, availability of natural resources, exchange rates and relative rates of inflation, and the effect of these factors on domestic macroeconomic goals and living standards
• the effect of trade liberalisation on Australia’s international competitiveness, domestic macroeconomic goals and living standards.

SKILLS FOR UNIT 3

AREA OF STUDY 1, OUTCOME 1
• define key economic concepts and terms and use them appropriately
• construct and interpret demand and supply diagrams
• interpret and analyse statistical and graphical data
• evaluate the role of the market in allocating resources
• explain the effect of government intervention in markets
• compare alternative economic viewpoints to form conclusions.

AREA OF STUDY 2, OUTCOME 2
• define key economic concepts and terms and use them appropriately
• calculate relevant economic indicators using real or hypothetical data
• explain trends, patterns, similarities and differences in economic data and other information
• apply economic concepts and theories to explain the nature and importance of the Australian Government’s domestic macroeconomic goals
• analyse economic relationships through the interpretation of data, graphical trends, patterns and other information.

AREA OF STUDY 3, OUTCOME 3
• define key economic concepts and terms and use them appropriately
• explain key international economic relationships and how they may affect living standards
• explain trends, patterns, similarities and differences in economic data and other information
• calculate relevant economic indicators using real or hypothetical data
• access and interpret, and draw conclusions from, information gathered from a range of sources.
TOPIC 1

An introduction to microeconomics: the market system, resource allocation and government intervention

Without natural resources including land, labour and capital equipment such as crop harvesters, it is not possible to produce food or other goods and services that allow us to enjoy reasonable living standards. Unfortunately, resources are scarce or limited, especially in low-income countries. This restricts production levels and therefore living standards.

Most people throughout the world would probably like to be better off and enjoy improved living standards. This is true in both poor and rich countries.

• In poor countries, improvement may come from access to more food, to vaccinations against preventable diseases like malaria, to clean drinking water and basic education, and to dwellings that protect them from the elements.

• In rich countries, however, people often expect much more. Not only will most of their basic wants be met, but many also expect to have access to a range of other, largely non-essential consumer goods and services — wants like touch-screen phones and iPods, the latest music, a tropical holiday among whispering palm trees and warm sapphire waters, body makeovers, an extensive wardrobe with something fashionable for every occasion, and the latest appliances for their massive, energy-devouring designer home. Added to
this good material life, people in rich countries also expect non-material things like living in freedom with
deal, far away from the ravages of war and violence, in a pristinely clean environment, with job satisfac-
tion, a lot of leisure time and personal happiness all round!
While this rosy picture of aspirations in an affluent but rather greedy society may be a bit over the top, it
may not be too far from reality. The challenge in meeting the aspirations in both rich and poor countries is
how to deliver improvements in living standards through increased satisfaction of society’s seemingly endless
needs and wants, both now and into the future.

1.1 What is economics?

Economics is the study of choice and how to make people better off in terms of their living standards. Eco-
nomics examines how limited resources are used to produce goods and services which, when distributed
between individuals, can help satisfy people’s unlimited needs and wants. If resources are used as efficiently
or economically as possible, individuals and nations could maximise their material standard of living and
become better off because production or economic activity is at its highest level. By contrast, unwise choices
about how productive resources are to be used result in lower national output and reduced access to goods
and services, and so material and non-material living standards suffer.

This issue of choice in economics can be investigated from both a microeconomic and a macroeconomic per-
spective. Microeconomics involves looking at the operation of the smaller parts that make up the wider Australian
economy. It therefore focuses on individual firms, industries, sectors and markets. Macroeconomics, however,
looks at the broader picture combining all markets and industries and the overall state of the country’s economy.
It therefore concentrates on areas like national spending, output, income, employment and overall material living
standards. Despite these differences, almost any issue can be examined from both a microeconomic and a macroe-
conomic perspective. This topic focuses mostly on the choices or decisions made at the microeconomic level, and
how these may impact on Australia’s allocation of resources and general living standards.

*CHECK YOUR UNDERSTANDING*

1. What is involved in the study of economics?
2. What is the difference between the study of microeconomics and macroeconomics?

1.2 Relative scarcity

The central problem of relative scarcity involves unlimited wants on the one hand relative to limited resources
on the other. Let us expand on this idea.

Our unlimited needs and wants

A fundamental assumption in economics is that people’s needs (goods and services necessary for survival) and
especially their wants (goods and services that make life more enjoyable) are virtually infinite or unlimited. As
a nation, for instance, we would like to have far more than we can possibly produce. Our economy consists of
many groups expressing their needs and wants (see figure 1.1).

• The needs and wants of households for consumer goods and services. Australian individuals and house-
holds need essential consumer goods and services like food, housing, clothing, education and health ser-
VICES. We also have wants for less essential consumer items that help make life more enjoyable, such as
iPads, the latest jeans, magazines or ice-cream. In part, satisfying even some of these needs and wants
generally takes money. Many factors influence the spending decisions made by consumers, including their
level of income after tax, how optimistic they are about the future, fashions and advertising, and their desire
to maximise the satisfaction gained from the choices they make.

• The needs and wants of private businesses. Australian firms need to purchase various resources or pro-
ductive inputs to make finished goods and services. For example, they must buy producer goods like capital
equipment (machines and buildings), raw and processed materials including oil and petrol, hire employees and pay for finance or credit for expanding the business. In making their spending decisions, firms will be
affected by their production costs, profitability, market share and changes in consumer tastes.
• **The needs and wants of governments.** In Australia, federal, state and local governments also have needs and wants. They must obtain capital equipment (such as kindergartens, power generators and roads), land, finished consumer goods (for example, stationery) and the services of staff (such as economists, doctors, teachers and defence personnel). The purpose of buying all these things is to make it possible for the public sector to produce certain goods and services that will help to satisfy the needs and wants of society that are not met fully by the private sector. Ultimately, this should help to raise general living standards.
• **The needs and wants of the overseas sector.** Foreign governments, firms and households living overseas purchase Australian-made goods and services to help satisfy their particular needs and wants. They buy our exports of wool, wheat, minerals, tourism, education and manufactured items. Their decisions may be influenced by factors such as how many and what sort of resources they have, or by production costs. Offsetting these exports are Australia’s needs for imports of goods and services such as oil, electronics, machinery and travel. We import goods and services because we are not self-sufficient.

![Diagram](image)

**FIGURE 1.1** Australian needs and wants

Therefore needs and wants arise from several sources including the household, business, government and overseas sectors. All contribute to unlimited needs and wants, and place a strain on our resources. Additionally, the problem of unlimited wants is made even more severe by the following:
• **Many needs and wants recur,** for example, the need for food, petrol for the car.
• **Our expectations of material things tend to grow** since the more we have, the more we want.
• **Population growth** adds to the number of wants.
• **Advertising, fashion and planned obsolescence,** such as the toaster that is designed to last for only two years, contribute to our growing wants.
• **The widespread acceptance of materialism** as a personal goal (ownership of more possessions), along with growing affluence, contribute to the escalation of society’s wants.

**Limited resources restrict national production**

**Resources** (sometimes called factors of production) are the productive inputs required to make any good and service. Unfortunately, the quantity or quality of resources available is limited, so Australia’s capacity to produce is severely restricted. In turn, this means that we are not able to fully satisfy society’s unlimited needs and wants.

There are three main types of resources or inputs required for production.
1. **Natural resources.** Natural resources represent those found in nature and include arable land, oil, minerals, rivers, climate, forests, air quality and oceans. Natural resources have the potential to support a variety of primary (extractive), secondary (manufacturing) and even tertiary (service) industries.
2. **Labour resources.** Skilled and unskilled labour resources provide physical power, mental talents, and other specialised services that are used in the production process such as those of an architect, mechanic or shop attendant. Entrepreneurship is a specialised type of labour resource and represents the skills of management, company leadership and organisation. Most of Australia’s labour force is employed in tertiary industry.

3. **Capital resources.** In economics, capital resources are manufactured items often involving physical plant and equipment (such as machinery, factories, power generators, computer systems, trucks, dams, railways and roads) used by businesses and governments to help make other goods and services. Capital equipment also incorporates new technology that results from research and development (R&D). Perhaps the main feature of increased capital resources is that they help lift the efficiency or productivity of natural and labour resources. If resources are more productive so that output per worker in an hour is greater, a nation can enjoy higher per capita incomes, consumption and material living standards.

The big problem for Australia is that we don’t have enough resources, and resources of sufficient quality, to produce the amount of goods and services to satisfy our unlimited wants or demands. Our productive capacity and material living standards are therefore limited by the scarce resources at our disposal.

**Relative scarcity**

Relative scarcity is the concept that simply describes the imbalance that exists between our wants, which are virtually unlimited (infinite), and our available resources, which are limited (finite). This basic economic problem of relative scarcity is shown in figure 1.2.

![Figure 1.2: Relative scarcity reflects unlimited wants and limited resources.](image)

As a consequence of relative scarcity, nations cannot produce all the things they would wish. There are limits on the level of domestic output or economic activity and on how fast our economy can grow in size from one year to the next. Moreover, relative scarcity means that only the most important material wants of households, firms and governments can actually be satisfied. Other less important priorities that provide less satisfaction, pleasure or utility, must normally be abandoned.

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- **Weblinks** The weblinks in these activities are available in this topic’s student resources tab.
  - Basic concepts in economics
  - EconMovies 1: Star Wars (scarcity, choices, and exchange)

**CHECK YOUR UNDERSTANDING**

1. What is the difference between needs and wants, and why do we say that wants are unlimited?
2. List, define and give examples of the three main categories of productive resources that are available to a nation.
3. Define the basic economic problem of relative scarcity.

**APPLIED ECONOMIC EXERCISES**

Apply your understanding of this subtopic by accessing and completing the Applied economic exercise(s).

- School-assessed coursework > Applied economic exercises > Question 1
1.3 Choice, opportunity cost and resource allocation

If our collective wants were not virtually unlimited and if resources were infinite, scarcity would not exist as a central economic problem facing society. Sadly this is not the case, so we are forced to make choices or decisions about how scarce resources are used.

The need for choice in allocating resources

Resource allocation involves making choices or decisions about how scarce natural, labour and capital inputs are to be used or distributed among competing areas of production. Resources have a host of possible uses. For instance, should resources be devoted to the production of childcare centres or freeways, to national defence or to primary production, or to the production of consumer goods or to making capital equipment? We must decide how to use our limited resources as efficiently as possible because relative scarcity means that we cannot have all the goods and services that we want. Given that we cannot have all things in unlimited quantities, individuals and nations are forced to make difficult choices between alternative or competing areas of production. This raises the problem of opportunity cost.

Opportunity cost and its role in deciding how resources are used or allocated

Opportunity costs arise out of the choices made by individuals and nations. When all available resources are fully and most efficiently used in production, a decision to produce more of one type of good or service means reduced production in some other area. This sacrifice in production is required to free up scarce resources. The opportunity cost is therefore the cost of the benefit forgone or given up when resources are used in the production of the next best alternative good or service.

Opportunity cost can be measured in different ways. For instance, a particular choice involves the cost in dollar terms, the cost in time, and external costs — these are costs transferred to others (such as the cost to your neighbours of lost sleep when you decide to have a noisy party).

Opportunity cost is commonplace, for individuals as well as nations and governments.

- **Opportunity costs for individuals.** For example, your wise choice to use your time to study a great subject like economics may mean that you were forced to forgo having fun in, say, chemistry or biology. Alternatively, your decision to stay at school until the end of Year 12, so that you can benefit from tertiary study, may mean sacrificing income that you could have earned by having a full-time job, along with the cost of paying your school fees.

- **Opportunity costs for nations and governments.** In 2016–17 for example, the Australian government planned to spend around $27 billion on defence. While this decision has benefits and some of society’s wants could be satisfied from it, it is a sobering thought to reflect on how these same resources could have been redeployed or reallocated. It is likely that welfare, childcare, health and industry assistance all suffered cutbacks because of this decision. Environmental opportunity costs also result from various economic activities in Australia, especially coal-generated power, product packaging, aspects of the timber industry, a transport system dependent on the private motor car, water usage and irrigation-based agriculture in arid regions, and aviation and tourism. These activities are linked with the cost of accelerated global warming and serious climate change.

Perhaps you might like to consider the opportunity cost of a decision to allow expanded uranium mining in Kakadu National Park (Northern Territory) or further woodchipping in the Otways (Victoria) or in Tasmania.

Given that a decision to produce one type of good or service can adversely affect the output of another, it is important that the production options are carefully weighed. Increasingly, firms and governments use cost–benefit analysis to assist them in making choices that minimise opportunity costs. Failure to consider such matters results in overall lower living standards than could otherwise be the case.

The production possibility diagram

Let us now see how the concept of economic choice and opportunity cost can be shown diagrammatically.

Constructing a production possibility diagram

Scarcity results in limited production and the need for choice, and choice results in opportunity costs. Economists sometimes use a production possibility diagram to illustrate the concept of the opportunity cost involved in making various choices or economic decisions about how resources might be used or allocated. The production possibility diagram in figure 1.3 has been drawn using the table of data below the diagram. It shows nine production combinations (A, B, C, D, E, F, G, H and I) that are theoretically possible for a nation when all available resources are used efficiently.

For simplicity, assume that a hypothetical country can produce only two types of output:
1. **goods** (see the horizontal axis on the graph)
2. **services** (see the vertical axis on the graph).
Let us also assume that all the scarce resources currently at this country’s disposal are fully employed and that they are used in the most efficient way permitted by current ‘best practice’ in production.

Using the information provided in the table in the lower part of figure 1.3, it is possible to draw the production possibility frontier (PPF) representing the productive capacity for our hypothetical country in the year 2017. This frontier shows the potential production combinations possible (the nation’s productive capacity) for goods and for services, given the full employment of existing resources and the application of the best available technology. This means that it is currently not possible to produce higher combinations of production that lie outside the PPF although as explained later, this might be possible in the future with access to more resources or a rise in efficiency.

![Diagram](https://via.placeholder.com/150)

**FIGURE 1.3** Production possibility diagram for the hypothetical country in 2017

Using these statistical data and given the assumptions that have already been stated, let us examine some of the many possible production options for this country. On this diagram, a move along the PPF to the right indicates that the country is producing more goods and this means giving up the production of some services. However, a movement along the PPF upwards and to the left means the country has decided to produce more services by sacrificing some production of goods.
For example, at production possibility A, it is clear that this country can produce a maximum of 10 billion units of services annually, provided that it cuts production of goods to 0 units. In this instance, to obtain the benefit of 10 billion units of services, the opportunity cost involves forgoing 4 billion units of goods.

By contrast, at production possibility I, the country could produce a maximum of 4 billion units per year of goods, but only if a decision is made to reduce the production of services to 0 units per year. This choice involves an opportunity cost of sacrificing a huge 10 billion units of services. This applies since, with scarce resources in a fully employed economy, it is not possible for the nation to produce maximum quantities of both goods and services at the same time.

Between the two production combinations A and I, there are many other choices or production possibilities available (B, C, D, E, F, G and H) that help to make up the PPF. The PPF thus shows the physical limits to a nation’s production when all the available resources are used efficiently. Unfortunately, all these production choices involve an opportunity cost.

**Showing an efficient allocation of resources that maximises living standards**

Generally all possibilities on the PPF are efficient, but there is only one point that is most efficient. An **efficient allocation of resources** (called allocative efficiency) is defined as a desirable situation where our scarce resources are used to produce particular types of goods and services that best maximise the overall satisfaction of society’s needs and wants, wellbeing or living standards (both in the short and long terms). In this situation, it is also likely that the level of national production or GDP would be at its maximum because efficiency implies that the greatest output of goods and services is obtained from the available inputs or resources. By contrast, an **inefficient allocation of resources** is one where the general satisfaction of society’s wants could be increased simply by changing the way resources are used or the types of goods and services that are produced.

Apart from allocative efficiency (using resources in ways that maximise society’s satisfaction), there are also at least three other ways of describing economic efficiency:

- **Productive or technical efficiency** implies using the lowest cost production methods, and minimising wastage of resources in making goods and services.
- **Dynamic efficiency** occurs when resources are reallocated quickly to increase choice and meet the changing needs of consumers.
- **Intertemporal efficiency** refers to finding the optimal balance between current consumption or the spending of income versus saving income to finance investment and hence future consumption.

The question is, which production combination would represent the most efficient allocation of resources for a nation and where would this be located on our production possibility diagram? In other words, which decision or choice minimises the opportunity cost so that total production, satisfaction and material living standards are maximised?

Assume that each unit of goods and services produced in our hypothetical country was of equal dollar value ($). Can you work out which choice in resource allocation (one of A, B, C, D, E, F, G, H or I) is most efficient? The correct answer is production possibility C since the total potential value of national output of services (9.4 billion units) plus goods (1 billion units) would equal a total volume of production of 10.4 billion units. This choice would maximise national output and income, as well as the satisfaction of society’s wants and economic wellbeing, since no other possible allocation of resources can match this output. Although combinations F, G and H are all poorer choices, the worst and least efficient choice of all would be possibility I. This is because the total annual national volume of goods and services produced would be only 4 billion units. In other words, using the same resources, output levels are 6.4 billion units less (10.4 billion units minus 4 billion units) at possibility I than at possibility C. Here, resources are clearly not being allocated efficiently.

**Showing decisions or choices that result in unemployment**

Another inappropriate and wasteful decision would be the choice of a point somewhere inside the production possibility frontier (in figure 1.3, see the shaded area underneath the frontier). This decision would mean that the combined production levels of both goods and services (GDP) would be too low to ensure that all resources are fully employed. Here there would be unemployment of labour and other inputs, and material living standards would thus be reduced.

**Increasing the nation’s productive capacity and living standards**

Points outside the production possibility frontier, such as point X in figure 1.3, cannot be obtained currently because of the lack of resources available. This limits the level of economic or productive activity. Indeed, any attempt to purchase such large quantities of both goods and services would result in widespread shortages and generally rising prices (inflation). This would reduce material living standards and society’s wellbeing.

However, if there was an increase in the quantity (volume) and quality (efficiency) of productive resources available in the future — such as through foreign investment, immigration, exploration for and discovery of more natural resources, new technology, increased efficiency and improved skills of the labour force through
education and training — the whole production possibility frontier could grow and shift outwards. The nation’s productive capacity would then become greater, enabling, say, point X to be reached without adverse consequences.

**Influences on the choices or economic decisions made by individuals, businesses and governments**

Individuals, businesses and governments make choices or economic decisions every day that take opportunity costs into account. Each group realises that its resources are scarce and hence all decisions made involve an opportunity cost — giving up one good or service in order to free up resources for an alternative use. In so doing, each group is influenced by many factors.

**Choices and decisions by individuals**

Individuals generally make decisions to maximise their overall satisfaction and to minimise their opportunity cost. For example, when you decide to go to the cinema, an opportunity cost might be that you can’t go surfing or get takeaway. These decisions made by individuals are based on many factors:

- limited level of disposable income
- personal tastes and beliefs
- advertising and fashions
- seasonal conditions
- rational and non-rational behaviour
- government decisions.

**Choices and decisions by businesses**

Businesses, too, make economic decisions or choices about how to use their resources. For example, there is a potential opportunity cost when a farmer decides to produce wheat rather than canola, or to buy new machinery. This sort of decision might reflect the following:

- production costs and profitability
- decisions of rival firms in their industry
- community feelings and opinions
- government decisions and policies.

**Choices and decisions by governments**

Governments also have to make choices or economic decisions involving the allocation of resources and opportunity costs. For instance, a decision to be more generous with welfare benefits for the neediest members of society is likely to mean a reduction in resources available for schools or health or defence. Such decisions could be motivated by various considerations:

- political survival and election promises
- voter attitudes and expectations
- the political party’s values
- a desire to correct problems that would otherwise occur if nothing was done.

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**Weblinks** The weblinks in these activities are available in this topic’s student resources tab.

- Economics made easy — Lesson 1: Scarcity
- Opportunity cost
- Opportunity cost song
- Production possibilities curve
- Shifting the production possibilities curve (PPC)
- EconMovies 3 by ACDC: *Monsters Inc.* (production possibilities curve)
- Introduction to economics

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**CHECK YOUR UNDERSTANDING**

1 Given scarcity, why is it necessary for society to make choices or decisions?
2 What is opportunity cost and why does it arise? Give two examples.
3 What factors affect the size of a nation’s production possibility frontier?
4 Explain what is meant by an efficient allocation of resources.
1.4 The nature and general effects of markets in Australia’s economy

Australia has a contemporary market capitalist economy or economic system. Among other things, this means that most of the important economic decisions are made through the operation of markets rather than through centralised government economic planning as still occurs in a few countries like North Korea. So what exactly do we mean when we refer to ‘markets’?

Definition and nature of markets

A market is an institution where buyers (consumers or demanders including households, businesses and governments) of goods and services, and sellers (producers or suppliers including businesses and governments) of goods and services, negotiate the price for each good or service. A market can exist in a particular physical location (such as the Queen Victoria Market) although, with the internet, buyers and sellers do not have to meet face to face. In Australia’s market economy, there are hundreds of different markets, each with buyers and sellers. Examples include the labour market, the capital or financial market, the foreign exchange market, the property market, the grocery market, the stock market, the entertainment market, the fruit market, the fish market, the aviation market, and commodity markets such as those for wool, wheat, coal or iron ore.

Markets are usually based on self-interest and competition. Typically the buyer wants to purchase a good or service at the lowest possible price, while the seller wants to sell at the highest price. As in a property auction, this process of price negotiation between buyers and sellers is one of trial and error, offer and counteroffer, until a mutually agreed market price is reached. The good or service will be sold to the buyer who is prepared to pay the highest price, by the seller who is prepared to accept the lowest price.

Over a period of time, market prices for a particular good or service might rise or fall. This is due to changing conditions that affect the decisions of buyers and sellers. If there are more buyers and/or fewer sellers, the market price rises. Conversely, if there are fewer buyers and/or more sellers, the market price falls. Figure 1.4 illustrates the changeable level of prices in Australia’s property and share markets in recent years. When market prices like these change, they generate signals that help owners of resources make important economic decisions.

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**Figure 1.4.** Housing prices in Australian cities and Regional*. Log scale

*Excludes apartments; measured as areas outside of capital cities in mainland states

Sources: CoreLogic RP Data; RBA
As we shall soon see, when market prices like these change upwards or downwards, this provides signals that help owners of resources to make important economic decisions.

Types of market structure and the nature of competition

As institutions for making economic decisions, markets generally operate best or most efficiently when they are free or purely competitive. Perfect or pure competition involves rivalry between many firms in a particular market where each seller tries to undercut the price and exceed the product quality of the rival firm. However, this ideal situation is not always the case in our economy. Indeed, there is a variety of market structure. Here, the concept of market structure refers to the type of competition (pure competition, monopolistic competition, oligopoly or pure monopoly) that exists in a particular market. Indeed, markets are often characterised or distinguished by the following features:
• the number of rival firms operating in a market
• how much market power or control a particular firm has in affecting their level of prices
• the ease of entry or start up, or exit of firms
• the importance of product differentiation and advertising
• the level of information or knowledge that exists about the market and its conditions.

As summarised in Figure 1.5, there are four types of market structure ranging from pure competition (many rival firms) at one extreme, through monopolistic competition, to oligopoly and pure monopoly (one seller that controls the market and sets prices) at the other extreme. Each structure has different characteristics.

A closer look at the features or preconditions for a purely competitive market

As mentioned, markets usually work best if there is strong competition between sellers and between buyers. However, in addition to this requirement, markets generally make better decisions when more of the following preconditions are met:
• Consumer sovereignty exists. Consumer sovereignty means that consumers of goods and services, not governments, dictate how resources will be used. Consumers make individual decisions about the goods and services they choose to buy and those they choose to reject, and collectively these decisions determine how much of Australia’s resources are allocated (nowadays about 80 percent). This affects relative prices and relative profits in different areas of production, and hence the decisions made by businesses. Consumer sovereignty is the most important precondition of a purely competitive market.
• Firms have little market power or control over prices. Because there may be hundreds of firms producing identical products with a miniscule share of the market, businesses have no market power and their actions are unable to influence prices. They are therefore price takers in a purely competitive market (unlike firms in a monopoly, who are price makers).
• Firms have ease of entry or exit. In a purely competitive market, there should be ease of entry by new firms wishing to start up, and ease of exit for existing firms to leave the market if they want to change...
the things they produce. Barriers to entry — like high start-up costs, licencing laws and bureaucracy, and restrictions by well-established firms — are minimal.

- **The products are homogeneous.** In a purely competitive market, it is assumed that the products sold in a market are homogeneous. This means they are identical and not differentated using brand names, design differences or advertising. This may be hard for us to imagine but sections of primary industry such as grains, and perhaps a company’s shares traded on the stock market, come closest to the mark.

- **Resources are mobile.** When relative prices change in a market, resources will either be attracted to or repelled from that market, depending on what the change in price does to the level of relative profits. In a purely competitive market, it is assumed that resources are mobile. Mobile resources can be easily and quickly moved from one use to another.

- **Behaviour is rational and includes profit maximisation.** Owners of resources in a purely competitive market are assumed to engage in rational behaviour and want to maximise their profits or incomes. They do this by minimising production costs, producing things that are wanted by consumers, and selling these at the highest possible price. Consumers or buyers are also assumed to make decisions that are in their own self-interest.

- **There is perfect knowledge of the market.** Since buyers and sellers are guided by changes in relative prices, a market system can operate effectively only when buyers and sellers have perfect knowledge of the market. Armed with this information, they can then make rational decisions about how resources should be used. Looking at this formidable list, one would struggle to find examples of purely competitive markets that tick all the required boxes. However, there are some markets that come close and it is a useful theoretical starting point for further investigations into the operation of the market system.

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**FIGURE 1.5** The range of market structures reflects the level of competition and other features found in each type of market.

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### The effects of market structure on efficiency

The nature of market structure, and the concentration of market power among firms, have massive significance for Australia’s economy and our general prosperity.

#### The effects of monopolies

It is true that high levels of market concentration or market power, which occur with monopolies or oligopolies, can occasionally be a good thing. Sometimes large-scale operations can deliver better per unit cost reductions and lower prices, and undertake more innovative research and development, than small to medium-sized businesses. These companies can bring significant benefits. Sometimes too there are natural monopolies (for example, water authorities, power delivery, rail tracks, broadband network cables and toll roads). Here, the
start-up investment needed is too big and the market too small to support rival firms. It just wouldn’t be practical or efficient to have several suppliers.

Despite these benefits, sometimes the problems of defective or weak competition can be even greater:

- **Higher prices.** Prices of goods and services are often relatively higher when there is weak competition (for example, in markets where there are oligopolies and monopolies). In Australia, for instance, market power is high in areas like banking, groceries, fuel, utilities and some services.
- **Poor quality and service.** Degraded competition between firms often reduces the quality of the goods and services we purchase, along with the level of customer service and satisfaction.
- **Reduced efficiency and slower rates of economic growth.** In markets where competition is weak, there is less rivalry between firms to survive and innovate, and perhaps less need to cut costs or use resources efficiently. This can slow down the rate of economic progress and living standards.
- **Reduced international competitiveness.** The absence of strong competition can reduce our international competitiveness and ability to export because business and worker efficiency tends to be lower, and costs and prices higher.

**The effects of strong competition**

As we shall soon see, governments use a range of policies to strengthen competition. These include:

- deregulating key markets
- reducing the barriers to entry for new firms
- promoting better access to knowledge and full disclosure of information about products and market conditions
- promoting trade liberalisation to reduce the level of protection of local industry from overseas competition
- using the Australian Competition and Consumer Commission (ACCC) to enforce the **Australian Competition and Consumer Act (ACCA)**, which is designed to help promote stiffer competition between firms and reduce price collusion.

All this raises the question, ‘Are fiercely competitive markets any better than those where competition is weak?’ The answer here is, generally, yes. This is why economists usually urge governments to make the promotion of competition in our economy a high priority.

**Strong competition: higher efficiency**

Efficiency must be considered when decisions are made about how we should use our scarce resources so as to maximise the general satisfaction of society’s wants and living standards. Efficiency means there is more national output gained from a given quantity of factor inputs. There are powerful reasons why efficiency is more likely to be at its highest when there is strong competition:

- With many rivals and no power to set prices, firms in competitive markets need to find ways to cut costs and to produce more with less. They are forced to have **allocative efficiency** to ensure they use their resources in ways that minimise the opportunity costs of their decisions.
- To survive, firms need to innovate by using the latest technology. This leads to **productive or technical efficiency**.
- Firms need to be even more responsive to rapid market shifts in fashions, products and customer requirements. This leads to increased **dynamic efficiency**.
- Strong competition in various markets can lead to **intertemporal efficiency** where there is the right balance between resources allocated for current consumption, as opposed to those set aside through saving and investment for future use.

Indeed, for these and other reasons, national output and hence average incomes are usually higher when there is strong competition.

**Strong competition: lower prices**

Strong competition and rivalry between firms in various markets and industries, is most likely to lead to higher efficiency (for the reasons already noted above), along with lower costs and prices for goods and services. Firms in competitive markets are **price takers** rather than **price makers**, so exploitation of consumers through artificially higher prices is impossible. As a result of lower prices, consumers will have more purchasing power and generally higher consumption levels and material living standards.

**Strong competition: better quality and improved service**

In general, strong competition between firms to win over customers, along with improved efficiency, is likely to lead to the creation of better quality products. After all, unhappy customers can choose from many other rival suppliers if they feel they are getting shonky items and poor service from staff. This too helps improve living standards.

**The effects of too much competition**

There are, however, some extreme cases where competition can be excessive, with negative repercussions. For example, aggressive cost cutting by profit-hungry rival firms struggling to survive (such as often occurs in aviation, manufacturing and food production) may, in the short term, actually reduce public safety, product durability, quality assurance and customer satisfaction. Governments need to safeguard against these dangers when introducing policies to promote competition.
Weblinks The weblinks in these activities are available in this topic’s student resources tab.

- Introduction to market structures
- Market structures
- EconMovies 8: The Dark Knight (oligopolies and game theory)
- EconMovies 7: Anchorman (efficiency and market failures)

CHECK YOUR UNDERSTANDING

1. What type of economic system do we have in Australia and what are its main features?
2. Explain what is meant by a market.
3. What is meant by the term market structure? Show this diagrammatically.
4. Describe the key distinguishing features of the following types of market structure, giving an example of each type.
   a. Purely competitive
   b. Monopolistic competition
   c. Oligopoly
   d. Pure monopoly
5. What are the main advantages of a purely competitive market?
6. What are the main disadvantages of a monopoly-type market?

APPLIED ECONOMIC EXERCISES

Apply your understanding of this subtopic by accessing and completing the Applied economic exercise(s).

- School-assessed coursework > Applied economic exercises > Question 3

1.5 Microeconomics: the market as an important decision maker in Australia’s economy

As discussed earlier, Australia has a market capitalist economy. Here, most of the important economic decisions are made through the free interaction of individual buyers and sellers of goods and services — in thousands of markets, 24 hours a day — rather than through centralised government economic planning.

Australia has a market economic system or economy. This means that rising or falling prices in thousands of different markets, both in Australia and overseas, provide price signals or instructions to the owners of resources. Based on these price signals, the owners can make key economic decisions in order to help them maximise their profits and satisfy people’s wants. The share or stock market is one of the markets used to help make decisions. Share prices can suddenly plunge, causing panic selling from investors wanting to get out of the market. Both rising and falling share prices will affect the investment decisions made by owners of financial resources.
There are three key economic questions (or decisions) that are largely answered through the operation of our market system:

1. The ‘what and how much to produce’ question. The market is used to make most decisions about the specific types and quantities of each good (such as chocolate bars, tourist accommodation, butter, guns) or service (such as education, health, finance, entertainment) that is to be produced.

2. The ‘how to produce’ question. The market helps to make decisions about the specific production method to be used by a business (the combinations of labour and capital equipment) in order to make each particular good or service.

3. The ‘for whom to produce’ question. The market helps to make decisions about how the nation’s goods, services and incomes will be shared or divided between members of society. Here, people’s incomes largely depend on the value of their economic contribution in the market.

Figure 1.6 provides an overview of how the market system operates to make these three key economic decisions.

Step 1 Because of scarcity, people cannot have all the goods and services they would like. This forces them to choose between competing wants. In a market economy, these choices or decisions are made through the operation of the market system (also called the price system or market mechanism) involving the forces of demand and supply.

Step 2 Together, consumers/buyers (demand) and producers/sellers (supply) negotiate the equilibrium market price of each good or service, similar to what occurs in an auction. This establishes relative prices: the price level of one good or service compared with that of another. However, when the conditions affecting buyers (i.e. demand) and/or conditions affecting sellers (i.e. supply) change in the market and create either a market glut or a shortage, this causes the equilibrium market price to either rise or fall, thus generating price signals. These signals provide information or instructions to the owners of resources, helping them to make key decisions guided by self-interest.

Step 3 Profit-seeking owners of natural, capital and labour resources watch these price signals and use them to help make key decisions about how they should allocate resources. For instance, the signals help them to select the type and quantity of particular goods or services to produce (‘What and how much to produce?’). The signals also help them to decide the cheapest, lowest cost and most profitable production methods (‘How to produce?’), as well as deciding how the goods, services and incomes should be shared or distributed (‘For whom to produce?’).

- If there is a rise in the market price for a particular good or service, relative to the price of other items, the production of this product becomes relatively more profitable and attracts more resources into this type of production (assuming that firms’ production costs or the prices paid for resources have not changed, especially in an upwards direction). This would lead to higher levels of production and income for those in this industry.

- If there is a fall in the final equilibrium market price of a particular good or service, relative to that for producing other items (assuming there is no change in firms’ production costs or prices paid for resources, especially not downwards), the production of this item becomes relatively less profitable. This would tend to repel resources and cut production, along with the incomes of those connected with this industry.

**FIGURE 1.6** How Australia’s price or market system makes key economic decisions and allocates resources

With this general background in mind, we are ready to drill deeper into our study of microeconomics. Remember that microeconomics focuses on the behaviour of the smaller units (consumers, firms, an individual market, an industry) that make up our overall economy; what motivates their choices and what are the effects of their decisions. In contrast, macroeconomics (described in detail in topic 2) examines the combined decisions occurring in all markets that make up the overall economy and determine levels of national production, employment and inflation.

Our study of microeconomics will involve a closer look at:

- buyers and the law of demand
- sellers and the law of supply
- market equilibrium
- changes in market equilibrium
- the allocation of resources

Some of our analysis will involve the use of demand-supply diagrams. These are used to represent particular markets and the behaviour of buyers and sellers in them.

**Buyers and the law of demand**

 Buyers are an important group in any market. They demand or want to purchase goods and services. This group might include consumers like you or me, businesses or even governments. Perhaps the most important thing to note is that buyers in a market are greatly affected by price. They are more willing to purchase a good or service at a lower price rather than at a higher price. This observation is expressed in the law of demand.
The law of demand

The law of demand states that the quantity of a particular good or service that buyers are prepared to purchase varies inversely (in the opposite direction) with the change in price. Hence:

- As the price increases, there is a contraction in the quantity demanded.
- As the price decreases, there is an expansion in the quantity demanded.

There are good reasons why consumers behave like this. For example, as the price rises, demand contracts because

- the good or service becomes less affordable for most, and thus fewer people have the necessary money to spend on it
- the good or service becomes less desirable and the sacrifice or opportunity cost increases, thus reducing satisfaction and demand.

Drawing the demand line or curve

Using the table of hypothetical data for the demand of wool shown in figure 1.7, the relationship between the quantity demanded and the price can be illustrated diagrammatically.

**FIGURE 1.7** The law of demand for wool and the demand line

- When the data for points A, B, C, D and E in the table are plotted on a graph (see figure 1.7), the resulting demand line drops down and to the right. It thus has a negative slope which visually illustrates the law of demand.
- A move upwards along the demand line (from point A and progressing through B, C and D to point E) is called a contraction in demand and is caused only by a rise in price. In this case, demand contracts from 25,000 million kilograms per year at a price of $2 per kilogram (point A), to only 5000 million kilograms per year if the price rises to $10 per kilogram (point E).
- In reverse, a move downward along the demand line (from point E and progressing through D, C and B to point A) is called an expansion in demand and is only caused by a fall in price. In this case, as the price falls from $10 to $2 per kilogram, there is an expansion in the quantity demanded from 5000 to 25,000 million kilograms.

It is really important to understand that these movements along the demand line (called an expansion or contraction in the quantity demanded) are caused solely by a change in price. It is also worth pointing out that for simplicity the demand line for wool has been drawn as a straight line, even though in reality it would usually be a concave curve (that is, a demand curve).
While our example here has been the demand for wool, the same sort of buyer behaviour could be expected for any other good (such as grapes, hot dogs, soft drinks, TVs or iron ore) or service (such as finance, medicine, skiing instruction, gardening or entertainment) in a fairly competitive market.

**Sellers and the law of supply**

Sellers are also an important group in any market. They sell or supply goods or services. This group might include individuals, firms and governments. Price is perhaps the most important thing affecting suppliers. They are more willing to produce and sell a good or service at a higher price rather than at a lower price. This observation is expressed in the *law of supply*.

**The law of supply**

The *law of supply* states that the quantity of a particular good or service that sellers are prepared to produce varies directly (in the same direction) with the change in price. Hence:

- As the price increases, there is an *expansion* in the quantity supplied
- As the price decreases, there is a *contraction* in the quantity supplied.

Again, there are good reasons why suppliers behave like this. For example, as the *price rises*, supply expands because

- revenue normally increases, making the production of that particular good or service more attractive and profitable than if it is sold at a lower price
- firms are more confident and better able to cover any rises in their production costs
- the opportunity costs of producing another good or service rise, making it more profitable to reallocate resources away from other uses so that output can be increased, thus expanding supply.

**Drawing the supply line or curve**

Using the table of hypothetical data for the supply of wool shown in figure 1.8, the relationship between the quantity supplied and the price can be illustrated diagrammatically.

![Supply Line Diagram](image)

<table>
<thead>
<tr>
<th>Price of wool per kg ($)</th>
<th>Quantity of wool supplied per year (million kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.00/kg</td>
<td>5 000 million kg</td>
</tr>
<tr>
<td>$4.00/kg</td>
<td>10 000 million kg</td>
</tr>
<tr>
<td>$6.00/kg</td>
<td>15 000 million kg</td>
</tr>
<tr>
<td>$8.00/kg</td>
<td>20 000 million kg</td>
</tr>
<tr>
<td>$10.00/kg</td>
<td>25 000 million kg</td>
</tr>
</tbody>
</table>

*FIGURE 1.8* The law of supply for wool and the supply line

- When the data for points A, B, C, D and E in the table are plotted on a graph (see figure 1.8), the resulting supply line slopes up and to the right. It thus has a positive slope which visually illustrates the law of supply.
• A move upwards along the supply line (from point A and progressing through B, C and D to point E) is called an expansion in supply and is caused only by a rise in price. In this case, supply expands from 5000 million kilograms per year at a low price of $2 per kilogram (point A), to a huge 25 000 million kilograms per year if the price rises to $10 per kilogram (point E).

• In reverse, a move downward along the supply line (from point E and progressing through D, C and B to point A) is called a contraction in supply and is only caused by a fall in price. In this case, as the price falls from $10 to $2 per kilogram, there is a contraction in the quantity supplied from 25 000 to just 5000 million kilograms per year.

Again, it is really important to understand that these movements along the supply line (called an expansion or contraction in the quantity supplied) are caused solely by a change in price. It is also worth pointing out that for simplicity the supply line for wool has been drawn as a straight line, even though in reality it would usually be a concave curve (that is, a supply curve).

While our example here has been the supply for wool, the same sort of seller behaviour could be expected for any other good (such as grapes, hot dogs, soft drinks, TVs or iron ore) or service (such as finance, health, education, gardening or entertainment) in a fairly competitive market.

### Determining the market equilibrium price

As we have seen, buyers prefer to purchase at a relatively low price, while suppliers prefer to sell at a relatively high price. This apparent conflict of interest is resolved by the operation of a competitive market. Indeed, there is only one price on which both buyers and sellers agree and are reasonably satisfied. This is called the equilibrium market price. At equilibrium, the quantity demanded exactly equals the quantity supplied for a given period of time. There is neither a market glut nor a market shortage.

As seen in figure 1.9, apart from the equilibrium price of $6 per kilogram (row C in the table), there is no alternate market price where this compromise can occur. Only at this price is both the quantity demanded and the quantity supplied exactly equal to 15 000 million kilograms per year. Both buyers and sellers are happy with the deal and the market is nicely cleared of either a shortage or a surplus.

![A demand–supply graph showing how the free operation of market forces determines the equilibrium price of wool](image-url)
The process of actually reaching market equilibrium is a simple one.

- **At prices below equilibrium.** At the very low price of $2 per kilogram (see row A in the table), equilibrium cannot occur simply because 25,000 kilograms per year are demanded yet only 5000 kilograms are supplied at that price. An exceedingly low price like this creates a market shortage of 20,000 million kilograms, making buyers very unhappy. In order for this shortage to be resolved, the price of wool needs to rise. As the price moves upwards, there is a contraction along the demand line as well as an expansion along the supply line (the laws of demand and supply apply) until this shortage disappears and the market reaches the equilibrium point where demand and supply are exactly equal.
- **At prices above equilibrium.** Equilibrium is also not possible at an excessively high price of $10 (see row E in the table). The problem here is a market surplus or glut of 20,000 million kilograms. This arises due to a demand of only 5000 million kilograms compared with a supply of 25,000 million kilograms at that price. Sellers would be most unhappy. In a free and competitive market, this problem would soon disappear as the market price decreased. As this happens, demand would expand and supply would contract, restoring equilibrium where the quantities demanded and supplied were again exactly equal.

In our analysis so far, we have seen that market forces involving demand and supply determine the actual equilibrium price for wool. However, the same explanation would apply to the price paid for any type of good or service in a competitive market — whether for oranges, property, company shares, an airfare, a plumber, a soft drink or a hamburger. All competitive markets operate the same way.

**Changes in the equilibrium price**

Looking around us, we notice that the prices of most goods and services are always changing from week to day to day, and even hour to hour. This is the result of changes in the level of demand and level of supply for each good or service as buyers and/or sellers react to changing circumstances that affect their economic decisions.

- **Changing microeconomic demand-side conditions** can cause buyers to purchase a greater or smaller quantity of a particular good or service at all possible prices. This will shift the position of the whole demand line either to the right of the original line (showing an increase in demand at a given price) or to the left (showing a decrease in demand at a given price).

- **Changing microeconomic supply-side conditions** can cause sellers to produce a greater or smaller quantity of a particular good or service at all possible prices. This will shift the position of the whole supply line either to the right of the original line (showing an increase in supply at a given price), or to the left (showing a decrease in supply at a given price).

By altering the position of the demand line and/or the supply line, changes in non-price demand-supply conditions will bring about a change in relative prices (the price level of a particular good or service relative to that of another). This has a knock-on effect by altering the relative profitability of producing a particular good or service, causing scarce resources to then be reallocated among competing uses by their profit-seeking owners.

**A shift in the whole demand line caused by new conditions of demand**

There are non-price microeconomic factors or conditions of demand. These conditions might either increase or decrease the quantity of a particular good or service that buyers are prepared to demand at a given price, leading to either an increase or a decrease in the demand line on the demand-supply diagram. These include the following:

- **Changes in disposable income.** In general, having more disposable income (such as after a pay rise, an increase in welfare benefits or a tax cut) tends to increase the demand for particular types of goods and services at any given price. By contrast, a cut in disposable income generally lowers the quantity demanded at all possible prices. However, there are exceptions. For instance, a cut in disposable income might actually increase the demand for lower quality substitutes to replace the more expensive ones.

- **Changes in population size and age distribution.** Generally, a rise in population will increase the demand for most types of goods and services at a given price, whereas a decline in population would be expected to reduce demand. Australia’s population is ageing, with a larger proportion of people in older age groups relative to younger age groups. This has mixed effects — increasing the demand for some things (such as aged care) but decreasing the demand for other things (such as nappies and children’s games). Similarly, the population shift towards capital cities has meant a rise in the demand for goods and services in the cities and a fall in demand in rural and regional areas.

- **Changes in fashions and tastes.** Over time, some goods and services become more fashionable and wanted. Technology and the advertising of new products (such as for the latest digital devices and trendy clothing) play an important role in increasing the demand at a given price. By contrast, other things become obsolete and face a falling level of demand by consumers.
• Changes in interest rates on borrowed money. Some people and businesses need to borrow money (known as credit) from banks and pay interest on that money in order to finance their spending. Expensive items like houses, cars and holidays are especially sensitive to changes in interest rates. Generally, higher interest rates will lower the demand at a given price for these types of goods and services, while lower interest rates tend to increase demand. Interest rates on credit card balances can also have some effect on the demand line for such products.

• Changes in the price of substitutes. Substitutes are a particular good or service that can be easily replaced by another. Margarine, for instance, can be a substitute for butter, and cotton can be a substitute for wool. When the price of the original product being purchased goes up, buyers sometimes switch to a cheaper substitute. This decreases the demand for the original item at a given price but increases the demand for the substitute.

• Changes in the price of complementary goods and services. Complementary goods and services are those used or bought at the same time. For example, the purchase of a new car also leads to an increase in the demand for fuel, tyres, motor mechanics, accident repairers and roads. Hence when the price of a car rises, the demand for complementary goods and services is likely to decrease.

• Changes in the levels of consumer and business confidence. Confidence levels relate to how households and businesses feel about their future economic situations and conditions. This affects whether they spend or save, which in turn will affect the level of demand for particular types of goods and services. Recent pessimism about the future has been reflected in a slower rise or even a decline in the demand for some goods (new cars and household items, and new business equipment) and services (entertainment and holidays).

• Changes in the seasons. In summer, the demand rises for products such as ice cream, surfboards and air conditioners, while the onset of winter might see a rise in the demand for products such as snow skis, cough medicine, electric blankets, footballs and woolen jumpers.

• Changes in government policy and regulations. Governments sometimes find it necessary to affect the demand for particular goods and services. They might do this through spending outlays and taxes in the budget, or through legislation. For instance, government spending on transport might generate a rise in the demand for building and road-making materials, along with the demand for workers. Cash subsidies can be used to encourage households or businesses to increase their demand for some items like solar panels or rainwater tanks. Alternatively, bans, taxes or restrictions on consumption can be used to reduce the demand for socially undesirable goods and services.

**The effect of a decrease in demand**

When the conditions of demand weaken or become less favourable, this decreases the quantity of a particular good or service that buyers are willing to purchase at any given price. As a result, the whole demand line for the market will shift down and to the left of the original line.

Let us return to the example of the wool market shown in figure 1.10 (diagram A). When the demand for wool decreases because of new weaker conditions (perhaps due to the onset of summer or the availability of cheaper substitutes), this shifts the position of the whole demand line from $D_1$ to $D_0$. As a result, the equilibrium price of wool falls from $P_1$ to just $P_0$. This fall in the equilibrium price is necessary to clear the market glut or surplus (note the small shaded triangular area where the quantity supplied exceeds the quantity demanded) that would exist if the price had remained at $P_1$. As the price drops towards $P_0$, demand expands and supply contracts (the operation of the laws of demand and supply) until the new lower equilibrium price ($P_0$) is reached where demand again equals supply. Notice also that there is a fall in the equilibrium quantity from 15 000 (at $Q_1$) to 12 500 million kilograms a year (at $Q_0$). These new equilibria will prevail in the market unless the conditions of demand again change.

**The effect of an increase in demand**

When the conditions of demand strengthen and increase the quantity of a particular good or service that buyers are willing to purchase at any given price, the whole demand line for the market will shift up and to the right of the original line.

Again, let us return to the example of the wool market shown in figure 1.10 (diagram B). When the demand for wool increases because of new stronger conditions (perhaps due to a new fashion trend favouring long woollen dresses rather than miniskirts, or a rise in disposable income), this shifts the position of the whole demand line from $D_1$ to $D_2$. As a result, the equilibrium price of wool rises from $P_1$ to $P_2$. This rise in the equilibrium price is necessary to clear the market shortage (note the small shaded triangular area where the quantity demanded exceeds the quantity supplied) that would exist if the price had remained at $P_1$. As the price rises towards $P_2$, demand contracts and supply expands (the operation of the laws of demand and supply) until the new higher equilibrium price ($P_2$) is reached where demand again equals supply. Notice also that there is a rise in the equilibrium quantity from 15 000 (at $Q_1$) to 17 500 million kilograms a year (at $Q_2$). These new equilibria will prevail in the market unless the conditions of demand again change.
A shift in the whole supply line caused by new conditions of supply

Just as buyers react to changing non-price circumstances, sellers also respond to various microeconomic factors or conditions of supply. These conditions might either increase or decrease the quantity of a particular good or service that sellers are prepared to supply at any given price, leading to either an increase or a decrease in the supply line on the demand–supply diagram. There are a number of common microeconomic supply-side conditions that can shift the position of the whole supply line:

- **Changes in the cost of resources used by businesses.** Businesses need to purchase resources (natural, labour and capital) in order to make goods and services. These purchases represent production costs. When the cost of resources increases — such as wage and other on-costs for staff like compulsory superannuation contributions; or the cost of utilities, raw materials and interest rates charged on business overdrafts — these are seen as less favourable supply-side conditions. They decrease the amount firms are willing to supply at a given price. By contrast, when the cost of resources falls, this is more favourable. Firms are now prepared to increase their supply of a good or service.

- **Changes in the application of new technology affecting productivity growth.** The use of new technology in an industry (such as automated warehouses, robotics and online trading) often lifts efficiency and therefore cuts unit production costs. This usually makes firms more willing and able to increase their supply at a given price.

### FIGURE 1.10

Graphs showing how changed market conditions that increase or decrease the demand for wool affect the equilibrium price

<table>
<thead>
<tr>
<th>Possible price ($) per kg for wool</th>
<th>Original quantity of wool demanded (D0) per year (million kg)</th>
<th>Original quantity of wool supplied (S0) per year (million kg)</th>
<th>A decrease in the quantity of wool demanded (D1) per year (million kg)</th>
<th>An increase in the quantity of wool demanded (D2) per year (million kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A $ 2.00</td>
<td>25 000</td>
<td>5 000</td>
<td>20 000</td>
<td>30 000</td>
</tr>
<tr>
<td>B $ 4.00</td>
<td>20 000</td>
<td>10 000</td>
<td>15 000</td>
<td>25 000</td>
</tr>
<tr>
<td>C $ 6.00</td>
<td>15 000</td>
<td>15 000</td>
<td>10 000 (the equilibrium price must fall to $5.00 a kg)</td>
<td>20 000 (the equilibrium price must rise to $7.00 a kg)</td>
</tr>
<tr>
<td>D $ 8.00</td>
<td>10 000</td>
<td>20 000</td>
<td>5 000</td>
<td>15 000</td>
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<td>E $10.00</td>
<td>5 000</td>
<td>25 000</td>
<td>0</td>
<td>10 000</td>
</tr>
</tbody>
</table>
• Changes in business profitability and bankruptcy rates. If bankruptcy rates in an industry fall or profitability rises, businesses become more willing to increase supply at a given price. However, increased bankruptcies and reduced profits are likely to produce a decrease in supply at a given price.

• Changes in climatic conditions affecting production. Climatic conditions affect rural and mineral suppliers. For instance, recent cyclones and floods in parts of Queensland reduced the supply of particular fruit and vegetable crops. They also forced the closure of flooded mines and destroyed infrastructure needed to transport minerals to terminals. Climate change such as the 2012–16 drought in parts of northern and eastern Australia also decreased the supply of certain commodities. By contrast, favourable weather conditions will increase the supply of some commodities at a given price.

• Changes in government assistance to business or tax rates. On the one hand, governments provide financial assistance to businesses operating in some manufacturing industries, along with funding for private schools and hospitals. This assistance helps businesses in these industries to cover some of their costs and makes them more profitable, thereby increasing supply. On the other hand, the government also levies taxes on goods sold and on the incomes of households and companies. This taxation tends to decrease the supply of particular goods and services.

The effect of a decrease in supply

When the conditions of supply weaken or become less favourable, there is a decrease in supply (the quantity of a particular good or service that sellers are willing to produce at any given price). As a result, the whole supply line for the market will shift up and to the left of the original line.

Let us again return to the example of the wool market shown in figure 2.11 (diagram A). When the supply of wool decreases because of new, less favourable conditions (perhaps reflecting the effects of severe drought or higher production costs for farmers), this shifts the position of the whole supply line from $S_1$ to $S_0$. As a result, the equilibrium price of wool rises from $6$ (at $P_1$) to $7$ a kilogram (at $P_2$). This rise in the equilibrium price is necessary to clear the market shortage (note the small shaded triangular area where the quantity demanded exceeds the quantity supplied) that would exist if the price had remained at $6$. As the price rises towards $7$, supply expands and demand contracts (the operation of the laws of demand and supply) until the market comes to rest at the higher equilibrium price ($P_2$). In addition, the equilibrium quantity falls from 15 000 (at $Q_1$) to 12 500 million kilograms a year (at $Q_2$). These new equilibria will prevail in the market unless the conditions of supply again change.

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**Diagram A**

- Decrease in supply, i.e. $S_1 \rightarrow S_0$ above
- This may be the result of weaker supply conditions:
  - reduced profitability
  - increased production costs
  - less efficient technology
  - adverse climatic conditions
  - fewer producers, sellers or firms
  - reduced producer preference and expectations
  - obstacles to production like a new tax.

**Diagram B**

- Increase in supply, i.e. $S_1 \rightarrow S_2$ above
- This may be the result of stronger supply conditions:
  - increased profitability
  - decreased production costs
  - more efficient technology
  - favourable climatic conditions
  - more producers, sellers or firms
  - increased producer preference and expectations
  - inducements to production like a subsidy.

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The effect of an increase in supply

When the conditions of supply strengthen or become more favourable, there is an increase in supply (the quantity of a particular good or service that sellers are willing to produce at any given price). The whole supply line for the market will shift down and to the right of the original line.

Again, let us return to the example of the wool market shown in figure 1.11 (diagram B). When the supply of wool increases because of new, more favourable conditions (perhaps reflecting the effects of ideal climatic conditions and plenty of feed for stock, or lower costs and better profits for farmers), this shifts the position of the whole supply line from $S_1$ to $S_2$. As a result, the equilibrium price of wool falls from $6 (at P_1)$ to just $5 a kilogram (at $P_2$). This fall in the equilibrium price is necessary to clear the market glut or surplus (note the small shaded triangular area where the quantity supplied exceeds the quantity demanded) that would exist if the price had remained at $6. As the price falls towards $5, supply contracts and demand expands (the operation of the laws of demand and supply) until the market comes to rest at the lower equilibrium price ($P_2$). In addition, the equilibrium quantity rises from 15 000 (at $Q_1$) to nearly 17 500 million kilograms a year (at $Q_2$). These new equilibria will prevail in the market unless the conditions of supply change again.

This same analysis would apply to any good or service in a competitive market where there were similar changes in demand or supply conditions. It makes no difference whether we are dealing with alterations in the conditions for wool, oranges, computers, fish, beer, electricians, minerals, the Australian dollar or even labour. All competitive markets operate the same way.

Reviewing how markets operate to make key economic decisions in the Australian economy

You may recall that Australia has a contemporary market economy where the three important economic decisions (the ‘what and how much to produce’, ‘how to produce’ and ‘for whom to produce’ questions) are answered largely through the operation of the price or market system. The main principles are again summarised below.

Five ideas about how the operation of the price system helps to make key economic decisions

1. Because we face the problem of relative scarcity, economic decisions must be made about how to allocate our resources efficiently to maximise the satisfaction of our wants.
2. As Australia has a market economy, key economic decisions are usually made through the operation of the market system, or price mechanism. This involves buyers (demand) and sellers (supply) of particular goods and services interacting to negotiate relative prices.
3. Over a period of time, changes in microeconomic demand conditions and/or supply conditions alter the quantity demanded and/or supplied for each good or service at any given price, thus bringing about a change in the level of relative prices (the price of one good or service compared with the price of another).
4. In turn, changes in the relative price of a particular good or service can affect production costs as well as its level of relative profits. Incomes will also be affected.
5. By closely monitoring the price and profit signals coming from each market, owners of resources seeking to minimise their costs, and maximise their profits and incomes, will make appropriate economic decisions about how best to allocate their scarce resources efficiently among competing uses. For example, higher relative profits will normally attract extra resources to a particular use, market or industry, while lower profits will usually repel resources.

Let us now examine in more detail exactly how the market system has answered the three main economic questions (‘what, how and for whom to produce’) faced by our economy.
Changes in relative prices alter ‘what and how much’ is produced
As discussed, markets operate to determine relative prices of goods and services through the interaction of buyers and sellers. So when the relative price of one particular type of good or service (such as wool) rises or falls against the price of another (such as wheat), this alters the relative profits made from producing each type of product. In turn, this usually dictates how Australia’s resources are allocated among competing uses and answers the ‘what and how much’ to produce question.

For instance, a rise in the relative price of a particular good or service in a market normally signals to suppliers or owners of resources that there is a general shortage or underproduction, and that buyers are keen to purchase the product. In turn, better prices gained from selling one particular type of good or service relative to the price of another will usually increase relative profits. Higher relative profits should then encourage profit-seeking owners of resources to allocate more of their natural, labour and capital resources towards this particular area of production. Attracting more resources to this relatively more profitable area may even repel resources from other areas. By contrast, a fall in the relative price of a particular good or service signals that there has been overproduction and that consumers no longer want this item. As a result, relative profits and incomes gained from this type of production will usually fall, thereby repelling resources from this particular area of production. This answers the ‘what and how much to produce’ question.

Figure 1.12 shows three examples of how the forces of demand and supply in various markets have recently affected relative prices and hence profits, thus influencing the type and quantity of particular goods and services that Australia has chosen to produce as well as the way incomes are distributed.

Changes in relative prices alter ‘how’ goods and services are produced
Markets also operate to determine the price or cost of most resources. They thus provide useful information needed by businesses to make decisions about their production methods. For instance, changes in the cost or market price of one resource relative to the price of another (such as the cost of labour relative to the price of machinery or capital resources) may alter how firms produce a particular good or service — that is, the price or market system answers the ‘how to produce’ question. This is because firms make their production decisions to try to maximise their profits and efficiency by minimising production costs (the prices of resources). So if the market price of labour resources (wages) rises relative to the price of capital resources (perhaps the interest rate or cost of credit), then producers would be likely to select the cheaper alternative of using capital equipment, so long as the capital can be substituted for labour in the production process.

The graph in part (a) shows an index of changes in rural and mineral commodity prices since 1988 (where the price index in 2014–15 equalled 100 points). Changing commodity prices have greatly affected the decisions made by owners of resources. The spectacular rise between 2005 and 2012 corresponds with the commodity boom driven by strong overseas demand relative to supply. Rising relative prices and profits attracted more resources into the area. However, commodity prices subsequently dropped dramatically by almost 50 per cent, due especially to the drop in demand relative to supply. This repelled resources because of relatively lower profits.
The graph in part (b) shows relative changes in capital city and regional housing prices measured in dollars. Note the steep price rises in capital cities like Melbourne, Sydney and, to a lesser extent, Canberra, Brisbane and Adelaide between 2013 and early 2016. This was due to rising demand fuelled by low interest rates and population growth, relative to supply. This price rise attracted many more resources into property due to the potential for making relatively higher profits.

The graph in part (c) shows changes in the price or exchange rate for the Australian dollar when it is swapped into other currencies — US dollars, yen or euros. These have also affected the decisions made by owners of resources. For instance, the relatively high Australian dollar during 2010 and 2014 caused locally manufactured goods and services to be too expensive for consumers relative to those made abroad. Locally, this meant reduced sales, lower profits and business closures. Consequently, resources were redirected elsewhere. By comparison, the more recent drop in the value of the Australian dollar between 2014 and early 2016 has again made local goods and services relatively more attractive and profitable, resulting in more resources being allocated in this direction.

FIGURE 1.12 Some examples of how the operation of buyers and sellers in markets has affected relative prices and decisions about the allocation of Australia’s resources

Changes in relative prices alter ‘for whom’ goods and services (the distribution of income)

When the price of a particular good or service changes against that of another, the distribution of income between individuals in the economy is affected — that is, the price system answers the ‘for whom to produce’ question. For instance, individuals selling labour and other resources that are relatively scarce and especially wanted, or firms selling finished products that are in strong demand by consumers, will enjoy relatively higher incomes and better profits. In this case, extra labour and other inputs will be attracted into the area, so the price system is again allocating labour and other resources efficiently to areas of greatest need.

The meaning and significance of price elasticity

We already know that the quantity of a good or service demanded or supplied either expands or contracts when there is a change in its price. Indeed, this is the basis of the laws of demand and supply. Price elasticity further refines this concept by measuring the degree of responsiveness of the quantity demanded or supplied to any change in price.

Price elasticity of demand

According to the law of demand, the quantity demanded varies inversely with a change in its price — when the price goes up, demand contracts; when the price goes down, demand expands. However, the price elasticity of demand measures the responsiveness of the quantity demanded relative to the percentage change in price. For instance, given a rise in price, elasticity measures whether, in percentage terms, the demand contracts by a lot or just a little.

Price elasticity of demand or PED can be calculated as follows:

\[
PED = \frac{\text{Percentage change in the quantity demanded}}{\text{Percentage change in its price}}
\]

There are three types of price elasticity for demand:

1. **Demand is relatively elastic** (high PED). The PED is high (greater than 1) if the quantity of a particular good or service demanded changes by a larger proportion than the change in price; for example, a 10 per cent rise in price results in a 20 per cent contraction in the quantity of a good or service demanded. In this case, buyers are easily able to defer or switch their demand elsewhere in response to higher prices. An elastic demand means that if prices rise, the total revenue or value of consumer purchases (which equals the unit price multiplied by the quantity demanded or purchased) decreases. When drawn, the elastic demand line is fairly steep.

2. **Demand is of unit elasticity** (medium PED). The PED is medium (equal to 1) if the quantity demanded changes by the same proportion as the change in price. Here, a 10 per cent rise in price results in a 10 per cent contraction in the quantity demanded. Consequently, total revenue remains unchanged with a rise in price.

3. **Demand is relatively inelastic** (low PED). The PED is low (less than 1) if the quantity demanded changes by a smaller proportion than the change in price. Here, a 10 per cent rise in price results in only a 5 per cent contraction in quantity demanded. In this situation, buyers are unable or unwilling to significantly contract demand. Consequently, total revenue increases with a rise in price. When drawn, the inelastic demand line is fairly steep.

These three types of price elasticity of demand are illustrated in figure 1.13. Note, however, that in order to use the slope of the demand line to indicate the degree of elasticity, the same scale has been used on all axes.

![Figure 1.13](image)

Three types of price elasticity of demand

The price elasticity of demand (PED) is affected by a number of factors:

- **Type of item.** The demand for necessities, such as basic foods, rental accommodation and medical attention, is normally relatively inelastic, while that for non-necessities like luxury cars, holidays and entertainment is usually relatively elastic.
• **Product substitutability.** The demand for substitutes (for example, wool and synthetics, butter and margarine, Australian wheat versus overseas wheat, different breakfast cereal) is usually fairly elastic, while that for unique products (such as petrol for most car owners, eggs) is quite inelastic.

• **The time period.** Time has an effect on elasticity. In the long term, the demand for most things tends to be more elastic than in the short term, when demand is more inelastic. Time gives buyers the opportunity to find alternatives or substitutes, or change their habits.

• **Cost and relative importance.** Expensive things representing a high proportion of household spending tend to have a more elastic demand, while cheaper items representing a lower percentage of our spending have a more inelastic demand.

• **Minor complementary items.** The demand for cheap, complementary items (for example, the purchase of water) to be used together with a dearer product (such as an in-ground swimming pool) will tend to have an inelastic demand.

### Price elasticity of supply

**Price elasticity of supply** helps us understand the behaviour of sellers in a market. According to the law of supply, the quantity supplied of a particular good or service varies directly with a change in its price. It measures the responsiveness of the quantity supplied to the percentage change in price (that is, whether the quantity supplied expands or contracts by a large or a small percentage). This elasticity is reflected in the steepness of the supply line.

Price elasticity of supply or PES can be calculated as follows:

\[
PES = \frac{\text{Percentage change in the quantity supplied}}{\text{Percentage change in its price}}
\]

There are three degrees of price elasticity of supply:

1. **Supply is relatively elastic (high PES).** The PES is elastic (greater than 1) if the quantity of a particular good or service offered for sale changes by a larger proportion than the change in price; for example, a 10 per cent rise in price results in a 20 per cent expansion in the quantity supplied. In this case, firms can easily expand output in response to the rise in price. When drawn, the inelastic supply line is fairly flat.

2. **Supply is of unit elasticity (medium PES).** The PES is of medium elasticity (equal to 1) if the quantity supplied changes by the same proportion as the change in price. Here, a 10 per cent rise in price causes a 10 per cent expansion in the quantity supplied.

3. **Supply is relatively inelastic (low PES).** The PES is low (less than 1) if the quantity supplied changes by a smaller proportion than the change in price; for example, a 10 per cent rise in price produces only a 5 per cent expansion in the quantity supplied. Here, firms are relatively unwilling or unable to respond to the rise in price. When drawn, the inelastic supply line is fairly steep.

By using the same scales for all axes in figure 1.14, it is possible to show the three degrees of price elasticity of supply.

![Three types of price elasticity of supply](image)

The price elasticity of supply (PES) is affected by a number of factors:

• **Product storability and durability.** Items that are durable and can be stored successfully without deterioration, such as minerals, wheat, wool and red wine, generally face a more elastic supply line. In such cases, a rise in price means that sellers can quickly and simply access the extra supplies of goods or services by reducing their stocks of unsold goods. Services tend to face a more inelastic supply because they cannot generally be stored.

• **Resource mobility and unused industry capacity.** The quantity of a particular item supplied is likely to be more elastic if production levels can be readily and inexpensively changed by moving resources between...
industries. Supply is especially elastic when there is unused or spare productive capacity in an industry or firm. Here, the quantity supplied can be increased quickly following a rise in the price.

- **The time period.** In the short term, it is often difficult for firms to expand supply following a price rise for their product, especially if resources are immobile and can’t be moved easily between uses, and if excess capacity in production by firms does not exist. In this case, supply is relatively more inelastic in the short term. However, in the long term, supply becomes more elastic. Over a greater number of years, the availability of most resources can be increased, making supply more responsive to price changes.

### The significance of price elasticity

Price elasticity has two important and practical implications for sellers and government.

1. **The pricing policies of sellers.** When pricing their products, businesses consider the price elasticity of demand for their goods or services. For example, retailers like Myers, Target or Harris Scarfe frequently have sales offering 10 or 20 per cent discounts on their normal prices. Normally this would be expected to cut their total revenue, but this will not happen if the demand for their goods is elastic (with a high PED). Other firms are in the fortunate position of being able to increase prices when their products are essential and have no close substitute. Because demand for their goods is inelastic (with a low PED), they will actually increase their revenue and profits.

2. **The raising of government revenue.** Governments always seem to be short of revenue. If raising revenue was their main goal, governments would select products with a low or inelastic PED (tobacco, alcohol, petrol, health care) and put a heavy excise tax on the items, which would raise their prices. Addicted, ill-informed or trapped consumers with no other choice would mostly pay the higher taxes. Being unresponsive, demand would not contract greatly and the government could raise a lot of revenue. However, if the main aim of the government’s excise taxes on alcohol, tobacco or fuel was to substantially contract demand and change buyer habits that are damaging society or individuals, the policy of heavily taxing such products would have limited success because their PED is low.

### eBookplus

**Weblinks** The weblinks in these activities are available in this topic’s student resources tab.
- Econ 2.1: Demand and supply explained (1 of 2)
- Econ 2.2: Demand and supply explained (2 of 2)
- Shifting demand and supply
- EconMovies 4: Indiana Jones (demand, supply, equilibrium, curve shifts)
- Supply and demand
- Economics made easy — Lesson 3: Price elasticity of supply
- Economics made easy — Lesson 4: Price elasticity of demand
- The effects of a tax on D–S, taxes on producers, ACDC Econ
- EconMovies 2 by ACDC: Monty Python and the Holy Grail (marginal analysis)
- Think Economics: Changes in supply, demand and market equilibrium
- Interactive graphing exercises involving the demand and supply diagram

### CHECK YOUR UNDERSTANDING

1. What are the three important economic questions or decisions that must be made by our economic system?
2. In general terms, outline the steps by which the market system allocates Australia’s scarce resources between competing uses.
3. What are demand–supply diagrams?
4. In a market, what is demand? What is the law of demand?
5. When graphed, describe the demand line.
6. In a market, what is supply? What is the law of supply?
7. When graphed, describe the supply line.
8. What is market equilibrium?
9. What do we mean by the microeconomic conditions of demand? List five common conditions affecting demand. How do changing conditions of demand affect the equilibrium price and quantity?
10. What do we mean by the microeconomic conditions of supply? List five common conditions affecting supply. How do changing conditions of supply affect the equilibrium price and quantity?
11. What is meant by relative prices? In general, how does a rise or a fall in the relative price of a good affect its relative profitability, assuming no change in production costs?
12. How does a change in relative prices and profitability normally affect resource allocation?
14. Define price elasticity of supply. List three influences on the price elasticity of supply.
15. Using an example, explain the economic importance of the concept of elasticity.
1.6 Reasons for market failure and government intervention in Australia’s economy

We have already seen that efficiency in resource allocation occurs when inputs are used to produce particular types of goods and services that help to maximise the general satisfaction of society’s needs and wants, and overall wellbeing. The operation of free and competitive markets is usually a very efficient way of allocating resources between alternative uses. This is especially the case when the preconditions for competitive markets are largely met; for example:

- strong competition exists between buyers and sellers in the market
- firms are price takers (not price makers) and no firm has significant market power
- product differentiation and brand names do not exist (the product is homogeneous)
- there is a large level of consumer sovereignty that guides how resources are allocated
- buyers and sellers have complete information about the product and market (perfect knowledge)
- there is ease of entry and exit by producers in the market
- sellers and owners of resources aim to maximise their profits and incomes.

In certain circumstances, however, the market fails to use resources efficiently. This results in *market failure*.

When market failure occurs, governments often intervene with a range of policies designed to modify and improve how resources are used. These strategies might include:

- using budgetary policy measures (various taxes and outlays on public goods and services)
- enacting special legislation to change the law or alter society’s behaviour
- engaging in educational or informative advertising
- setting minimum or maximum prices in selected markets
- using microeconomic and other efficiency reforms.

In these ways, the Australian government directly or indirectly allocates perhaps more than 20% of all resources. It is worth remembering that government intervention is not always a roaring success. Sadly, *government failure* sometimes occurs. Whether this interference in resource allocation is justified depends on whether it results in a net gain in society’s *general wellbeing*. 

In Australia, we have a largely market economy where buyers and sellers of goods and services negotiate relative prices. While the operation of the market mostly makes good economic decisions that improve society’s general wellbeing, sometimes it fails. As a result, it damages our general wellbeing and living standards may suffer. Correction of this may require government regulation or intervention.
Instances of market failure and how governments might attempt to correct these problems

The overwhelming reason for having at least some government regulation or influence over resource allocation, is to correct market failure and improve society’s general living standards. Market failure exists when the operation of the price system fails to maximise society’s general wellbeing and living standards.

There are at least five major instances of market failure that justify having some government interference:

- market power
- asymmetric information
- externalities
- public goods
- common access resources.

Markets fail when firms have market power and competition is weak

We have already noted that strong competition helps to guarantee good outcomes like efficiency, quality and relatively low prices. However, economists note that when market power is exercised by oligopolies and monopolies in an industry, it is likely that sellers will sometimes restrict competition and output, lift prices (since such firms are price makers rather than price takers), reduce efficiency in resource allocation and lower customer service, causing market failure. In this situation, the government could improve market outcomes through various measures designed to enhance competition.

Government deregulation of key markets

Over the past three decades there has been partial deregulation (removal of unnecessary government restrictions to competition) of some important markets including those for labour, capital, waterfront shipping, primary produce, telecommunications, electricity, water, milk and aviation. The hope is that the level of competition between sellers will be greater, creating increased efficiency, lower prices and improved living standards. For instance, in the labour market, the old system of centrally determined minimum wages set by the Fair Work Commission has gradually become less important. Instead, there has been partial deregulation with an extension of a decentralised wage system involving greater flexibility and firm-by-firm-enterprise bargaining or pay agreements linked to productivity. Furthermore, in 2015 the Productivity Commission made its recommendations to further deregulate some aspects of the labour market. Whether the government adopts these and other recommendations and leaves the market freer to determine wages and conditions will depend on political considerations and the need to balance the aims of efficiency with equity.

Deregulation reforms like these expose industries and workers to greater competition by removing unnecessary government restrictions and by breaking up both public and private monopolies and oligopolies.

Reducing the level of tariff protection from imports for local firms and liberalising trade

Tariffs are an indirect tax added to the price of imports. They are designed to make foreign goods dearer and less attractive, thereby reducing competition for local firms. For many years the federal government has been cutting tariff rates and progressively moving towards freer trade. Indeed, from an average tariff protection level of 38 per cent in 1968–69, the general rate of tariffs on most manufactured items fell by 2.5 per cent a year since the late 1980s, to effectively reach less than 5 per cent since 1995 for most items. As a result, to lift efficiency in resource allocation and survive, local firms have had to improve product quality and cut their production costs. It means that our resources are increasingly allocated into areas where Australian industry has a comparative cost advantage. As a result, living standards should rise.

Government laws to promote price competition, and regulate monopolies and oligopolies

Generally, competition promotes greater efficiency in resource allocation and higher living standards. With this in mind, the Competition and Consumer Act 2010 (formerly called the Trade Practices Act) requires that Australian firms compete with each other. Activities like price maintenance, price leadership, market zoning, interlocking directorships and exclusive dealing are illegal. Heavy fines of up to $10 million per occasion are imposed on companies that break the law, and directors who break the law may face jail sentences. Company takeovers and mergers not considered to be in the interests of consumers are exposed and closely scrutinised. Furthermore, the Australian Competition and Consumer Commission (ACCC) undertakes ongoing price surveillance of industries where competition is weak, such as petroleum, banking, insurance and power. Firms in both public and private sectors are required to justify increases in the prices they charge.

Markets fail when there is asymmetric information

Asymmetric information is a second situation where there is market failure. For markets to allocate resources efficiently, buyers and sellers need to have complete and reliable knowledge of all the relevant information affecting their decisions. Unfortunately, this is not always the reality because one group in the market may have more knowledge than others. Often, for example, sellers have more information than buyers in a transaction,
Positive externalities. Sometimes, there are positive externalities or benefits for third parties (someone not directly involved in the particular transaction) that may arise when goods and services are produced or consumed. There are two types of externalities: negative and positive.

- Negative externalities. Negative externalities or costs may arise, for example, when a factory producing chemicals releases unpleasant odours that we are forced to breathe, even though we do not use that firm’s products. Another example occurs in the generation of power with the release into the atmosphere of carbon dioxide emissions that lead to global warming, severe weather events and climate change that may then contribute to the flooding of island communities and wild weather events that damage the properties of others. These costs are not paid by the producers who have created the damage. The costs of the damage for them will be zero, and their profits are inflated. This problem distorts the efficient allocation of resources by over-producing goods and services that are socially undesirable. This misallocation or resources represents market failure and impacts badly on our society’s wellbeing and general living standards. Negative externalities lower living standards and waste resources. Governments often seek to reduce negative externalities and improve living standards using various measures including legislation, indirect taxes, cash subsidies and advertising.

- Positive externalities. Sometimes, there are positive externalities or benefits to third parties that arise from the production and consumption of particular goods or services. For instance, painting your house or beautifying your garden brings benefits to neighbours (for example, higher land values) and passers-by, even though they failed to pay for the improvements you made. Positive externalities result in the underproduction of socially beneficial goods or services since decision makers do not factor in the value of all the benefits or satisfaction gained from a given economic activity. Again market failure has occurred because resources are not allocated efficiently and our general wellbeing will be lower than it could be. The government can help reduce externalities through various types of intervention.

Government laws to reduce negative externalities

One way the government can reduce negative externalities is by passing laws or legislation to force firms and/ or consumers to change their activities or behaviours causing negative externalities. For example, passing laws such as the Clean Energy Act in 2011 (that led to the carbon tax between 2012 and 2014) put a cost on carbon pollution, and compelled producers and consumers to take more responsibility for their emissions and change their production and consumption patterns. Similarly, anti-smoking laws have also reduced negative externalities and adverse health issues for society that are associated with active and passive smoking.

Using an indirect excise tax

Each year, the consumption of socially undesirable goods such as alcohol and tobacco causes much harm to society and individuals, and adds greatly to the health costs paid by government. Additionally, production of these products generates carbon emissions and adds to global warming, and these are linked to severe weather...
events, rising sea levels, destruction of infrastructure and property, and deaths. In these two situations, negative externalities or costs are passed on to third parties. In an attempt to reduce such negative externalities, the federal government has placed taxes on these products. These taxes raise the price of the particular goods, reallocating resources more efficiently and productively.

More specifically, let us use the demand–supply diagram shown in figure 1.15 to illustrate what happens if the government imposes a tax on producers or suppliers of an undesirable good or service whose consumption results in negative externalities. Here, for example, we might think of the effects of a carbon tax on production that cause CO₂ pollution like electricity made from brown coal, a tax on alcoholic drinks or a tax on the sale of cigarettes. As can be seen from figure 1.15, supply-side conditions for firms producing these goods will become less favourable. By having their profits cut, producers will be discouraged from producing or supplying the item, causing a decrease in supply at all possible prices.

Referring to figure 1.15, this decrease in supply following the introduction of an excise tax means that the supply line shifts upwards vertically from S₁ to S₂ by an amount equal to the level of tax per unit. This causes the equilibrium price to increase from P₁ to P₂. Following the imposition of the tax, buyers will now pay the new higher, less attractive equilibrium price, P₂, causing demand to contract. At the same time the equilibrium quantity will fall from Q₁ to Q₂. However, following the tax, suppliers of this socially undesirable good or service will receive a much lower, less profitable price equal to P₀, cutting the quantity they produce to Q₂. In this case, the difference between the buyer’s and seller’s prices (P₂ versus P₀) represents the amount of sales tax per unit sold, which goes to the government. Here both buyers and sellers of this item each share part of the tax burden. This policy discourages both production and consumption of the item, repelling resources from this socially undesirable area. Market failure is reduced.

However in practice, because the demand for these fairly addictive type goods is inelastic, the tax has not been especially effective in changing resource allocation by making these items less attractive to consume (even though it has raised much government revenue).

**Using government cash subsidies and the provision of free services**

A government cash subsidy could also be used to encourage consumers of a product to change behaviour that currently causes negative externalities. For instance, paying cash incentives to households installing solar panels or rainwater tanks could help reduce negative externalities.

Additionally, in cases where the existence of positive externalities leads to the underproduction of services that are deemed socially beneficial like education and health, a case exists for the government to make more of these services available by paying a subsidy to private producers. Figure 1.16 uses a demand–supply diagram to show the impact of a government subsidy to suppliers. This policy would make supply conditions for firms more favourable. As a result, the supply of the service at any given price would increase and thus shift the line outwards from S₁ to S₂. Additionally, the equilibrium price would fall from P₁ to P₂. As a result of these changes, the new price paid by buyers would fall to P₂ (making this socially desirable item cheaper and thus more attractive to consume), while the new higher price P₁ received by sellers, would make this socially desirable item more profitable to produce. The price difference — P₁ versus P₂ — represents that value of the government cash subsidy per unit of output produced. Notice, too, that the quantity of this socially desirable good or service has grown from Q₁ to Q₂, indicating that more resources than previously are allocated to this desirable area, reducing market failure.
Education and advertising to inform the public

When consumers or producers have a complete knowledge of the impacts of their economic activities, negative externalities are less likely to occur. One approach is for the government to conduct an advertising campaign to educate or inform the public, and to encourage a change in behaviour that will help minimise the problem (for instance, anti-drink driving and anti-smoking advertisements).

Markets may fail in the production of collective or public goods

Public goods are those provided by the government, and consumed collectively. They might include national defence, police, fire protection, most non-toll roads, public hospitals and schools, the ABC, national parks and street lighting. These goods and services are seen as socially desirable or universally beneficial for the community. As a result, governments typically believe that these things should be available to all people, even for those who do not or cannot afford to pay directly, since their consumption is often associated with positive externalities or benefits to third parties. Hence, in the absence of government provision of public goods, they would be underproduced by the operation of the market. Too few resources would be allocated to maximise efficiency or society's general wellbeing.

To further clarify the point, most public goods differ from merit or private goods (the items most of us purchase every day) in two ways:

1. **Excludability.** Consumers who don’t pay for private goods can easily be refused access. For instance, consumers without the necessary money are excluded once they get to pay at the checkout (that is, they are excluded from buying or accessing the product unless they have the money to pay the price). However, this is not the case with free public goods provided for the community by the government, where consumers are usually non-excludable (that is, those who do not have the money to pay or choose not to pay for a good cannot normally be refused access to that good). This leads to the free rider problem in the provision of public goods where consumers who don’t pay can still gain access.

2. **Rivalry.** A person who buys a particular private good prevents another person from buying or benefiting from that exact same item. These are called rival goods. However, this does not occur to the same degree with public goods. Public goods are usually non-rival in nature.

Because it is difficult to exclude users of public goods if they refuse to pay, this area is unlikely to attract significant resources from the profit-seeking private sector. Furthermore, socially desirable public goods are costly to produce and run. They cannot therefore be sold profitably at a sufficiently low price so that all people can gain access to them. For these reasons, public goods are typically provided by government and paid for out of tax revenues.

Using the annual budget to provide public goods and services

The main way that governments direct resources into socially beneficial public goods is through their budget outlays on key areas including health, education and defence (normally paid for from the money it collects in taxes). These goods and services are then provided to the community through various branches of the public sector. This does not necessarily mean that all public goods are directly produced by the government, since a significant proportion of production is contracted out to, or purchased from, private businesses (such as the building of roads, prescription drugs, supplies for public hospitals or military equipment). However, despite the trend towards a user pays system, most public goods are still usually provided free or at minimal cost to users. For example, the allocation of resources to key public goods by the federal government in its 2016–17 budget is shown in figure 1.17. Clearly these outlays should help to overcome a degree of market failure that otherwise would occur.
Markets may fail in allocating common access goods

Common access goods include environmental natural resources such as air, minerals, oil, forests, river water and fish in oceans. These goods are both non-excludable (because it is not possible to exclude users who do not pay) and rivalrous (because consuming them prevents consumption by others). With common access goods, the market fails to send the proper price signals that lead to an efficient allocation of resources. This is a serious problem for society because the survival of current and future generations may be jeopardised when these goods are used up.

Clearly there is scope for action by governments to correct failure, both at the national and international level, to ensure that the use of common access goods is sustainable. Let us look at some of these measures.

Environmental laws

Governments could tighten environmental laws to prevent the degradation of environmental resources that we need to access, and ensure that these laws are policed and enforced.

Pricing carbon emissions and other market-based methods for reducing climate change

Some government have put a price on carbon emissions that are associated with climate change, global warming, rising sea levels and severe weather events. They have done this using two main approaches. First, some have introduced a carbon tax on polluters (say, $23 per tonne) to encourage them to change to cleaner, greener production. Other governments (the European Union, Switzerland, New Zealand and parts of the United States) have an emissions trading scheme (ETS) where the carbon price is free to move up or down as determined in the carbon market by the actions of buyers and sellers.

International agreements

The Kyoto Protocol is an international agreement signed by many countries from early 2005. Essentially, it commits governments to emissions targets expressed against a base level. It was developed through several stages, with the last agreement negotiated in 2012 and signed by 37 countries including Australia and members of the European Union. A post-Kyoto Protocol legal framework is also being developed, despite the reluctance of key economies like the United States, China and India to be bound by certain emissions targets.

Using the federal government’s 2016–17 budget outlays to allocate more resources into socially desirable goods & services (items expressed in $b and % of total budget outlays)

![Figure 1.17](https://example.com/figure1.17.png)

**FIGURE 1.17** Allocating resources to socially desirable public goods through the federal budget

*Source:* Data derived from budget papers 2016.

- **Social security and welfare**: $158.6B (35%)
- **Other**: $89.1B (20%)
- **Health**: $71.4B (16%)
- **Defence**: $27.2B (6%)
- **Education**: $33.7B (7%)
- **All other functions (eg, transport, communications)**: $47.9B (11%)
- **General public services**: $22.7B (5%)
- **Public goods**: $33.7B (7%)
- **Private goods**: $22.7B (5%)
- **Probity goods**: $158.6B (35%)
- **Natural resources goods**: $158.6B (35%)
- **General public goods**: $158.6B (35%)
- **Allocation of resources to socially desirable goods & services**

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Direct Action
In 2014, after the abolition of the carbon tax, the federal government introduced its Direct Action policy to reduce carbon emissions. Central to this scheme is a $2.5 billion emissions reduction fund. This makes government money available to successful firms who bid in a reverse auction situation, by submitting plans to get the greatest emissions reduction for the lowest possible cost. Time will tell whether this scheme is successful in correcting market failure that leads to the degradation of common access goods.

Two other reasons for government intervention in a competitive market economy
Apart from market failure, the free operation of a competitive market economy results in at least two other problems: economic instability and extreme income inequality. If left unchecked by the Australian government, these problems would lower people’s general wellbeing or living standards.

Stabilising the level of economic activity
We know that most markets are quite unstable. At the microeconomic level, prices and output vary greatly over a period of time. As we shall see later, this contributes to macroeconomic instability, in which a free or unregulated market economy may experience severe inflationary booms (where the purchasing power of money and incomes decreases and living standards are reduced), and recessions or even depressions (where national production falls and unemployment increases, again reducing people’s incomes, purchasing power and living standards). As a result of these problems, the Australian government attempts to moderate the severity of these economic fluctuations using special stabilisation policies to help regulate the level of spending and economic activity to help achieve more ideal economic conditions needed for optimal living standards. These policies are the focus of topic 4.

Redistributing income more equitably
The price system (involving the forces of demand and supply) not only determines the price of particular commodities, goods, and services, but also greatly affects the relative level of people’s wages (the price of each type of labour). As a result of the free operation of the price or market system, extreme income inequality may develop, leaving a large gap in wellbeing and living standards between high- and low-income earners. If left unchecked, the level of inequality is likely to increase, lowering the general wellbeing of society. Because of this problem, the Australian government moderates or reduces the extent of inequality by using various redistribution policies like progressive taxes on high incomes, and welfare benefits and free services for the neediest. This helps to create a fairer distribution of income than would otherwise occur.

Reviewing the reasons why governments sometimes interfere with the free operation of the market system
In Australia’s competitive market economy, the price system generally makes good decisions that help maximise society’s wellbeing. However, as we have seen, sometimes the free operation of the market system fails and creates problems that reduce efficiency and undermine our general living standards. When this occurs, the Australian government often seeks to influence market outcomes. There are at least three main justifications for government intervention in our competitive market system.

1. Reallocating resources to help correct various types of market failure. Markets do not always make good decisions when, for example, there is market power, asymmetric information, externalities, common goods and public goods. We have also noted that the government attempts to correct these failures by passing laws, and using excise taxes and government budget outlays (including subsidies) to reallocate resources more efficiently. In so doing, society’s needs and wants are better satisfied and our living standards are improved.

2. Stabilising the level of economic activity. We know that individual markets and hence the whole market economy, can be quite unstable, resulting in inflationary booms and recessions. This reduces society’s wellbeing and living standards. As a result, the government attempts to moderate the severity of these fluctuations using special stabilisation policies.

3. Redistributing income more equitably. In the absence of government, the free operation of the price system greatly affects the level of people’s wages (the price of labour) and contributes to income inequality. As we shall see, governments reduce the level of income inequality using special policies to redistribute some income from higher to lower income earners, improving their access to basic goods and services.

Weblinks: The weblinks in these activities are available in this topic’s student resources tab.
- Market failures and reduced outcomes for society
- Public versus private goods
- Market failure and diminished efficiency in resource allocation
- Externalities

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**TOPIC 1 An introduction to microeconomics: the market system, resource allocation and government intervention** 37
CHECK YOUR UNDERSTANDING

1. What is market failure?
2. Explain why the normal operation of the market system fails in the following circumstances:
   a. market power
   b. asymmetric information
   c. public goods
   d. common use goods
   e. externalities.
3. For each of the above situations, identify and explain two important ways whereby the government might reduce market failure.

APPLIED ECONOMIC EXERCISES

Apply your understanding of this subtopic by accessing and completing the Applied economic exercises.
- School-assessed coursework > Applied economic exercises > Question 9

1.7 Government intervention in markets that unintentionally leads to reduced efficiency or failure

We have seen that sometimes government intervention is necessary to reduce market failure, increase efficiency and satisfaction in resource allocation, and optimise society’s wellbeing. However, sometimes government regulation of various markets also has unfortunate and unintended negative consequences or external costs for third parties, reducing efficiency and society’s general wellbeing. The new VCE course requires that students select one contemporary example of government intervention that has decreased efficiency in resource allocation. Below are some possible examples of government failure.

Unintended problems of setting a minimum wage in the labour market

Under a free and purely competitive labour market, wages levels would be set at equilibrium by the forces of labour demand and supply. In theory, wages would rise if labour demand exceeded supply, or fall if supply exceeded demand. Worker wages and conditions would be individually negotiated between a worker and his or her boss on a firm-by-firm basis, without government interference or regulation.

While this sounds fair in theory, in practice it was found that some staff, already working long hours and under poor conditions, were paid such low wages that they could not support their families and enjoy even austere living standards. In a landmark decision called the Harvester Judgement of 1907 (shortly after federation), the Commonwealth Court of Conciliation and Arbitration (an earlier equivalent of today’s Fair Work Commission or FWC) determined that wages at McKay’s Sunshine Harvester Company were too low and were not ‘fair and reasonable’ for a ‘civilised community’. Since then, wages have generally been increased in most years (in 2016–17, the minimum wage was set at $672.70 for full-time adults, with a lower rate for youths).

For the past 110 years, many people have felt that at least some government intervention in the labour market is beneficial because it helps to achieve the following:
- provide a safety net wage for low-paid workers and reduce poverty
- avoid exploitation of employees by profit-seeking business owners keen to minimise their costs
- increase the reward or incentive for employment and participation in work, boosting efficiency in the use of resources
- improve equity or fairness in society by protecting and lifting the consumption levels or purchasing power of workers, and increasing the extent to which society’s wants are satisfied
- reduce income inequality and poverty
- allow individuals to have frugal comfort and enjoy socially acceptable living standards.

On the other hand, many economics commentators note that government regulation has resulted in unintentional and negative outcomes for optimal resource allocation. There is a trade-off between equity and efficiency. More specifically, some critics believe that there are too many government controls and that these generate the following problems:
- create wages that are too high and disconnected from the market worth or productivity of labour
- make local firms uncompetitive against their overseas rivals and thereby adding to an international trade deficit

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• cause some businesses to enter into illegal collusion with their staff to sidestep government wage regulations
• cause business closures and relocation, and hence higher unemployment
• reduce efficiency in the use of resources with lower production levels
• discourage employment or cause firms to reduce the number of hours that staff are employed
• undermine equity in income distribution (especially in the long term), hurting vulnerable members of society
• add to the number of people dependent on government welfare, thereby increasing the burden on taxpayers and firms.

Some of the unwanted outcomes of setting Australia’s minimum wage are illustrated in figure 1.18. Referring to this diagram, notice that normally the free market equilibrium wage or price would be at \( P_1 \) where the demand \((D_1)\) and supply \((S_1)\) of labour would be equal. However, when the minimum wage is set too high at \( P_2 \), well above the clearing wage or equilibrium, a market glut occurs where the supply of labour exceeds the demand for labour (see the shaded triangle). In other words, the minimum wage causes structural unemployment as artificially high costs and hence lower profits cause business closures. With rising unemployment comes lower incomes, along with reduced living standards and general wellbeing.

![Demand–supply diagram representing the labour market showing how Australia's minimum wage may contribute to unemployment and other unwanted outcomes](image)

What do recent international studies reveal about these unintended effects of governments raising minimum wages? Although the answer is not a simple one, there is some agreement that as long as the minimum wage is ‘moderate’ (as a percentage of average weekly wages), the adverse effects are likely to be relatively small in the short term. However, if wages are set too high, experience from some countries shows that job losses are likely to be significant. Given that Australia has one of the highest minimum wages in the world, perhaps there is cause for real concern.

Additionally, in the long term and for inexperienced unskilled workers in younger age groups where the demand for labour is fairly elastic, wage rises do appear to cause unemployment, reduce hours of employment and be generally detrimental. For example, European studies showed that a 10 per cent rise in the government minimum wage unfortunately led to a decrease in youth employment by up to 4 per cent, along with a reduction in efficiency in the use of resources.

With these unintended adverse effects of wage regulation in mind, there has been considerable labour market deregulation over the years involving a reduction in unnecessary government controls, and the extension of firm-by-firm workplace agreements where wages more closely reflect productivity and there is greater flexibility in employment arrangements. Most recently, the Productivity Commission has reviewed the impacts of Australia’s Fair Work laws including the operation of the minimum wage and the application of penalty (higher) rates of pay on efficiency and productivity growth. For instance, in its final report released in late December 2015, one of nearly 70 suggestions was that Sunday penalty rates in industries including hospitality, retail and entertainment should be abolished to bring these in line with lower Saturday pay rates (shown in figure 1.19). In a sense, this acknowledges partial government failure in this area. If implemented, such a change could perhaps be taken as an acknowledgement of the potential employment and efficiency benefits that may occur if there was less government wage regulation.
Climate change is one of the most serious threats facing the world community. In 2012 following the passage of the Clean Energy Act, the Gillard Labour government implemented the carbon tax (starting at $23 per tonne of CO₂ emissions arising from some economic activities). What this tax did was put a real cost or price on pollution and the carbon emissions of some large businesses. In theory it worked in two ways:

- It forced around 500 of Australia’s dirtiest firms to internalise their pollution costs and adopt cleaner production methods. Pollution became expensive and hence less profitable, thereby reducing emissions, slowing climate change and enhancing the general wellbeing of both current and future generations.
- Because firms were forced to pay for pollution, they passed some of these carbon costs on to their customers in the form of higher prices. As prices of power and other high-emission products rose, consumer demand contracted and some consumers were persuaded to purchase cleaner substitute renewable products (such as solar and wind power, and more energy efficient appliances). In theory, this should also have helped to reduce pollution, mitigate the effects of climate change and improve society’s general wellbeing.

In practice, however, the carbon tax had some unintended and negative effects (during its operation in 2012–14) that may have reduced some aspects of society’s general wellbeing and living standards.

- The carbon tax was regressive. It reduced equity in income distribution because it made basic items like electricity, transport and food dearer where the tax burden fell most heavily on low-income earners. To correct this problem, the government decided to compensate low-income households through a substantial financial compensation.
- Financial compensation was also paid to some high-emission firms hurt by the carbon tax. For instance, it provided some of our dirtiest power stations around $1 billion per year to continue polluting. Again, the government’s financial compensation tended to cancel out the beneficial effect of rising prices, which signal to firms that they should change how they allocate resources. This too can be seen as a possible example of government failure since the intended aim of the carbon tax was presumably to reduce pollution.
- The carbon tax added to the production costs of some firms and was designed to reallocate resources through improved price signals and knock-on effects. It made some locally produced goods and services more expensive and less competitive, relative to those imported from some overseas countries where no carbon pricing applied or the cost was lower. In turn, the tax had unwanted negative consequences especially in the short to medium terms in the transition to a greener economy. It probably contributed to the closure of some firms, added to the unemployment of resources, reduced efficiency, slowed national production and eroded some aspects of our wellbeing.

Given that the carbon tax had some unwanted and unintended negative effects on an already weak economy, along with political implications, it was finally abolished by the Coalition in late 2014, and replaced with a new policy called Direct Action. Unfortunately, this policy also seems to have some significant shortcomings. Critics argue that it will not significantly improve environmental outcomes or society’s overall long-term welfare and living standards, and will end up as another example of government failure.

**Unintended problems of using the carbon tax to help pollution and increase efficiency in resource allocation**

**FIGURE 1.19** An index of wages comparing Australia’s regulated penalty rates of pay (base weekday pay is 100 index points)

*Source:* Graph copied from an online article by political reporter Stephanie Anderson, ‘Penalty rates: Productivity Commission recommends changes to weekend pay for entertainment, hospitality and retail workers’, ABC News, 22 December 2018.
Unintended problems of allocating resources into subsidies for the coal industry

A subsidy exists when the government provides producers of goods with a cash payment or other type of financial assistance like a tax concession. It is usually designed to increase production levels, encourage new industries to start up and old ones to restructure their operations more efficiently, generate jobs and overcome market failure associated with the underproduction of goods with social benefit.

In Australia, governments subsidise the coal industry. A study released in September 2015 (Assessing Thermal Coal Production Subsidies, see http://www.carbontracker.org/report/coal-subsidies/) revealed the extent of the Australian government’s assistance to the coal industry:

- Large domestic and multinational companies received government subsidies equal to around $1.8 billion each year.
- The coal subsidy amounted to over $5 for every tonne produced.
- Subsidies to the coal industry also come in the form of an excise tax exemption on the diesel fuel used to run mining equipment. This is estimated to be worth perhaps $2–3 billion each year.
- State and federal governments have partly funded the cost of building rail, port, water and other infrastructure, for some coal projects.
- There are accelerated depreciation costs for mining equipment used to offset the taxable profits of companies.
- Miners can instantly write off the costs of exploration and prospecting against their tax liabilities.
- There are apparently accumulated and unfunded rehabilitation costs to restore the mining site at the end of mining operations that could total a whopping $18 billion (according to independent analysis by Lachlan Barker in May 2015), far in excess of the upfront bonds paid by companies.

This assistance makes coal mining even more profitable for both locally owned and transnational foreign companies. From a company’s point of view, this is a favourable microeconomic supply-side factor that makes them more willing and able to produce coal. It leads to business expansion and an increase in the allocation of scarce resources to this industry, including the creation of more jobs. The subsidy also increases our GDP and incomes, and hence in some ways may increase material living standards. Finally, some politicians have recently argued that growing the coal industry is not only good for Australia, it is good for the world’s poor by allowing them and hence in some ways may increase material living standards. Finally, some politicians have recently argued as consumers to have improved access to cheap energy and power to fuel economic and employment growth.

Despite these possible benefits of government intervention in the coal market, it can be argued that the policy is a strong example of government failure where there is an unintentional net loss of wellbeing, causing overall living standards to be lower both now and into the future. In particular:

- Government coal subsidies effectively mean that taxpayer money is being used to encourage the production of dirty, high carbon-intensive fossil fuels, the burning of which leads to severe negative externalities. These problems include increased CO₂, global warming, severe weather events and climate change affecting the wellbeing of Australians and other members of the international community. Especially in the absence of an effective price on carbon pollution, subsidies to this industry further weaken and distort the price signals in the coal market by encouraging overproduction and consumption of coal.
- There are massive opportunity costs of paying coal subsidies out of government budgets. Indeed, the reduction of coal subsidies would release billions of dollars in extra resources that could be used to help the needy here and abroad, improve welfare, and strengthen our health and education systems that are starved for funds. How much more might these outlays improve society’s general wellbeing than subsidies to coal mining companies?

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Weblinks: The weblinks in these activities are available in this topic’s student resources tab.
- Reasons against government intervention
- Market failure and government intervention

**CHECK YOUR UNDERSTANDING**

1. What is meant by government failure?
2. Identify and outline the way in which one of the following areas of government intervention might have led to government failure and a reduction in society’s general wellbeing.
   a. Setting a high minimum wage
   b. Attempts to reduce environmental damage using the carbon tax in 2012–14
   c. Subsidising the coal industry

**APPLIED ECONOMIC EXERCISES**

Apply your understanding of this subtopic by accessing and completing the Applied economic exercise(s).
- School-assessed coursework > Applied economic exercises > Question 10

**TOPIC 1** An introduction to microeconomics: the market system, resource allocation and government intervention
1.8 School-assessed coursework

Three SACs are to be completed for VCE Economics Unit 3. SAC 1 is worth 40 per cent of the total assessment for Unit 3. It assesses the skills and knowledge associated with Outcome 1 that is largely covered in topic 1. The SAC should be part of the regular teaching and learning program, and completed mainly in class and within a limited timeframe. The SAC could involve one or more of the following:
• a folio of applied economics exercises
• an essay
• a report.
• structured questions.

Courses and assessments can change, so teachers are urged to carefully check the latest VCAA assessment guide and various bulletins to ensure that all the assessment requirements are met fully.

To help prepare for the end-of-year exam, you might like to try some of the following learning activities.

Multiple-choice test questions

Instructions: Using the multiple-choice answer grid available in the Resources section, select the letter (A, B, C, D) that represents the most appropriate answer for each question by marking this with a tick (✓).

Question 1
At a particular point in time, the quantity of resources available for national production is:
A fixed.
B infinite.
C sufficient to meet the wants of society.
D mostly made available free of charge.

Question 2
The problem of scarcity relates to:
A having limited quantities of resources available and unlimited wants and needs.
B having limited needs and wants and unlimited resources.
C producing sufficient goods and services free of charge for users.
D the need for further exploration for natural resources.

Question 3
You are considering three possible ways of using two hours of leisure time:
(i) going surfing, which you value at $12
(ii) watching a movie, which you value at $2
(iii) minding the neighbour's children, which is valued at $20.
You decide to mind the neighbour's children. The opportunity cost is therefore:
A $2.
B $12.
C $14.
D $20.

Question 4
Which of the following statements is most correct when all of a nation’s resources are fully and most efficiently employed?
A Scarcity no longer exists.
B It is generally possible to quickly raise GDP and increase material living standards or welfare.
C It is generally not possible to increase the total value of production in the short term simply by reallocating resources.
D The economy is not necessarily at its productive capacity.

Question 5
In competitive market economies, businesses wish to sell their products at high prices, while consumers wish to purchase goods at low prices. This conflict of interest is generally:
A solved by governments imposing regulations.
B solved by reaching a compromise price through the competitive operation of market forces.
C left unresolved.
D solved by businesses indulging in collusive pricing and by government rationing.
Question 6
In competitive market economies, the level of relative profitability of alternative areas of production dictates how best to allocate resources. In this context, profit best represents:
A the final selling price of each item in the market.
B the total cost of inputs or resources purchased.
C the final selling price plus capital efficiency.
D the final selling price minus the cost of price of inputs used.

Question 7
In Australia’s competitive market capitalist economy, which statement is most correct?
A Most of the means of production are privately owned.
B Private ownership and wealth inequality do not create income inequality.
C There are very few monopolies or oligopolies, causing competition to be especially strong.
D It is unnecessary for governments to provide any capital equipment or collective services for the community.

Question 8
If a competitive market existed for vegetables, the price may fall as a result of:
A a poor growing season adversely affecting producers.
B the development and use of new higher yielding types of seed.
C a switch by consumers from meat to a vegetarian diet.
D lower labour productivity by vegetable growers.

Question 9
Concerning purely competitive market capitalist economies, which statement is generally incorrect?
A The value of incomes paid to individuals depends upon the quantity and quality of productive resources supplied.
B The market or price system will value the economic contribution made by each individual and use this to determine relative income levels.
C Relative prices for all goods and services will be negotiated by the forces of demand and supply.
D Equity in income distribution would be assured by government transfer payments and progressive taxes.

Question 10
In an economy, the price system or market mechanism operates most freely in decision making when:
A there are no government regulations, collusive practices between firms or other restrictions on the degree of market competition.
B there is no product differentiation.
C resources are very mobile and can be quickly and easily reallocated between uses in response to price signals.
D all of the above.

Question 11
Concerning restrictive trade practices, which of the following statements is false?
A They are generally illegal in Australia.
B They generally aim to decrease market competition.
C They increase the allocative efficiency of the price system in deciding how resources should be best used.
D They often lead to higher prices and profits among the firms involved.

Question 12
In Australia, the government modifies the allocation of resources that otherwise would occur in a market economy to help correct market failures. Which of the following policies could actually operate to reallocate resources?
(i) Spending by government departments in providing public goods including community services and social infrastructure
(ii) Legislation that limits the production or consumption of various goods and services and forces the consumption of others
(iii) A system where different indirect tax rates apply on different goods and services
(iv) The fixing of minimum wages
(v) The payment of subsidies and the provision of tax concessions
A Answers (ii) and (iii) only
B Answers (ii) and (iv) only
C Answers (i), (ii), (iii) and (v) only
D All of the possible policies listed above
Question 13
Butter and margarine are regarded by many consumers as very close substitutes. Given this, a rise in the price of butter in a free or competitive market is likely to result in:
A an increase in the demand for margarine.
B a decrease in the supply of margarine.
C a fall in the price of margarine.
D no change in the demand or price of margarine since the two markets are unrelated.

Question 14
Which of the following would not tend to result in a rise in the supply of yoyos at a given price in a competitive market?
A A drop in wages paid to workers in yoyo plants
B A fall in the price of plastics used to make yoyos
C A cut in bank interest rates charged on loans to yoyo businesses
D A successful TV advertising campaign

Question 15
Products A and B are complementary goods in a competitive market. Which of the following is unlikely, given a rise in the demand for product A at a given price?
A The demand for B at a given price will rise.
B The demand for B at a given price will fall.
C There will be an expansion in the supply of A.
D There will be an expansion in the supply of B.

Question 16
Assume that the demand for Coke is price inelastic. Which statement is correct?
A The demand for Coke contracts by a larger proportion than the rise in price.
B The demand for Coke is such that it would pay retailers to collectively lift prices a little in order to maximise total current revenue.
C It would pay sellers of Coke to offer large discounts on their standard prices in order to maximise total current revenue.
D The percentage rise in prices charged for Coke would exactly equal the percentage fall in the quantity purchased.

Question 17
Faced with a rise in prices, the supply of fresh nectarines may be inelastic in the short term because:
A time is needed to grow extra trees.
B the fruit has a limited storage life.
C the resources of fruit growers are immobile.
D all of the above are possible.

Question 18
Which of the following products is most likely to face an elastic demand?
A Electricity
B Water
C Pepper
D Margarine

Question 19
Which of the following would be most likely to cause an increase in the demand for surfboards at a given price?
A A fall in the price of surfboards
B An expectation that prices will fall for next year
C A fall in the cost of foam used to make the boards
D A rise in the income of consumers of surfboards

Question 20
Assume that if Coke and Pepsi are very close soft-drink substitutes, then an increase in the price of Coke would most likely tend to cause:
A an increase in the demand for Pepsi.
B a contraction in the demand for Coke.
C no effect on the demand for Pepsi.
D Both A and B are correct.
Question 21
Examine the diagram below showing the market for cinema tickets.

The shift in the whole demand line for cinema tickets from D₁ to D₂ would probably not be caused by:
A a rise in the ticket price.
B a rise in the price of i-Tunes movies.
C a successful advertising campaign by cinemas.
D the cinema release of a popular blockbuster movie.

Question 22
In a competitive or free market for wool, equilibrium would exist when:
A the market is cleared of any shortage or surplus wool.
B the quantity of wool supplied equals the quantity demanded.
C there is no tendency for the market price of wool to rise or fall.
D all of the above conditions are achieved.

Question 23
The Australian government sets a floor price on labour by imposing minimum wages. If this minimum wage is fixed above the equilibrium that would otherwise occur in a competitive or deregulated labour market:
A there will be equilibrium in the market.
B there will be a shortage of labour.
C there will be unemployment, perhaps leading to poverty.
D all workers will be better off financially.

Question 24
Australia has a floating exchange rate where demand and supply in the foreign exchange market decide the price of the Australian dollar. Between 2013 and 2016, the Australian dollar’s exchange rate or price fell or depreciated overall against the US dollar by around 30 per cent. In terms of market theory, this could be caused by:
A an increase in the supply of Australian dollars.
B a decrease in the demand for the Australian dollar.
C a relatively lower value for the US dollar.
D both A and B above.

Question 25
Currently, the demand for petrol is described as:
A relatively elastic.
B relatively inelastic.
C unit elasticity.
D neither elastic nor inelastic, since this cannot be determined.

Question 26
Between 2014 and early 2016, the market price of crude oil fell sharply from over US$100 per barrel to under US$50 per barrel. Assuming rational decisions concerning the allocation of resources follow this signal from the market, which of the following should not follow?
A Fewer resources should go into oil exploration and research into alternative fuels and more efficient technologies.
B Fewer resources should go into the production of large 4WD vehicles and spending on freeways for use by private vehicles.
C. Fewer resources should be allocated to public transport, especially trains and trams, and provision of cycle tracks.
D. Fewer resources should go into the production of paper packaging and natural fibres for textiles (for example, wool) that are not made from oil.

Question 27
Regarding the market or price mechanism, which statement is false?
A. Relatively lower market prices for a good or service usually indicate underproduction or shortages of the good or service.
B. Relatively higher market prices for a good or service usually signal that firms have allocated too few resources towards the particular area of production.
C. In general, the market does not efficiently allocate resources if factors such as monopolies and oligopolies restrict the free movement of prices up or down to reflect either shortages or overproduction.
D. Changing market conditions of demand or supply may alter the equilibrium price of a particular good or service.

Question 28
Examine the data below relating to the price of bananas in a purely competitive market.

<table>
<thead>
<tr>
<th>Price of bananas per kg (A$)</th>
<th>Demand for bananas (million kg per year)</th>
<th>Supply of bananas (million kg per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.20</td>
<td>500</td>
<td>50</td>
</tr>
<tr>
<td>4.40</td>
<td>400</td>
<td>150</td>
</tr>
<tr>
<td>4.60</td>
<td>300</td>
<td>250</td>
</tr>
<tr>
<td>4.80</td>
<td>200</td>
<td>350</td>
</tr>
<tr>
<td>5.00</td>
<td>100</td>
<td>450</td>
</tr>
</tbody>
</table>

Under these conditions, the equilibrium price of bananas per kilogram would be:
A. between $4.40 and $4.50.
B. between $4.60 and $4.80.
C. over $4.80.
D. none of the above.

Question 29
Theoretically, in a competitive market, which of the following would not explain a shift to the right in the location of the whole supply line for goldfish?
A. An awful disease hit the industry, causing the fish to bloat and float to the surface.
B. The 90 per cent tax on goldfish companies was abolished by the treasurer, who is an enthusiastic but secret collector of goldfish.
C. Workers employed in the goldfish industry reluctantly accepted a $100 per week pay cut.
D. A special fertility drug was developed by breeders to cause goldfish to have more babies.

Question 30
Which of the following is unlikely to increase the free market price of woollen mini-skirts?
A. A successful and compelling mini-skirt advertising campaign by tall, thin models
B. Rising consumer confidence and disposable incomes among teenage skirt buyers
C. The implementation of a special report by the government’s minister for primary industry (who followed the fashion industry closely), recommending the abolition of all taxes on clothing producers
D. The government paying a cash subsidy to wool growers, designed to encourage higher production levels

Question 31
When there is a contraction in the demand for soft drinks in a free market, the most convincing explanation of this is:
A. a rise in the price of soft drinks.
B. a general fall in wages among buyers.
C. a decline in population or market size.
D. the onset of winter.
Question 32
Capital or investment goods can best be described as:
A plant and equipment used by producers to help make other goods and services and to improve the efficiency of labour and natural resources.
B money that is available for capital formation.
C the purchase of shares on the stock market.
D equipment provided only by the government to help make collective services available to the public.

Question 33
Which of the following Australian industries best approximates a highly competitive market?
A Oil
B Banking
C Minerals
D Property

Question 34
Which of the following Australian industries best approximates a monopolistically competitive market?
A Clothing
B Electricity
C Air travel
D Beer

Question 35
Which of the following Australian industries best approximates an oligopolistic market?
A Wheat
B Groceries
C Labour
D Shares

Question 36
The size of a nation’s production possibility frontier will not be affected by:
A changes in the unemployment of resources.
B new discoveries of minerals and the use of new technology in production.
C lower rates of skilled immigration.
D climate change.

Question 37
Which of the following statements relating to economic efficiency is least correct?
A Efficiency in resource allocation is achieved when opportunity costs are maximised.
B Inter-temporal efficiency is achieved when there is an optimal balance between current consumption or the spending of income, versus saving income to finance investment and hence future consumption.
C Allocative efficiency is achieved when resources are used in ways that maximise the general satisfaction of society’s wants and general wellbeing.
D Dynamic efficiency occurs when resources are reallocated quickly to increase choice and meet the changing needs of consumers.

Question 38
Technical efficiency would probably not be improved if:
A winemakers used new equipment for grape picking.
B government funding of training along with R&D by the CSIRO and other agencies was slowed.
C there was a reduction in water used in rice growing through the use of new drought-resistant strains of seed.
D the rollout of the National Broadband Network (NBN) was accelerated.

Question 39
In Australia’s economy, the market or price system involving the operation of demand and supply makes most economic decisions about:
A the types and quantities of particular goods and services produced.
B the production methods to be used.
C how the goods and services produced will be divided or distributed.
D all of the above.
Question 40
Which statement about the operation of the price system is least correct in the market for oil?
A A fall in the relative price of oil will normally lead to fewer resources being allocated to this product.
B Technological breakthroughs that allow for the viable extraction of oil from shale sands will tend to reduce the relative profitability of oil production, attracting fewer resources and leading to lower average incomes.
C Rises in the relative wages paid to oil workers will tend to attract more labour resources into the industry.
D Lower relative prices paid for oil will tend to reduce the allocation of resources into air travel but increase resources allocated into solar and alternative energy sources.

Question 41
If the price of coffee rises by 10 per cent and the demand for coffee contracts by 5 per cent, the price elasticity of demand would be:
A greater than 1.
B less than 1.
C equal to 1.
D cannot be calculated.

Question 42
An excise tax imposed on sales of petrol or tobacco is likely to:
A greatly change consumer behaviour and reduce consumption.
B raise considerable government revenue.
C correct market failure and the problems associated with the use of these products.
D have no effect at all on resource allocation.

Question 43
A shift of the whole supply line for childcare to the right of the original line is best described as:
A an expansion in supply at a given price.
B a decrease in supply at a given price.
C an increase in the quantity supplied at a given price.
D less favourable supply conditions at a given price.

Question 44
Bananas are often regarded as having a fairly inelastic supply curve. What is the best explanation for this?
A They do not store well over a long period of time.
B Their supply is relatively fixed in the short term.
C Growers may have little unused growing capacity available.
D All of the above.

Question 45
Regarding market failure, which statement is least correct?
A Failure occurs when resources are allocated to the production of certain types of goods and services that lower the general wellbeing of society.
B The exercise of market power leads to lower prices.
C The existence of asymmetric information can lead to consumers making poor decisions that diminish the degree to which their wants are satisfied.
D Failure can sometimes be reduced by government intervention using excise taxes, subsidies and laws.

Question 46
The greatest positive externality is most likely to result from the production and consumption of which of the following?
A Tobacco
B Vaccinations against measles and flu
C Alcohol
D Cars.

Question 47
Which of the following is most likely to lead to failure in the market for electricity?
A The entry of additional firms into the industry
B Further government deregulation and the creation of a national electricity grid connecting the states
C Increased access to the internet through the National Broadband Network and the introduction of laws about product disclosure
D The abolition of the carbon tax
Question 48
Concerning the features of public and private goods, which of the following is most correct?

A Private goods are non-rival in nature.
B Public goods are normally non-excludable.
C Public goods are normally both non-rival and non-excludable.
D Private goods are normally provided through the federal budget.

Question 49
The payment of a government subsidy to private schools due to the existence of external benefits would tend to:

A increase the quantity of education supplied across all possible prices or fees, and cause the profitability for suppliers to increase.
B cause a glut of education at the original price or level of school fees so the price paid by consumers falls.
C cause an expansion in the demand for private education.
D all of the above.

Question 50
Tighter laws restricting the underage consumption of alcohol would tend to:

A lower the demand for alcohol and increase its price and quantity.
B lower the demand and cause a contraction in the supply of alcohol, along with a decrease in its equilibrium market price and quantity.
C lower the demand and decrease the supply of alcohol, causing the price and quantity of alcohol to remain unchanged.
D have no impact on the allocation of resources or on market failure.

Applied economic exercises
Instructions: Complete a selection of the following short-answer questions.

Question 1
A We say that society’s wants are virtually unlimited. What do we mean? (2 marks)
B Giving examples, identify and define the main types of productive resources available for a country. (2 marks)
C Classify the following resources as natural, labour or capital resources:
   (i) the NBN’s cables
   (ii) a computer at BHP–Billiton
   (iii) fertile soils in the Western District of Victoria
   (iv) the MCG sports oval and complex
   (v) your school principal
   (vi) Port Phillip Bay
   (vii) the Sydney Opera House
   (viii) snow on the mountains
   (ix) coal deposits in Gippsland
   (x) the Premier of Victoria. (10 x 0.25 = 2.5 marks)
D Explain why capital resources are such an important influence on a nation’s productive capacity (size of the production possibility frontier) and material living standards. (2 marks)
E Define what is meant by relative scarcity as the basic economic problem. (2 marks)

Question 2
A Why does the existence of scarcity as a problem necessitate that individuals, businesses, governments and society make choices or decisions about how resources should be allocated between alternative uses? (3 marks)
B Examine Table 1.1 showing annual production possibilities (‘000 tonnes per year) for a country that can produce only wool or cotton with the resources available. Assume that the price of cotton and the price of wool per tonne are exactly the same. Use these data to draw and fully label a production possibility diagram. (3 marks)

<table>
<thead>
<tr>
<th>TABLE 1.1</th>
<th>Production possibilities for a country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Production possibility</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Wool ('000 tonnes per year)</td>
<td>0</td>
</tr>
<tr>
<td>Cotton ('000 tonnes per year)</td>
<td>25</td>
</tr>
</tbody>
</table>

C Define what is meant by an efficient allocation of resources? Which of the two products does this country produce most efficiently? Explain your reasoning. (2 marks)
D Which production choice or possibility enables the country to maximise its material welfare using its available resources? Explain your reasoning. (2 marks)

E What is meant by opportunity cost? Calculate the opportunity cost for each of the following economic decisions:
   (i) producing 25,000 tonnes of cotton per year
   (ii) producing 35,000 tonnes of wool per year
   (iii) moving from production possibility B to C. (3 marks)

F In 2016–17, the Australian government planned to spend $27 billion (6 per cent of budget outlays) on defence. What are the likely opportunity costs of this decision? (2 marks)

Question 3

A Because of the problem of relative scarcity, all countries must make economic decisions or choices. Identify and outline the three main choices or questions that all economies seek to answer. (3 marks)

B In Australia, we rely mostly on the operation of competitive markets to make these choices or decisions. What do we mean by the term market? (2 marks)

C Identifying and outline five important preconditions that must normally be met for a market to be regarded as purely competitive. (5 marks)

D Market structures in Australia vary from industry to industry. Define what is meant by the term market structure. (2 marks)

E How is the price level normally determined in a fairly competitive market like that for property? (2 marks)

F Why would we normally expect a highly competitive market to be more efficient than a monopoly type market? (2 marks)

G For Australia, in what ways would the markets for groceries and banking be different from the markets for grains and the trading of a company’s shares? (4 marks)

H Why would Australia’s clothing industry probably be regarded as a market where there is monopolistic competition, while that for water or the NBN would normally be seen as a monopoly market? (2 marks)

I How are prices normally determined in a fairly competitive market like that for property? (2 marks)

J What is meant by the term, relative prices? How might a rise in the price of surfboards affect their relative profitability for manufacturers? (3 marks)

Question 4

Examine the demand–supply diagram in figure 1.20, representing a competitive market for soft drinks.

![Diagram of demand and supply for soft drinks]

A What is meant by the law of demand? (1 mark)

B Describe the change in the demand for soft drinks from D1 to D2. Identify and explain two likely factors or conditions which theoretically may account for the change in the demand for soft drinks from D1 to D2 as shown on the diagram. (3 marks)

C Define the term price elasticity of demand. Would you expect the actual demand for Coke to be fairly price elastic or inelastic? Explain your answer. (2 marks)

D Referring to figure 1.20, clearly describe what happens on the supply line as the market moves from equilibrium A to equilibrium B. (2 marks)

E On a fully labelled demand–supply diagram, show the hypothetical impact on the soft drink market of a fall in the price of bottled water as a substitute product. Show the before and the after situations in the soft drink market. (2 marks)

F Explain the likely impact on the soft drink market of a rise in the price of plastic bottles and the wages paid to soft drink workers. (2 marks)

G Complete and fully label each of the following D–S diagrams representing an individual competitive market in figure 1.21 to show the hypothetical effects of an event that alters either the conditions of demand and/or supply, and hence the market equilibrium price and quantity. In most cases, you will need to add a second D line (D2) and/or a second S line (S2), along with a new equilibrium price (P2) and quantity (Q2). (9 x 1 marks)
FIGURE 1.21  Demand–supply diagrams for single markets

The banana crop in Queensland is destroyed by a cyclone
The effect of a heatwave on the market for air conditioners
The effect of a successful advertising campaign, ‘Put some pork on your fork’.
A slowdown in China’s economy and the market for iron ore
A rise in petrol prices on the market for large 4WDs
A rise in consumer confidence and disposable income for air travel
The government increases the excise tax on the sale of cigarettes
The aviation market one week before the AFL grand final when a non-Victorian AFL team made the final game
An increase in the government subsidy paid to childcare providers

FIGURE 1.22  Changes in the market price of crude oil ($US per barrel)


Question 5
Examine figure 1.22 showing changes in the market price (in US$) of crude oil (used to make petrol, synthetic fabrics and plastics) between 2000 and mid-2016, and use it to answer the questions that follow.
A Assume that there was a free and competitive international market for oil. With reference to demand and supply (market theory), suggest two important reasons that could explain why the price of oil generally trended downwards between late 2013 and late 2016. \(2 + 2 = 4 \text{ marks}\)

B Assuming that the production costs (prices of resources used) paid by oil producers had been fairly steady between 2009 and 2016, explain the likely effects on the allocation of resources given the recent fall in oil prices. Giving reasons, explain which particular industries or types of production would be likely to attract extra resources and which areas would probably repel resources as a result of this recent price signal from the oil market. \(4 \text{ marks}\)

C Outline two important reasons why the federal government imposes a heavy excise tax on fuel (made from oil). \(2 \text{ marks}\)

D Explain how the government’s heavy excise tax placed on petrol might affect the allocation of Australia’s resources. Use a fully labelled demand–supply diagram to show the oil market, both before and after the imposition of an excise tax on sellers. \(4 \text{ marks}\)

E Giving reasons, explain whether oil has a price elastic or inelastic demand. Given this, would the heavy excise tax on fuel be likely to significantly reduce the quantity purchased and slow the depletion of non-renewable oil reserves? \(2 \text{ marks}\)

Question 6

Examine figure 1.23, which compares recent changes in the relative price received for selected crops and livestock.

**FIGURE 1.23 Recent events affecting the markets for crops and livestock**

**Crops**
- **Wheat**
  - The world wheat indicator price is forecast to be the lowest in 15 years in real terms, reflecting ample world wheat supplies. **↓ 10%** to US$190f/t in 2016–17
- **Coarse grains**
  - The world coarse grain indicator price is forecast to decline, mainly reflecting higher world production. **↓ 6%** to US$156f/t in 2016–17
- **Oilseeds**
  - The world oilseed indicator prices are forecast to average higher as a result of oilseeds falling in world stocks. **↑ 18%** to US$500f/t in 2016–17
- **Cotton**
  - The world indicator price for cotton is forecast to fall, reflecting higher world cotton production. **↓ 13%** to US$68f/lb in 2016–17

**Livestock**
- **Beef and veal**
  - Lamb prices are forecast to increase, reflecting reduced slaughter (as producers rebuild flocks) and firmer export demand. **↑ 12%** to US$517/k in 2016–17
- **Sheep meat**
  - The Australian farmgate price is forecast to fall, reflecting higher wool production set against firmer saleyard prices, despite increased competition in key export markets. **↓ 15%** to 950 Ac/k in 2016–17
- **Wool**
  - The Australian Eastern Market Indicator is forecast to increase, reflecting limited growth in global wool production set against firmer export demand. **↑ 14%** to 1300 Ac/kg in 2016–17
- **Dairy**
  - Australian weighted average saleyard price of milk. **↑ 2%** to 42 Ac/l in 2016–17

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**Source:** Based on ABARES, Agricultural commodities, vol. 6, no. 2, June 2016, pp. 27 and 81, http://data.daff.gov.au.

A What is meant by relative prices? Describe the recent changes in the relative market prices for crops as opposed to grains. \(2 \text{ marks}\)

B Suggest three likely microeconomic demand factors that may have caused the changes in relative prices in these markets. \(3 \text{ marks}\)
C Using a fully labelled D-S diagram for grain markets, hypothetically show and describe the effect of these recent changes in the demand conditions.  

D Suggest three microeconomic supply factors that might have caused the changes in relative prices in these markets.  

E Using a fully labelled D-S diagram for the grains markets, hypothetically show and explain the effect of the recent changes in these microeconomic supply conditions.  

F In the Australian economy, when owners of resources are making decisions about allocation, they are largely motivated to maximise their profits. Explain how changes in relative prices for crops and livestock are likely to affect the relative profitability of different areas of farming.  

G In this situation, how would you allocate resources between crops and livestock, assuming your resources were completely mobile? Justify your answer.  

H Do you believe the supply of grains and livestock is highly price elastic or inelastic? Give your reasons.  

**Question 7**

Examine figure 1.24, which represents a hypothetical demand and supply graph for hot dogs from competing shops on St Kilda Beach, Melbourne.

![Figure 1.24: The demand and supply of hot dogs](image)

- **A** Describe the change in the demand for hot dogs from D\(_1\) to D\(_2\). Identify and outline one microeconomic demand-side factor that might have caused this change in demand.  

- **B** Explain how the equilibrium market price and equilibrium market quantity of hot dogs adjusts from E\(_1\) to E\(_2\).  

- **C** With reference to this market for hot dogs, briefly explain the role of the price mechanism (market mechanism) in changing the pattern of resource allocation.  

**Question 8**

Explain how the operation of Australia's market system normally allocates scarce resources efficiently between competing uses. Illustrate your explanation with reference to recent examples.  

**Question 9**

- **A** What is market failure?  

- **B** Select any three of the following areas of market failure and explain how and why the market fails to allocate resources efficiently.  
  
  (i) Asymmetric information  
  (ii) Market power or weak competition  
  (iii) Public goods and services  
  (iv) Externalities  
  (v) Common access goods.  

- **C** Select any four of the following situations and then identify and outline the possible type(s) of market failure involved.  
  
  (i) A person with contagious whooping cough pays $80 to see a doctor and have a vaccination.  
  (ii) Toxic waste is poured down the sink.  
  (iii) A mining company extracts and sells brown coal.  
  (iv) You get driven to school rather than walking, even though it’s only 900 metres away.  
  (v) You purchase a cool T-shirt online to be sent from China.  
  (vi) Loggers clear rainforest for farming.  
  (vii) The neighbours throw a wild party that rages for days.  
  (viii) A director of a technology company, knowing that the company is about to fail, sells her shares before the announcement is made to the public.
(ix) After a serious road accident, an injured woman has to wait 24 hours before being able to get treatment in a hospital’s busy emergency department.

(x) You are forced to take out HECS-HELP to pay for a university course in commerce.

(xi) Water and power companies decide to increase their charges to customers by 30 per cent in one year.

(xii) A director of a car company fails to inform customers that the cars’ emissions and other specifications were incorrect.

(xiii) You sell your smartphone after dropping it into a cup of coffee.

(D) One way the federal government can try to correct some types of market failure is using aspects of the budget. Examine table 1.2 showing estimates of the federal government’s major budget receipts and budget outlays for 2016–17.

**TABLE 1.2  Federal government estimates of selected budget receipts and outlays for 2016–17**

<table>
<thead>
<tr>
<th>Type of budget tax revenue</th>
<th>$b (rounded)</th>
<th>Type of budget outlay</th>
<th>$b (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income tax on individuals</td>
<td>201</td>
<td>Social security and welfare</td>
<td>159</td>
</tr>
<tr>
<td>Company &amp; resource rent taxes</td>
<td>71</td>
<td>Health</td>
<td>71</td>
</tr>
<tr>
<td>Sales tax (including GST)</td>
<td>65</td>
<td>Education</td>
<td>34</td>
</tr>
<tr>
<td>Excise taxes</td>
<td>22</td>
<td>Defence</td>
<td>27</td>
</tr>
<tr>
<td>Customs duty</td>
<td>14</td>
<td>General public services</td>
<td>23</td>
</tr>
</tbody>
</table>

*Source: Data derived from Budget Paper 1, 2016.*

(i) Select one budget receipt and one budget outlay. For each chosen item, explain how the policy measure might affect the way Australia uses or allocates its scarce resources.  

(ii) For each of the two items identified in part (i) above, explain why the government uses the particular policy to alter the allocation of our resources.

(E) With the use of a labelled demand–supply diagram, explain how the imposition of a carbon tax on companies that pollute, starting at $23 per tonne (where the amount of tax reflects the annual number of tonnes of carbon dioxide pollution released into the atmosphere), could have influenced Australia’s resource allocation between 2012 and 2014.

(F) Quoting examples, explain what is meant by the free rider problem as an area of market failure. Explain two policies the government could use to help overcome this problem.

(G) Government subsidies can be used to reduce some types of market failure.

(i) What is a government subsidy?

(ii) Explain how subsidies paid to Australia’s sugar growers or suppliers to leave the industry would alter the allocation of resources that would otherwise occur in a market economy. Illustrate the impact of this type of subsidy, using a hypothetical demand–supply diagram for the sugar market, to show the before and after effects of the payment.

(H) The federal government currently pays a tax rebate of up to 30 per cent for those individuals taking out or buying private health insurance. This is because it helps to correct market failure, improve resource allocation towards socially desirable public goods and services, eases pressures on public hospitals and ultimately improves government finances. With the help of a fully labelled demand–supply diagram, explain how this action by the government might help to correct market failure.

**Question 10**

A What is government failure?  

B Using a demand–supply diagram, explain why some economists believe that setting minimum wages and conditions in the labour market represents an instance of government failure.

C In what way might the government’s use of tariffs represent an example of government failure?

D When there are instances of government failure, what is one of the solutions typically used?

**An essay**

The following may be a guide to an appropriate essay topic (total 40 marks) that covers Economics Unit 3, Outcome 1.

A At the microeconomic level, explain how the operation of the price system, and changes in relative prices in Australia, allocate scarce resources between alternative uses. Illustrate your answer by reference to appropriate current examples of markets. If you wish, use fully labelled diagrams to help your explanation.

B What is market failure? Outline two important types of market failure and the reasons for them.

C Explain how the Australian government has or might seek to overcome this failure using appropriate policies to improve living standards.
A written report

After conducting appropriate research using the internet and other sources, prepare a written report covering one of the following topics (total 40 marks). Note: Your report should contain tables, graphs and diagrams, and footnote the sources of information.

Question 1
A What is meant by an efficient allocation of resources and why is this usually achieved in competitive markets through the price system? (10 marks)
B Explain why climate change may be described as the biggest market failure ever, noting the main reasons for this failure. (10 marks)
C Outline how the Australian government has used various policies designed to reduce this example of market failure and improve the allocation of resources that would otherwise occur. (10 marks)
D Evaluate the success of government policy to reduce climate externalities. (10 marks)

Question 2
Select a commodity market for your investigation. For this chosen market, complete the following research questions for your report:
A Introduction to your market: Describe the likely type of market structure and the key features of your chosen commodity market. (5 marks)
B Commodity buyers:
(i) Who are the main buyers in this market? (5 marks)
(ii) Is the demand for this commodity likely to be price elastic or inelastic? Why? (5 marks)
(iii) What are the microeconomic demand conditions affecting the quantity buyers are prepared to purchase at a given price, thereby affecting the demand line for this commodity? (10 marks)
C Commodity sellers:
(i) Who are the main sellers in this market? (5 marks)
(ii) Is the supply of this commodity likely to be price elastic or inelastic? Why? (5 marks)
(iii) What are the microeconomic supply conditions affecting the quantity sellers are prepared to make available at a given price, thereby shifting the supply line for this commodity? (10 marks)
D The effects of changes in the commodity price:
(i) Use the ABARES, YQ Matric graphs or RBA Statistics weblinks in this topic’s student resources tab to research a graph showing the changes in the level of the market price over the last 10 years, five years or the past year in a commodity of your choice. Describe these changes and trends. (5 marks)
(ii) How have recent changes in the conditions influencing the decisions of both buyers and sellers affected the market price of your commodity? With the help of a hypothetic, fully labelled D–S diagrams, explain the reasons for the change in recent market prices. (5 marks)
(iii) Explain how the recent trend in relative market prices is likely to have affected how resources are allocated by their owners between alternative uses. (5 marks)

1.9 Review

Summary
What is economics?
• Economics is the study of how to use limited resources efficiently to maximise the satisfaction of people’s material needs and wants, and their overall living standards.
• Economic problems can be studied from both a microeconomic and a macroeconomic perspective.
• A basic assumption in economics is that resources or productive inputs are limited.
• Resources include natural, labour and capital inputs used in production.

Relative scarcity
• Relative scarcity arises because there can never be enough goods and services produced from the limited resources available to satisfy the unlimited and ever-growing needs and wants of households, businesses, governments and people overseas.
Opportunity costs
- Given scarcity, society is forced to make choices about how to use or allocate resources in ways that best satisfy needs and wants. All choices involve opportunity costs as production is forgone in one area to release resources for an alternative use. However, some choices involving resource allocation are more efficient than others and better maximise total production levels and material living standards.

The three economic questions
- Nations rely on an economic system for making choices concerning
  - ‘what and how much to produce’;
  - ‘how to produce’; and
  - ‘for whom to produce’.
- These choices greatly affect our living standards.
- In Australia, most choices are made by the market mechanism (also called the price or market system) but there can be a limited degree of government planning and interference.
- Australia has a predominantly competitive market economy. Our country thus relies mostly on the market and changes in relative prices and profits to make economic decisions (combined with a limited amount of government intervention). In addition, private enterprise or ownership (resource owners are seeking to maximise their profits and incomes) is far more dominant than government-owned business enterprises.

The role of markets and relative prices in allocating resources
- Microeconomics studies the operation of particular markets that make up the overall economy.
- Different market structures exist (for example, pure competition, monopolistic competition, oligopoly, monopoly), each with different features and levels of market power.
- The pure or competitive market system relies on strong competition and on the forces of demand and supply to allocate resources efficiently. Together these forces affect relative prices that that generally answer the ‘what’, ‘how’ and ‘for whom’ questions fairly efficiently, without the need for much government regulation.
- In a free or competitive market, a rise in the final price for a particular good or service (relative to the prices of other goods and services) may signal that there has been underproduction, where firms need to lift output volumes of that given good or service to maximise profits. By contrast, a fall in the relative price of a good or service indicates that there has been overproduction where owners of resources need to cut output and move resources into other uses in order to maximise profits.
- Demand–supply diagrams illustrate the forces of demand and supply. Demand varies inversely with price changes while supply varies directly.
- Elasticity is a concept that describes the relative responsiveness (whether there is a large or small contraction or expansion) of demand and supply to price changes.
- Additionally, new conditions of demand and new conditions of supply cause the equilibrium market price to change because of changes in the location of the demand and supply lines on a demand–supply diagram.

Market failure
- The market fails when resources are not used efficiently to produce particular types of goods and services that maximise or best satisfy society’s wants, general wellbeing and living standards.
- Market failure occurs in a number of situations. It may involve:
  - positive and negative externalities arising out of the production and consumption of goods and services
  - the provision of socially desirable public goods
  - problems in the use of common goods
  - asymmetric information
  - the exercise of market power or weak competition.
- Market failure lowers efficiency in resource allocation and general living standards.
- Governments try to reduce market failure and raise society’s general living standards and wellbeing by intervention and regulation of the price or market system using, for example, various types of indirect tax and budget outlays, direct production by the public sector, subsidies and industry assistance, informative or educational advertising, improved access to information, legislation or laws, and restrictions or bans.

Government failure
Government failure occurs when intervention or regulation of a market results in unintentional and unwanted outcomes that diminish society’s general wellbeing. Some possible examples of government failure might include:
- Setting excessively high minimum wages and working conditions may cause youth unemployment, business closures and necessitate higher taxes to support welfare.
- The use of the carbon tax in 2012–14 to reduce CO₂ pollution as a negative externality may have reduced equity and necessitated compensation to low-income households and high-emission firms, thereby making the tax less effective by undermining necessary price signals.
- The payment of huge government subsidies to the coal mining industry has encouraged an industry that has massive environmental external costs that contribute to climate change.

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Key terms

A **budget** is a document that sets out the government’s planned income and expenses for the next financial year. Spending on public goods and services in the budget mostly comes out of government taxes.

A **demand–supply diagram** illustrates the behaviour of buyers and sellers of a particular good or service in a market, and how prices are determined.

**Allocative efficiency** is where resources are used in ways that maximise society’s satisfaction and opportunity costs are minimised.

A **market** is a decision-making institution where buyers (demanders) and sellers (suppliers) negotiate the price for a particular good or service.

A **market capitalist economy** is an economic system that relies mostly on the market or price system to make key decisions about what to produce, how to produce and for whom to produce. Resources are generally privately owned.

A **minimum wage** is set by the Fair work Commission and is the lowest wage that an employee can be legally paid.

An **economic system** or economy is a way of organising the production and distribution of the nation’s goods, services and incomes.

An **efficient allocation of resources** occurs when productive inputs are used to produce particular types of goods and services that help to maximise the extent to which society’s wants are satisfied. Efficiency implies that society’s wellbeing or general living standards cannot be increased by changing how resources are used or the specific types or quantities of goods and services that are produced.

**Asymmetric information** exists in a market where buyers lack complete information required to make rational decisions about how to use their resources.

**Capital resources** are physical plant and equipment used by firms to help make other goods and services.

**Common access goods** include the environmental natural resources such as air, minerals, oil, forests that we all depend on. They are typically **non-excludable** but yet are **rivalrous**.

**Conditions of demand** are the factors that affect the quantity of a good or service that buyers are prepared to purchase or demand at a given price.

**Conditions of supply** are the factors that affect the quantity of a good or service that producers are willing to make available at a given price.

**Consumer sovereignty** exists when consumers of goods and services, not governments, dictate how resources will be used.

**Demand** refers to the quantity of a good or service that consumers are willing to purchase at a given price. This can be shown by a demand line.

**Dynamic efficiency** occurs when resources are reallocated quickly to increase choice and meet the changing needs of consumers.

**Ease of entry** means that there are few barriers to entry or start up, such as high set-up costs, licencing laws and bureaucracy, and restrictions by well-established firms.

**Ease of exit** means that existing firms can easily leave the market if they want to change the things they produce.

**Economic efficiency** exists when there is maximum output gained from a given volume of productive inputs, thereby maximising society’s general wellbeing and material living standards. It can mean allocative, dynamic, productive and intertemporal efficiency.

**Economics** examines how limited resources are used to produce goods and services to help satisfy needs and wants, and improve living standards.

**Elasticity** measures the responsiveness of the quantity of a good or service demanded or supplied when there is a change in its price.

**Equilibrium** is the natural situation towards which all free and competitive markets tend to move. It exists only when the quantity demanded exactly equals the quantity supplied, and there is no market glut or shortage.

**Externalities** represent a market failure and are the costs or benefits that arise from the economic activities of firms and households that are passed on to third parties not directly involved in the original activity.

**Homogeneous products** are identical products that are not differentiated using brand names, design differences or advertising.

**Intertemporal efficiency** refers to finding the optimal balance between current consumption or the spending of income, versus saving income to finance investment and hence future consumption.

**Labour resources** used in production are physical power and mental talents provided by employees.

**Macroeconomics** is a branch of economics that examines the workings and problems of the economy as a whole (that is, consisting of the sum of all markets and industries).

**Market failure** occurs when the price system allocates resources inefficiently, reducing the overall satisfaction of society’s wants, wellbeing and living standards. This can occur when there is weak competition, externalities, public goods, common access goods and asymmetric information.
Market glut occurs where the quantity of a good or service supplied at a given price exceeds the quantity demanded at that price, causing the equilibrium market price to fall.

Market power occurs when there is only one firm (or just a few rival firms) producing or selling a good or service in a market for which there are no (or few) substitutes available, allowing the firm to potentially be a price maker.

Market shortage occurs where the quantity of a good or service demanded at a given price exceeds the quantity supplied at that price, causing the equilibrium market price to rise.

Market structure refers to the type and level of competition that exists in various markets, such as monopoly or pure competition.

Microeconomics is a branch of economics that examines individual decision making by firms and households, and how this impacts on particular markets for a good or service.

Mobile resources are productive inputs that can move freely free from one use to areas where relative profits are highest.

Monopolistic competition exists when there are quite a few rival producers of a product or service but there is differentiation.

Natural resources are the gifts of nature, such as minerals.

Oligopoly exists where a few large firms control the output of a product for which there is no close substitute.

Opportunity cost is equal to the benefit forgone by a decision not to direct resources into the next best alternative use.

Perfect knowledge occurs when buyers and sellers are well-informed about the market and have complete and accurate knowledge of current market trends in prices.

Price elasticity of demand measures the responsiveness of the quantity of a product demanded given a change in its price.

Price elasticity of supply measures the responsiveness of the quantity of a product supplied given a change in its price.

Price is the purchase cost or amount paid in exchange for a good or service.

Production possibility diagrams are used to illustrate the production choices available to society in the ways that resources may be used or allocated. They also help illustrate the concept of opportunity cost.

Productive capacity represents the physical limit to a nation’s production level, given that all resources are used as efficiently as possible. It is represented by the production possibility frontier.

Productive or technical efficiency implies using the lowest cost production methods and minimising wastage of resources in making goods and services.

Public goods such as education and health are provided by the government for the benefit of the community. They are generally regarded as socially desirable, and are seen as non-excludable and non-rival in nature.

Pure competition exists when there are many buyers and rival sellers competing strongly in a market. Pure competition implies that firms are price-takers, potential competitors can easily enter and exit the market, there is perfect knowledge of relevant conditions in the market allowing buyers and sellers to make rational decisions, and so on.

Pure monopoly exists when a single firm controls the output of a particular market. That firm is a price maker and competition is weak.

Rational behaviour means that sellers and buyers follow their own self-interest.

Relative prices describe the price level of one good (such as wheat) or service (such as health) compared with the price level of another good (such as wool) or service (such as education). Changes in relative prices (price signals) normally affect the relative profitability of different types of goods and services, and hence help dictate how scarce resources are used or allocated.

Relative profits describe the level or rate of profit gained from producing one type of good or service compared with the profit gained from producing an alternative good or service.

Relative scarcity is the basic economic problem. It exists because society’s wants are virtually unlimited yet the productive resources available to satisfy them are limited. This necessitates choices about which wants will be satisfied first, resulting in opportunity costs.

Resource allocation relates to decisions about which types of goods and services will be produced and which wants will be satisfied. This may be decided by either the market system or by government economic planning.

Resources are productive inputs and include natural, labour and physical capital used by businesses.

Supply refers to the quantity of a particular good or service that sellers are willing to make available at a given price. This can be shown by a supply line.

The free rider problem occurs when a service is provided but payment is difficult or almost impossible to extract from the users who benefit from it (e.g., national defence, police and street lighting). Users are non-excludable.

The law of demand states that the quantity of a good or service demanded varies inversely to price.

The law of supply states that the quantity of a good or service supplied varies directly with price.