Chapter 2 An introduction to Microeconomics and the role of markets

2.1 An introduction to microeconomics and the role of markets

This chapter focuses on a well-established model that can be applied to a range of markets. It is used to make predictions about the effect of changing economic circumstances on prices and quantities sold in product, factor and other markets, such as the money market and the foreign exchange market. This area of study is referred to as microeconomic analysis, where **microeconomics** is the branch of economics that looks at the behaviour of the individual economic agents (usually households and businesses) that make up the whole economy. In this area of study, we are interested, primarily, in the motivations of consumers and producers (or suppliers) and how they respond to changing incentives in individual markets. We are especially interested in the role of relative prices in allocating the scarce resources that were discussed in Chapter 1. The model discussed in this chapter gives us the opportunity to investigate and to analyse the potential consequences associated with the changing demand and supply conditions that frequently occurs in markets.

Microeconomics underpins the use of 'macroeconomic analysis, the study of which follows later in the course. By the end of the chapter, we will see how the market is the primary mechanism that our economy utilises to answer the three key questions of what to produce, how to produce and for whom to produce. It therefore has a huge influence on how scarce resources are allocated.

2.2 Perfectly competitive markets



A **market** is any type of arrangement (which may or may not involve a physical space) that facilitates exchange between buyers and sellers of goods and services, where the price represents the rate at which those goods and services are exchanged. The purchasers of goods and services may be households, businesses, governments or a range of other economic groups such as not-for-profit organisations. The suppliers are generally businesses, but in the factor market, households supply businesses with their labour (this will be explored in more detail in Chapter 5). In Australia, government bodies also supply a wide range of goods and services, including education, health care, defence, transport, telecommunications and law and order. Buyers and sellers of goods and services may meet in the same space, such as a shop, or they may communicate and exchange online, either domestically or internationally. Goods and services are sold in **product markets**, while the factors of production (e.g. inputs) are sold in **factor markets**, such as the labour market. The models used in this chapter can also be applied to the money market to determine interest rates (the price of money) and to the foreign exchange market to determine exchange rates (e.g. the value of the AUD against USD).

As we saw in Chapter 1 (Box 1.1), when economists develop theories about consumer and producer behaviour, they often make simplifying assumptions. When undertaking analysis of markets (demand and supply analysis), the model that will be used is based on the idea that the markets considered are highly competitive. This is a fundamental premise of the analysis that will be undertaken, and therefore it is important to keep it in mind when considering the information that follows. The word competition is used frequently in everyday language, especially by businesses, who would like you to believe that you are getting a good deal. When studying economics, however, the degree of **competition** is intrinsically linked to a set of key conditions.

The market structure that forms the basis of demand and supply analysis (to illustrate how the market mechanism works) is often referred to as **perfect competition.** It can also be called a 'perfect market' or a 'perfectly competitive market'. The conditions and/or assumptions required for perfect competition are as follows:

- There is assumed to be a large number of buyers and sellers such that each economic agent acts independently in the market. No individual buyer or seller therefore has the market power to influence the price. This leads to the condition of **price taking** in the perfectly competitive market.
- It is assumed that the products being sold in a perfectly competitive market are **homogenous**, which means that they are virtually identical and easily substitutable. This encourages the suppliers to offer the products at

the lowest possible price, because this is the main way to attract customers (rather than, for example, being a better brand).

- There is **ease of exit and entry** into this market. There are low set up costs in the industry, which means that if profit making opportunities exist (for example, because the good or service has increased in popularity), then new entrants can seek to capture a share of the market, possibly by undercutting the existing suppliers who may be making very high profits in the short term. These very high profits are referred to in economics as **'abnormal profits'** or **'super-normal profits'**. [See the Study Tip for an explanation of how economists view profits and costs. Economic costs were also considered in Application exercise 1i in Chapter 1.]
- Buyers and sellers operate with **full information**. They are aware of what they are buying and selling and are able to easily compare prices. Based on this information, they make fully informed **rational choices**.
- Resources are **mobile** and will be reallocated towards those areas of production that generate the greatest benefit.
- Both the buyer and the seller seek to maximise their own wellbeing. For the seller this means to **maximise profit** and for the purchaser it means to **maximise utility** or satisfaction.

Study tip

'Economics costs' have a specific meaning that makes them quite different to the accounting costs. Economic costs are intricately related to opportunity cost and represent both the explicit (accounting) cost and implicit costs associated with any investment or production decision. To illustrate, if a small businesses makes sales of $180,000 and has expenses of $80,000, then the accounting cost is $80,000 and a profit of $100,000 is made. However, if the owner could have generated $100,000 in income by using her time working as an employee instead of owning and running the business, then the economic cost becomes $180,000 and the profit is zero. In this example, economists would say that the business owner is neither making an economic profit nor loss. Instead, it is a normal profit and, ceteris paribus, is just enough to keep her in the business. If the owner makes less than normal profits (an economic loss) in the long run, then she is likely to exit the industry. When firms make economic profits above zero, it is likely to entice other producers to enter the industry in search of 'above normal profits' (also called super-normal profits).

In a perfectly competitive market, there is generally minimal intervention by the government. Government intervention can alter the operation of the price mechanism, resulting in a different set of relative prices and changes in the way resources are allocated. [Relative prices are an important concept that is defined later in Section 2.9 of this chapter.] The role of government in markets will be considered in Chapter 3, but for most of this chapter, government influence on markets will generally be ignored. In other words, we will assume that markets are free from government intervention.

The conditions and assumptions required for a free and perfectly competitive market are rarely fully satisfied in the real world. Markets that are often regarded as highly competitive include those for commodities such as wheat, livestock and minerals such as gold. The share market and foreign exchange market also exhibit many characteristics of highly competitive markets, with large numbers of buyers and sellers, relatively easy entry and exit, and ready access to information.

The fact that the model of perfect competition is based on assumptions that might appear unrealistic does not mean that it cannot be used to help analyse less competitive markets. Economists can modify or relax these assumptions to analyse other market structures and predict how firms and consumers might behave. A monopolist, for example, is the sole seller of a good or service for which there are no close substitutes. However, it must still consider how consumers are likely to respond to changes in price.

The behaviour of producers and consumers in a competitive market

In any **market**, consumers and businesses are assumed to be acting in their own self-interest at all times. This assumption implies that consumers will want to obtain the quantity of the good or service that maximises their utility at the lowest possible price. If they are willing to purchase the good or service at a certain price, they are giving suppliers a clear signal that they value it by at least that much. If they obtain the good or service for less than the maximum they are willing to pay, then they have obtained what is referred to as consumer surplus. **Consumer surplus** is therefore the difference between the price the consumer is willing to pay and the market price.

The assumption of profit maximisation implies that the seller in a competitive market will try to sell their product at the highest possible price to maximise profit (revenue minus expenses). If they can sell the product at a price above their minimum selling price (which is linked to their economic costs), they generate a **producer surplus** (the difference between the price at which the producer is willing to sell the product and the market price). The price determined in any market is therefore a compromise between how much consumers are willing to pay for the product and how much suppliers are willing to sell it for.

In a perfectly competitive market, product homogeneity ensures that businesses compete on price. Consumers also compete with one another to gain access to scarce products. When there is more demand for a product than supply,

consumers may bid up prices, which acts as a way to ration the scarce goods. Competition also occurs between individuals seeking the best job or between firms competing for access to scarce inputs in the market. Nations that produce a wide range of similar goods and services compete in international markets.

The remainder of this chapter is essentially concerned with an analysis of the **market mechanism** (or **price mechanism**) which describes how the forces of **demand** and **supply** determine the **relative prices** of goods and services, which then ultimately determine the way our productive resources (e.g. natural, labour and capital) are allocated in the economy.

2.3 The law of demand and the demand curve

As mentioned in the previous section, buyers in any market will generally want to obtain the product at the lowest possible price and will exchange money for what they see as equal to or less than the value they place on the product. It is logical, therefore, that at higher price levels, the demand for most goods and services will decrease. As the price rises, the opportunity cost of purchasing the product will increase, leading some buyers to drop out of the market. In simple terms, the willingness and ability to purchase the good or service diminishes as prices rise. (We should keep in mind, however, that there are always exceptions to most economic laws, so this will not be the case for every single good or service).

The law of demand

The **law of demand** states that there is an inverse relationship between the price (the independent variable) and the quantity demanded (the dependent variable). This relationship is based on the assumption that all other variables that could affect the demand for a product are held constant (the ceteris paribus condition discussed in Box 1.1 in Chapter 1). In other words, if we assume that nothing else in the market changes, just the price, then the quantity demanded will respond to the change in price.

As the price decreases, the quantity demanded increases

As the price increases, the quantity demanded decreases



It could be argued that the law of demand is based on economists' observations of human behaviour. As you read each of the following justifications for the law of demand, it is worth considering the extent to which each factor is relevant in the context of your own consumption behaviour:

- As the price increases some consumers may no longer be able to afford (as much of) the product because a greater percentage of income is required for its purchase. Economists commonly refer to this as the **'income effect'**. They will therefore reduce the quantity purchased or not purchase the product at all.
- Price is generally seen as an obstacle that may deter people from buying a product and an increase in price may mean that the supplier is now asking for an amount that exceeds what people think the product is worth. Given that each person is assumed to have an amount they are willing to pay for a good or service (based on its **perceived value** to them), it makes sense that at higher prices less will be demanded. More people will drop out of the market as the price exceeds its perceived value.
- Higher prices may also encourage consumers to look at the alternatives that are available in the market. When the price of one good increases (and it is assumed others do not), consumers will look towards cheaper substitutes, so quantity demanded is likely to fall. Economists commonly refer to this as the **'substitution effect'**.
- Many products are subject to **diminishing marginal utility**. Diminishing marginal utility (also discussed in Box 1.1 in Chapter 1) recognises that each additional unit that is consumed (referred to as the 'marginal' unit) will add to a person's level of satisfaction (i.e. add to their 'utility'). However, the benefit received from each additional unit falls with each successive unit consumed. It may still be a positive experience, but the level of utility (satisfaction) is less for the second unit than the first and so on. In other words, diminishing marginal utility refers to the idea that each successive item of the product purchased yields less satisfaction. This affects a consumer's willingness to pay for a product. If the first apple you consume yields a certain amount of satisfaction, it would be expected that a second apple consumed straight after that would yield less satisfaction. Each successive apple will yield even less satisfaction, so the amount you are willing

Study tip

It is important for students of Economics to remember that, when we are talking about the law of demand, we are talking about the response of the quantity demanded to a change in price, not how changing demand affects the prices of goods and services. Consideration of factors other than price causing changes in demand will occur in the next section.

to pay for those extra apples tends to decrease. As a result, you will only buy the extra units if the price is lowered. This links to the second reason why the law of demand makes sense, because each successive unit of the good consumed is seen to have a lower perceived value for most consumers.

Box 2.1 The law of demand in action: 'House auction'

Attending a house auction is one way to witness the law of demand in action. There is one unique product for sale (the house), and there are generally several potential buyers interested in the property. In this environment, the potential buyers will compete against one another. Bids may start low, with many people willing and able to pay the amount stated. As the price is bid up, the number of potential buyers decreases. The person who places the highest bid may or may not win the auction. They will only be able to purchase the house if their bid is above the vendor's (seller's) reserve, the lowest price the vendor will accept. Those who have dropped out of the race have either accepted that the price is above their budget (income effect) or decided that the house is not worth the price reached (beyond their perceived value). There may also be similar houses (substitutes) nearby which they believe may sell for less. If there is only one person who is interested in the property or the second highest bidder doesn't value it as much as the highest bidder, then the purchaser may obtain the house for less than what they were willing to pay (and hence gain some consumer surplus). Thankfully, the real estate agent cannot read the minds of the potential buyers.



Constructing a demand curve

There are a range of factors that affect the quantity demanded in any market, but it is difficult to visualise more than two dimensions. Economists have therefore decided that it makes sense to choose the most important factor that influences the demand for most goods and services, namely price.

> ***The demand curve shows the relationship between various possible prices for a product and the quantity that consumers in the market would be willing and able to buy at each of these prices.***

This total demand in the market is based upon the total amount demanded by each individual consumer (i.e. the sum of all individual demand curves). It is important to be aware that demand is based on both the **ability** and **willingness** to purchase. You may want to purchase a new sports car, but unless you have the income to pay for it (and are willing to sacrifice this income) then it is not relevant for the construction of the demand curve. This is referred to as **effective demand**.

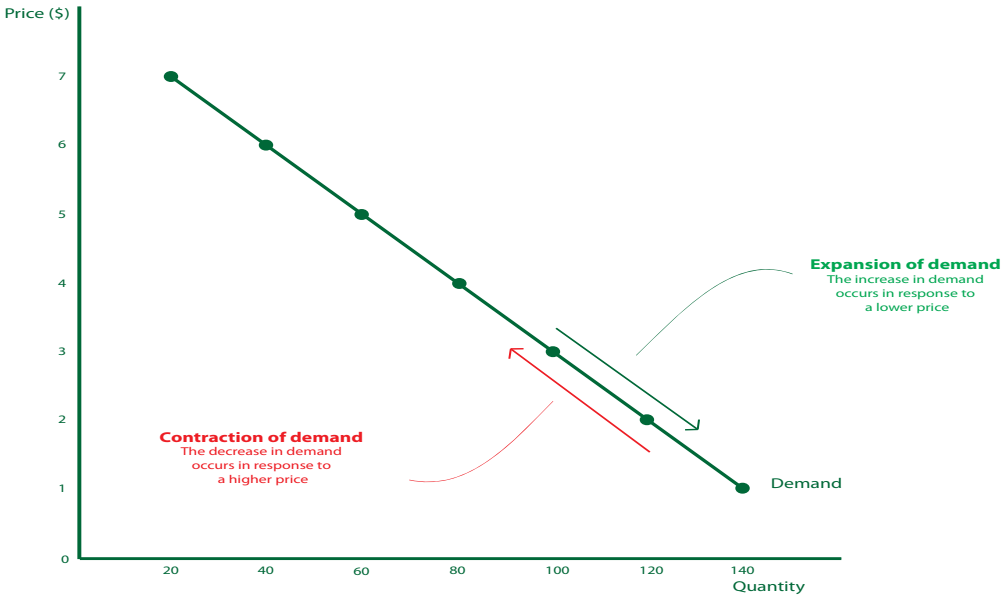
Consider the following hypothetical information about the market for green smoothies, represented in a **'demand schedule'**. Green smoothies have become increasingly popular in the twenty first century as consumers look to replace their sugary beverages with juices and smashed up (blended drinks of) fruits and vegetables (called smoothies). Table 2.1 shows the number of green smoothies that would be purchased at any given price on any given day in a hypothetical market. It is clear that the demand for green smoothies follows the law of demand. Lower prices result in an increase in the quantity demanded and higher prices result in a lower quantity demanded. For example, if the price of green smoothies increases from $5.00 to $7.00, demand for green smoothies **contracts** from 60 per day to 20 per day.

Table 2.1 Demand schedule for green smoothies

Price ($AUD) per 500 ml	Quantity demanded per day
1.00	140
2.00	120
3.00	100
4.00	80
5.00	60
6.00	40
7.00	20

The law of demand is represented in a two-dimensional diagram with the price on the vertical (y) axis and the quantity demanded on the horizontal (x) axis. This is represented in Figure 2.1.

Figure 2.1:
Demand for green smoothies





It is important to note that when the price of the product changes, there will be a **movement along the demand curve.** When prices increase, demand generally **contracts** (moves left along the demand curve). When prices fall, demand usually **expands** (moves right along the demand curve).

The difference between a movement along and a shift of the demand curve

Economists distinguish between a movement along the demand curve and a shift of the demand curve. In both cases, the demand for a good or service will change, but the reasons for the change differ. A movement along the curve is due to a change in the price of the good or service, whereas a movement along the demand curve to the left (a contraction) is caused by an increase in the price of the relevant good or service. A movement along the demand curve to the right (an expansion) is caused by a decrease in the price, whereas a shift of the entire demand curve will occur when one of the other factors of demand (i.e. not price) has changed. Non-price factors influencing demand will result in either an increase or decrease in the quantity demanded at any given price. This means the previous demand curve is no longer relevant to the new set of circumstances. These demand factors are explored in Section 2.4.

Review questions 2.1 - 2.3

1. What are the conditions for a perfectly competitive market? How might these conditions influence the degree of competitiveness in the market?
2. Provide three examples of markets where you have been involved in the exchange of a good or service in the last month and discuss whether 'price' was a motivating factor behind the purchase.
3. Explain how consumers might compete against each other in a competitive market. Give an example from your own experience.
4. State the law of demand. With reference to the income and substitution effects, explain why the law of demand is a good explanation of human behaviour when faced with changing prices.
5. Distinguish between a movement along the demand curve and a shift of the demand curve.
6. Describe how the equilibrium price is achieved at an auction and link your response to the law of demand.
7. With reference to a snack you like to eat after school, explain what is meant by the concept of diminishing marginal utility.
8. Explain the link between diminishing marginal utility and the law of demand.

2.4 Non-price factors that affect demand

The demand curve depicts the relationship between price and its impact on the quantity demanded for a particular good or service. Other (non-price) factors that may affect the quantity demanded are held constant (ceteris paribus). However, changes in these non-price factors do occur, and such changes will cause the demand curve to shift – this effectively means that a ***new demand curve*** will now be relevant.

If the demand curve shifts to the right, this means that for each given price there is a greater quantity demanded, which is commonly expressed as an increase in demand. A shift of the demand curve to the left means that for each given price there is a lower quantity demanded, which is commonly expressed as a decrease in demand. The non-price demand factors that students need to learn as part of the VCE Economics course are explored below.

Disposable income

Disposable income is defined as the rewards received by households from their direct contribution (from working) and indirect contribution (from the provision of land or capital) to the production process, plus government transfers less direct (income) taxes. This represents the ***total amount that consumers have to spend on goods and services***. Disposable income could increase, for example, when a person gets a pay increase, the government cuts individual income tax rates or when a household receives dividends or makes capital gains from buying or selling assets. During periods of strong economic growth, there will also tend to be a lower unemployment level and hence the disposable income earned across the country will also tend to rise (wages and salaries are in most cases going to be higher than the income received from government benefits).



Disposable income
=
Factor income
[e.g. wages for contibuting labour]
+
government transfers
–
direct (income) taxes
on factor income



An increase in disposable income will typically shift the demand curve to the right, as consumers become more willing and able to purchase a greater quantity at any given price. This assumes that the good in question is a **normal good**, defined as one for which demand increases as income increases.

An increase in disposable income is likely to have a negative effect on the demand for **inferior goods**, which are goods for which demand falls as consumer income increases (ceteris paribus). Examples might include second-hand clothing, generic ('homebrand' or no-name) products sold in supermarkets and travel by bus. As income increases, consumers may choose to substitute away from these goods towards new clothing, branded products or their own mode of transport.

Study tip

It is important to distinguish between disposable income and discretionary income. Income tax increases will decrease disposable income but if the individual does not have savings, interest rate increases won't affect disposable income. This is because the individual will still receive the same rewards from their contribution to the production process. However, changes in interest rates is likely to affect discretionary income, especially for households who have loans with variable interest rates. Discretionary income is a measure of how much households have left over to spend on non-essential items after their core expenses have been paid.

With reference to green smoothies, if the government granted an income tax cut to all workers, disposable income across the country would tend to increase. Some workers may choose to spend part of their additional disposable income on green smoothies. Not everyone receiving additional disposable income will purchase more green smoothies, but it is reasonable to expect that some will. Therefore, assuming green smoothies are a normal good, overall demand would increase, resulting in a greater quantity of green smoothies being demanded at each price.

This would be represented by a shift of the demand curve to the right and the demand information might change as shown in Table 2.2 below.

Table 2.2 Demand schedule for green smoothies		
Price ($AUD) per 500 ml	Quantity demanded per day (D1)	NEW Quantity demanded per day after income tax cut (D2)
1.00	140	150
2.00	120	130
3.00	100	110
4.00	80	90
5.00	60	70
6.00	40	50
7.00	20	30

Figure 2.2:
Demand for green smoothies [Shift of demand curve]

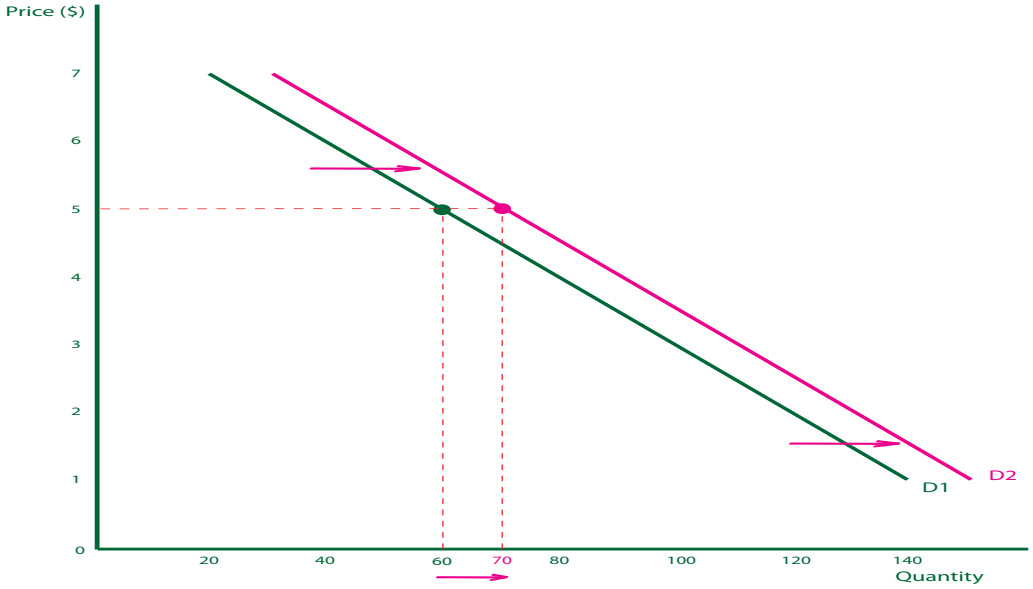


Figure 2.2 shows how a personal income tax cut affects the demand for green smoothies. For example, at a price of $5.00 the demand has increased by 10 drinks per day, from 60 to 70. This increase in quantity demanded occurs at every other price, which is why the demand curve has shifted to the right in a parallel fashion. The tax cut in this case is likely to result in an extra 10 green smoothies being demanded per day as some of the extra disposable income has been allocated to the consumption of green smoothies. People who like them might be buying more or those who could not afford them before the tax cut may now feel that it is within their budget. It is important to note that we can't yet predict how many smoothies will actually be sold, as this will depend on the supply conditions in the market at the time, which will be considered in the next section.

Interest rates and other factors affecting discretionary income

Interest rates represent the reward for lending (saving) or the cost of borrowing, expressed as a percentage of the **principal** (the amount lent or borrowed). Increases in interest rates are likely to have the greatest impact on the behaviour of those who are indebted. Most home loans in Australia are usually offered with variable interest rates, which means that the banks can adjust the interest rate payable in line with changing economic circumstances (usually, but not always when the RBA changes the cash rate). An increase in interest rates will mean that indebted households (and businesses) will have less **'discretionary income'** after paying interest. This is likely to result in a decrease in demand and a shift to the left of the demand curve for many goods and services (especially non-essential items). In this case, less will be purchased at each price. In the case of retirees, a fall in interest rates might result in a decrease in their disposable (and discretionary income) as the interest earned on their savings will be lower.

There are a number of other ways (called transmission channels) that changes in interest rates can affect the demand for goods and services. These will be discussed in more detail as part of the analysis of monetary policy in Chapter 9.

When using the term discretionary income, economists are referring to the amount of disposable income that is left over (or available) after households have paid their essential bills. The word '**discretionary**' indicates that households have some degree of choice. Therefore, spending on non-essential items is often classified as 'discretionary spending'. For example, during 2026 many Australian households experienced an increase in their out-of-pocket electricity expenses following the end of the Federal Government's Energy Bill Relief Fund. The scheme had provided households with electricity bill rebates, including an additional $150 in the second half of 2025, before ending on 31 December 2025. As these rebates were used up, households were required to devote more of their disposable income to paying electricity bills. This reduced their discretionary income, leaving less available to spend on non-essential goods and services. Importantly, their disposable income (income after income tax) may not have changed, but the increase in an essential household expense reduced the amount available for discretionary spending.

Other key bills paid by households that would also influence discretionary income, in addition to interest on mortgages and fuel costs, may include utility bills such as gas, electricity and water, rates and rent (for those who do not live in a home they own).



The price of substitutes

A **substitute** is a viable good or service that may be used instead of the product in question. From the consumer's perspective, this means that substitutes provide the user with a similar experience or fulfil a similar need. Remember that one of the reasons for the demand curve being downward sloping is that when the price increases, it is assumed that some customers will switch to cheaper alternatives. If a substitute becomes cheaper, and the price of the good we are analysing doesn't change, then it is assumed that demand for the original good will decrease, resulting in a shift of the demand curve to the left as consumers substitute into the relatively cheaper good. For example, tea and coffee might be seen as viable substitutes by some customers. An increase in the price of tea might therefore encourage some consumers to increase their demand for coffee, resulting in a shift of the demand curve to coffee to the right.

You will find substitutes in most product categories, and whenever there is a change in the price of one product, it can have implications for the demand for another. Some consumers may see Fuji and Pink Lady apples as substitutes (or apples and pears). For those who prefer sugary drinks, Coke and Pepsi are substitutes, while those seeking new trainers might see Adidas and Nike as viable substitutes. Similarly, in technology markets, consumers might regard an Apple iPhone and a Samsung Galaxy as substitutes, or choose between an Apple MacBook and a Windows-based laptop.

The price of complements

Complementary products are generally consumed together but are usually sold separately. Therefore an increase in the price of a complementary good might be viewed by the consumer as an increase in the price of the combined experience for both goods. The resurgence of vinyl (records) in the 2010s surprised many analysts, especially those in Australia who had closed down all the vinyl factories. As the price of record players continued to decrease (due to being able to produce larger volumes), this helped to generate extra demand for records. Similarly, if the price of records was to decrease, then more people may be tempted to purchase this form of media and they would need a record player to play the records. Therefore, if vinyl records get cheaper (which may happen if the producers are able to manufacture on a larger scale), then demand for records would expand and the demand for the record players might increase. In the last two years, the price of records has actually increased, which suggests that there might be a decrease in the demand for record players. Other examples of complementary goods are common in technology markets. Smartphones and mobile data services are complements, as are gaming consoles and video games, printers and ink cartridges, and smartwatches and compatible smartphones. For example, a significant decrease in the price of gaming consoles could increase the number of consoles purchased, thereby increasing demand for compatible games and subscription services.

Preferences and tastes

Demand may be affected by an individual's **tastes, attitudes and preferences** towards each good or service. In recent times, greater media attention has been paid to the effect of diet on one's health. This has influenced many people to increase their consumption of green smoothies (as discussed earlier). Knowledge of the product's detoxification properties, for example, could influence tastes and preferences. As a result, the demand curve for green smoothies is likely to have shifted to the right over time and more smoothies have been demanded at each price point.

As mentioned in the section on complementary goods, the resurgence of vinyl as a musical source has been driven by people who prefer analogue recordings to the perceived coldness of digital audio. Commentators have also suggested that the movement back towards analogue products is a rejection of technological advancement, while others have called it a 'hipster fad'. Either way, consumers' tastes have been affected, and the demand curve for records has shifted to the right. This has occurred despite the fact that vinyl records are often twice as expensive as the equivalent CD and significantly more expensive than streaming services such as Spotify.



Recent research highlighted the growing role of influencers in shaping consumers' tastes and preferences, and hence their buying behaviour. People post reviews, warnings and provide advice on when to use certain products. If a post goes viral, it could significantly impact demand for a product.

When performance artists tour Australia, their music sales (both digital and physical) tend to increase. Consumers are exposed to the performer's music, and the performer may become more fashionable. Attending a music concert can influence how a consumer considers and appreciates the music, and the death of an artist can also increase demand for their art. Advertising is also designed to heavily influence tastes and preferences. Successful advertising campaigns can shift the demand curve to the right and negatively influence demand for substitute goods.

Population growth and demographic change

A **growing population** will generally need more goods and services, so it is not surprising that the production of goods and services will usually increase every year given that in most years Australia's population continues to grow. This is one reason why businesses often encourage governments to increase or at least maintain their high immigration targets. It has also been argued that Australia's relatively high immigration targets have contributed to the on-going increase in house prices as the demand for houses at each price point has increased.

The demographics of the population may also affect the range of goods and services that are sold in the market. Australia has an **ageing population** (an increasing percentage of the population are over 65) because there were more births per woman in the years between 1945 and 1965. The large increase in population at that time is referred to as the baby boomer generation. People from this generation are living longer, which means that demand for certain products increases, such as healthcare and aged care. Demand for retirement village living has also increased, with many projects selling out in a short period of time. The disproportionate number of people in this generation may skew production towards the types of goods and services that this group prefers.

Australia's fertility rate has declined substantially over recent decades, reaching a record low of approximately 1.48 births per woman in 2024. This has implications for the demand for infant-related products and services, as well as childcare and education services over time. Governments have also introduced measures that can influence the demand for these products and services by reducing some of the costs associated with raising children. For example, from January 2026 the Australian Government introduced the 3 Day Guarantee, giving all families eligible for the Child Care Subsidy access to at least 72 hours of subsidised childcare per fortnight (equivalent to three days per week), regardless of their level of work, study or other recognised activity. Such measures can increase the demand for childcare services and, by reducing the effective cost of childcare, may also influence household decisions about workforce participation and family formation.

Consumer confidence (sentiment)

Consumer sentiment (also called consumer confidence) is a measure of households' perceptions and expectations about their own financial circumstances and the future state of the economy. Changes in consumer sentiment can affect households' willingness to consume, save and take on new debt. The **marginal propensity to consume** measures the change in consumption that results from a one-dollar increase in income. If consumers feel secure about their future employment and financial circumstances, for example, they may be more willing to bring forward purchases or take on debt to purchase goods and services. As a result, when consumer confidence is high, the marginal propensity to consume may increase, meaning that consumers spend a greater proportion of any additional income they receive. This is particularly likely to affect discretionary expenditure on items such as new cars, holidays, entertainment and consumer technology.



Conversely, when consumers become pessimistic about their financial circumstances or the economy, they may postpone discretionary purchases, become more reluctant to take on debt and increase saving. This was evident during the early stages of the **COVID-19 pandemic** in 2020, when consumer confidence collapsed, and the household saving ratio increased dramatically, reaching more than 20% in the June quarter. However, the increase in savings was also influenced by government income support and restrictions that limited households' spending opportunities (e.g. 'COVID lockdowns').

Consumer sentiment can be influenced by a wide range of factors, including unemployment and job security, inflation and the cost of living, interest rates, government policy decisions, changes in household wealth (such as movements in housing and share prices), and overseas economic and geopolitical developments. For example, Australian consumer sentiment remained at historically weak levels during 2026. In September 2026, the Westpac–Melbourne Institute Consumer Sentiment Index fell by 5.2% to 84.4, as higher petrol prices, concerns about further interest rate rises, and weakening housing conditions placed additional pressure on household finances and confidence. The ongoing **conflict in the Middle East** and disruption to shipping through the Strait of Hormuz, a critically important route for global energy supplies, contributed to higher global oil prices and increased uncertainty about the outlook for inflation and economic growth. Consumers also became more concerned about employment prospects. Such pessimism can encourage households to postpone major discretionary purchases and devote a greater share of their income to saving or paying down debt.

Review questions 2.4

1. Distinguish between a normal good and an inferior good. List ten goods or services you have purchased recently and explain whether you would classify them as normal or inferior goods.
2. Explain what is meant by the term 'disposable income'. Identify and explain three factors that might contribute to an increase in disposable income.
3. Explain why some indebted households might be sensitive to changes in Australian interest rates.
4. Distinguish between 'disposable income' and 'discretionary income'.
5. Explain how an increase in disposable income or discretionary income will affect the position of the demand curve for laptop computers.
6. Identify two goods that would be considered viable substitutes for one another. Explain how an increase in the price of one would affect the demand curve of the other.
7. Identify two goods that would be considered complementary and discuss how an increase in the price of one would affect the demand curve of the other.
8. With reference to three specific products, identify and explain two factors that could influence the tastes and preferences and hence the demand curve for each good or service.
9. Explain how COVID lockdowns might have affected the demand curve for specific goods or services.
10. Identify and explain how two industries may be affected by the ageing of the Australian population. Illustrate your answer with a diagram showing the shift in the demand curve.
11. Identify two factors that could cause consumer sentiment (confidence) to decrease.
12. Explain how a change in consumer sentiment can affect the marginal propensity to consume and the demand curve for a range of goods and services. Give specific examples.



Activity 2a: Analysing demand



Complete the following table. For each of the markets:

1. Identify the impact on the demand curve. Choose from the following options:
   - Expansion of demand (movement along the curve to the right)
   - Contraction of demand (movement along the curve to the left)
   - Increased demand (the curve shifts right)
   - Decreased demand (the curve shifts left)
2. Identify the relevant demand factor (price or non-price).

The first one has been done for you.

Relevant market	Change in economic circumstances	Impact on demand (expansion, contraction, increase or decrease)	Relevant demand factor
Milk	An increase in the price of milk	Contraction of demand	Change in price of the good itself
Tickets to a BTS concert	An announcement that this will be their last concert (ever)		
Sennheiser headphones	An increase in the price of Sony headphones		
Ice cream	An extended period of cold weather		
Calculators	The technology stores have a price war		
Electric vehicles	An extended period of high petrol prices		
Organic oranges	An increase in the price of organic apples		
Childcare services	A decrease in the birth rate to record lows		
Houses	An increase in interest rates		
Cinema tickets	The Federal Government decreases income tax rates		
Weet Bix	An increase in the price of almond milk		

Activity 2b: The market for bubble tea



It might seem odd to some, but people are sometimes willing to queue for up to 30 minutes to purchase a large cup of bubble tea. Students might even try to order bubble tea to get through their afternoon classes. In fact, worldwide demand is surging. Bubble tea is a drink made from different types of tea, milk, ice and tapioca pearls (an extract from the cassava plant of South America). In some sections of the market, the quality of bubble tea is measured by how much Q power lurks in the tapioca pearls – which refers to the right amount of 'toothiness'. The right level of Q factor can have a significant impact on the demand for the product.

Changes in tastes and preferences

The growth of the bubble tea market is intrinsically linked to changes in tastes and fashion, among the many microeconomic factors influencing demand. Green and Black tea have been linked to improved cognitive function, reduced inflammation and in some cases, weight loss. Office workers and students looking for an afternoon 'pick me up' may turn to the drink as a viable alternative to coffee.

The bubble tea market has expanded as sellers find ways to appeal to a wider range of tastes. Suppliers have been able to modify their drinks, resulting in a wide range of flavours, some of which are sugary-sweet, while others cater for the lactose-intolerant consumer. Suppliers are also increasingly aware of the link between sugary drinks and preventable diseases, such as obesity and diabetes, which has led to increased use of alternative sweeteners, such as agave and stevia. To appeal to a wider consumer audience, and therefore boost demand, suppliers have also tried to differentiate their products by using organic ingredients. Extensive research is being undertaken by major franchisers to find innovative ways to expand their offerings of low-glycaemic-index versions and continually broaden the market.

Complementing the experience

Another factor which has driven the growth of bubble tea demand around the world has been the link between sales and the café culture. In much the same way that people enjoy a cup of coffee in a café setting with friends and family, bubble tea sales have increased as cafés offer it as part of their product range. While in the café, consumers typically purchase other products (such as cakes or biscuits), so it is in the café's best interest to offer bubble tea as one of its drink options. Starbucks, for example, has tried to jump on the bubble tea bandwagon by adding a 'Raspberry Milk Tea' to its range (although the key ingredient, tapioca pearls, is missing at this stage).

Competition and prices

The increase in demand has brought increased competition. In most markets, greater competition should lead to lower prices, which will induce an expansion along the demand curve as the lower price makes bubble tea more affordable for some and encourages others to consume it instead of relatively more expensive alternatives.

Questions

1. **Explain how, in the market for bubble tea, tastes and preference have changed and describe the impact on the demand curve for bubble tea.**
2. **Define the law of demand.**
3. **Distinguish between a movement along the demand curve and a shift of the demand curve.**
4. **Explain why falling prices for bubble tea results in an expansion along the demand curve for bubble tea. In your answer, refer to income and substitution effects.**
5. **Explain why an increased demand for bubble tea at cafes can increase the demand for cakes and biscuits.**
6. **Outline why an increase in competition within the market for bubble tea exerts downward pressure on the price of bubble tea.**

2.5 The law of supply and the supply curve

While a higher price may act as a deterrent to consumers, it tends to have a positive influence on the supplier's incentives. Each unit sold represents an increase in sales revenue (equal to the price multiplied by the quantity sold). A higher market price is therefore likely to make supplying the particular product more **profitable**. Assume, for example, a farmer can use their land to grow a range of crops, but they have decided to focus on the production of strawberries. An increase in the price of strawberries in the market (which could be driven by a change in tastes) would tend to encourage this farmer, and possibly other farmers, to increase their supply of strawberries in the market. They might be able to achieve this by using more of their available land (for example, land that was used to grow raspberries) or by increasing productivity. They recognise more profits are likely to be made from strawberries than from any alternative use of the land. As a result, the opportunity cost of producing a product other than strawberries has increased.

In addition, a higher output level might be associated with higher per unit costs of production. When the volume of production increases beyond a certain point, the firm's capital resources may become crowded. The production facility becomes stretched, bottlenecks start to appear and efficiency declines. As a consequence, the costs associated with each additional unit of production start to rise, so the prices needed to cover the costs also increase. To encourage an increase in supply, the supplier needs to receive a higher price per unit.

Law of Supply

The law of supply indicates that there is a positive relationship between the price (the independent variable) and the quantity supplied (the dependent variable).

As the price increases, the quantity supplied increases
As the price decreases, the quantity supplied decreases

It could be argued that the law of supply is an accurate description of business behaviour because:

- a higher price received for the product represents an increase in revenue for the supplier (assuming all else remains constant);
- a higher price increases the opportunity cost of using resources to supply an alternative product; and
- to increase production, the cost per unit might increase (i.e. in this model, the marginal cost is assumed to rise).

As part of our basic microeconomic model, we have intrinsically assumed that the business operates to maximise its profits. Therefore, we assume that businesses will prefer to sell products at higher prices, which means they are incentivised to increase their supply in response to higher prices.

It is useful to think about supply in terms of the prices required to encourage producers to supply a given quantity to the market. At the very minimum, they need to cover their economic costs. There are a range of factors that affect the quantity supplied in any market, but it is assumed that these are held constant (ceteris paribus) for each of the different price levels when the supply curve is constructed.

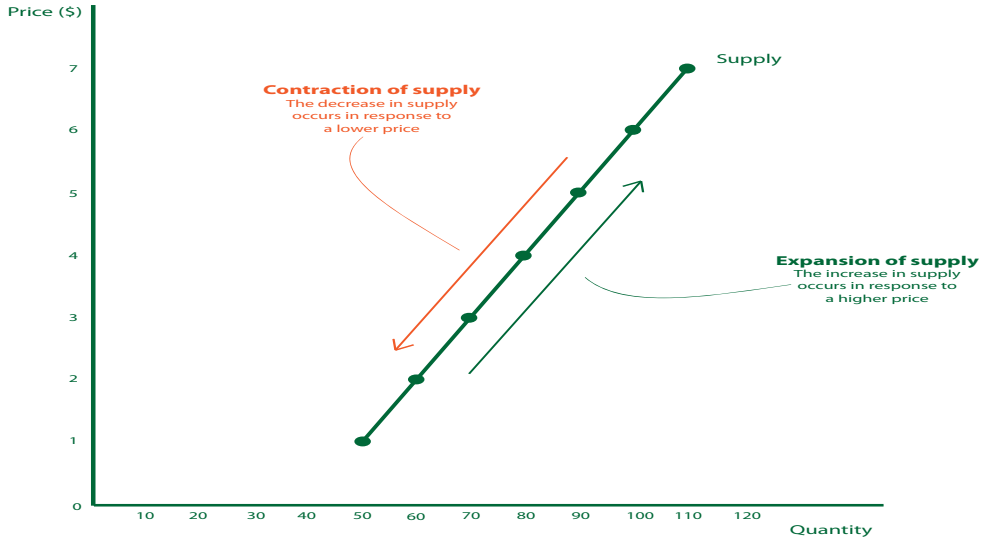
Constructing a supply curve

Table 2.3 shows the quantity of green smoothies supplied at any given price in our hypothetical market. It is clear that the supply for green smoothies follows the law of supply. Lower prices decrease the quantity supplied, and when price increases from $1 to $2, supply expands from 50 per day to 60 per day. Like the demand curve, the supply curve can be represented in a two-dimensional diagram with price on the vertical axis and quantity supplied on the horizontal axis. This is represented on the supply curve in Figure 2.3.

Table 2.3 Supply schedule for green smoothies	
Price ($AUD) per 500 ml	Quantity supplied per day
1.00	50
2.00	60
3.00	70
4.00	80
5.00	90
6.00	100
7.00	110



Figure 2.3:
Supply of green smoothies



The difference between a movement along and a shift of the supply curve

As with the demand curve, it is necessary to distinguish between a movement along the supply curve and a shift of the supply curve. In both cases, the supply of a good or service will change, but the reasons for the change are different. A movement along the supply curve occurs when the product's price changes, causing the quantity supplied to change. A movement along the supply curve to the left (a contraction) is caused by a decrease in the price of the good or service itself. A movement along the supply curve to the right (an expansion) is caused by an increase in the price. This can be seen when the price of green smoothies shown in Table 2.3 above increases from $4.00 to $5.00 - the supply will expand from 80 to 90.

A shift of the entire supply curve will occur when one of the other factors of supply has changed (i.e. not price), and, therefore, at any given price, there is either an increase or decrease in the quantity supplied. If the supply curve shifts to the right, this is often described as an increase in supply. If the supply curve shifts to the left, this is described as a decrease in supply.

2.6 Non-price factors that affect supply

There is a range of factors that will cause the supply curve to shift. When the supply curve is constructed, it is assumed that each of these supply factors is held constant (i.e. ceteris paribus). Whenever one or more of them change, the position of the supply curve will change, and a whole new supply curve is created.

A change in a factor of supply (also called a supply factor) will cause a shift in the supply curve. If a supply factor increases supply, the supply curve will shift to the right. If a supply factor causes supply to decrease, the supply curve will shift to the left.

Study tip

When trying to conceptualise the impact of a shift to the left of the supply curve, it can be useful to assume that quantities remain unchanged and then ask the following question: What price does the supplier now need to charge to justify supplying that particular quantity? The price needs to be higher at every quantity level or else the supplier will no longer be willing to supply. Consequently, this causes the whole supply curve to shift left.

We have already examined the relationship between price and supply in the previous section, where higher prices indicated that more profit could be made by allocating more resources to production, prompting a movement up along the supply curve as existing producers supplied more to the market. However, the willingness of producers to supply goods to a market (in the first instance) will ultimately depend on the expectations of profit (i.e. profitability) at any given price. For example, in the case of green smoothies, once producers of other products (or entrepreneurs more generally) believe that makers of green smoothies are earning large profits, they will allocate productive resources to producing green smoothies. This increases the number of sellers/producers in the market and necessarily results in more supply at every given price – shifting the supply curve to the right. This is how an increase in competition, or competitive pressures (covered in detail in Chapter 3), can lead to a reduction in prices. Of course, the actual or perceived profitability of any product must also depend on changes in production costs. So if the price of a product remains unchanged over any given period, and the per-unit costs of production fall, then by definition the profit from selling each unit will rise, and producers will be willing to supply more to the market - i.e. the supply curve will shift to the right. The non-price supply factors that students need to learn as part of the VCE Economics course are explored below.

Changes in the costs of production

Each good or service produced in the economy requires resources, often referred to as the **factors of production** (i.e., land, labour and capital). The position of a firm's supply curve depends on the costs of producing a good or service, as these costs influence the price the producer is willing to accept for it.

Referring back to the market for green smoothies, a number of resources are needed to create the end product. The drink may be made from spinach, kale, and something like an apple to provide the sweetness needed to entice many customers to try it. A shortage of kale, for example, could result in its price increasing, leading to a higher cost of production for the smoothie supplier. Similarly, if the price of petrol increased, then each smoothie would cost more to make as it would cost more to transport the ingredients to the store. If the owner of the building charged higher rent to the smoothie business, then the smoothie producer's costs of production would increase. As a result, the quantity supplied will decrease at each price, represented by a leftward shift of the supply curve. In other words, higher production costs reduce the retailer's willingness and/or ability to supply at a given price. Refer to Box 2.2 for further information about the common costs that can affect the supply curve of most businesses.

Study tip

One of the biggest challenges faced by students studying supply is that they start to discuss the reaction in terms of demand. This intrinsically makes sense because most of us are consumers, but few of us own businesses. Therefore, it is recommended when analysing supply that you seek to view the question from the perspective of an individual business owner. Ask yourself how the change in a relevant factor will influence their willingness and ability to supply (at each given price point). Try, at least to begin with, to analyse this independently of any change in demand.

Box 2.2 Common costs of production

The common costs of production faced by businesses include the following:



- Wages/Salaries and other on-costs such as superannuation and WorkCover premiums
- Rent and property expenses
- Interest on loans and overdraft facilities
- Utility bills such as electricity, water, telephone/internet and gas
- Delivery costs
- The cost of technology
- The rate of depreciation of assets
- The cost of raw materials used in the production process
- Financial and insurance services
- The level of government assistance or taxes and charges
- The value of the $AUD affects the cost of using imported components in the production process

Technological change and productivity growth

New technology is usually associated with an increase in productivity. **Productivity** measures the output per unit of input. One measure of productivity is **labour productivity**, which is the total output (the volume of production) per hour worked. The introduction of new, more advanced capital into the production process may result in a greater volume of goods and services produced per hour worked. If the price of the resources used (such as labour) remains constant, this should result in a decrease in the cost per unit of output. Higher levels of productivity would therefore enable the supplier to supply more at each price level.

With reference to the smoothie market, the introduction of robots into the production process could reduce the supplier's production costs (especially in the long run). With robots taking the orders, the additional costs associated with each order would decrease because the robots would not require compensation for each hour worked

Study tip

Remember that when demand or supply increases, the respective curves shift right, and when they decrease, the curves shift left. Avoid talking about moving the curves up or down.

New technology could also reduce the cost of operating a smoothie business over time. Electricity costs could decrease as solar technology improves, and new or more advanced technologies, including artificial intelligence, could be introduced in the agricultural sector to increase land productivity. This could increase the supply of kale, thereby increasing the supply of smoothies. Therefore, technological improvement is likely to increase productivity and lower production costs, leading to an increased supply at all price points (shifting the supply curve to the right).

Climatic conditions and other disruptions

Most goods and services rely on nature for the raw materials they require, either directly or indirectly. Some agricultural products are heavily dependent upon favourable **climatic conditions**. A drought, for example, reduces the availability of a key resource in the production process (i.e. water). This would reduce the availability of key resources for producing green smoothies, such as kale and spinach. This may push up their prices in the market, thereby raising production costs. In extreme circumstances, the smoothie operator may not be able to purchase enough kale to meet demand, reducing the market supply of this offering.

Climate change is expected to increase the frequency or severity of a number of extreme weather events, including extreme heat, intense rainfall and bushfires. Such events can significantly disrupt production and supply. Floods, bushfires and cyclones can destroy crops, livestock, buildings and infrastructure, interrupt transport networks and increase businesses' production costs. In extreme cases, individual producers may be temporarily unable to supply goods or services at all. Australia has continued to experience significant weather-related supply disruptions. For example, flooding and tropical cyclones across parts of Queensland and other regions over 2025–26 affected agricultural areas and transport networks. More generally, extreme weather can damage crops and reduce agricultural output, thereby decreasing supply and exerting upward pressure on the prices of affected goods. As climate change increases exposure to certain extreme weather events, these supply disruptions may become more frequent and significant over time.

Human actions and government intervention can also cause supply side shocks. Wars, terrorism, trade restrictions and other geopolitical events can disrupt production and transport networks, restrict access to important inputs and increase firms' costs of production. For example, Russia's invasion of Ukraine caused major disruptions to global markets for natural gas, oil, wheat and other commodities.

More recently, conflict in the Middle East and disruption to shipping through the Strait of Hormuz have highlighted the vulnerability of global energy supplies. The Strait is a particularly important route for the transportation of oil and liquefied natural gas. The significant restriction on shipping through the Strait reduced the effective global supply of energy, increased oil and gas prices and raised transport and production costs for businesses in Australia and elsewhere. This represents an adverse supply-side shock and contributes to a decrease in aggregate supply and higher inflation.
Government actions can also create supply disruptions. During the COVID-19 pandemic, for example, lockdowns and other restrictions temporarily prevented some businesses from supplying goods and services and disrupted global supply chains. While these restrictions have since been removed, the episode illustrates how government intervention can sometimes generate significant short-term supply-side effects.

Number of suppliers

In a competitive market, firms may earn supernormal (excessive) profits in the short run. Given that entry to and exit from the market is relatively easy in a perfectly competitive market, the high profits would incentivise new firms to enter the market. When more firms offer goods/services in the market, supply will increase. This causes the supply curve to shift to the right. This might not be possible in the short run because resources might need to be purchased and the businesses would have to hire new staff. In the long run, however, new firms can enter because all resources can be reallocated from one area of production to another. In contrast, if firms in the industry are incurring losses, some may choose to exit the market and seek more profitable alternative uses of their resources. When firms leave an industry, the supply curve will shift to the left.

Activity 2c: Analysing supply

Complete the following table. For each of the markets:

1. Identify the impact on supply. Choose from the following options:
   - Expansion of supply (movement along the curve to the right)
   - Contraction of supply (movement along the curve to the left)
   - Increased supply (the curve shifts right)
   - Decreased supply (the curve shifts left)
2. Identify the relevant supply factor (price or non-price).

The first one has been done for you.

Relevant market	Change in economic circumstances	Impact on supply (expansion, contraction, increase or decrease)	Relevant supply factor
Eggs	**Disease affecting poultry**	**Decrease**	**Climatic and other**
Tickets to the AFL Grand Final	An increase in ticket prices		
Bottle of kombucha	A drought		
Guitars	An increase in the price of wood		
Mini Cooper Vehicles	An increase in labour productivity in the factory		
Haircuts	People are replaced by robots in the hairdressing industry		
Coffee	A frost in Brazil		
Lawn mowing services	An increase in the profitability of providing this service		
Economists' services	An increase in the HECS fees required to study Economics at university		
Petrol	The invasion of Ukraine by Russia		
Airline flights	Introduction of fuel saving technology		

To illustrate how these factors may cause the supply curve to shift, we will continue with the example of green smoothies. Let's assume that the costs of production fall by an average of $1 per smoothie, perhaps because of lower raw material costs (e.g. cheaper fruit ingredients) or improvements in technology (cheaper and more efficient blenders). Table 2.4

below indicates that the suppliers will be willing to increase their supply of smoothies to the market at every price level. Alternatively, it means that for any given quantity of smoothies it produces, the producer is willing to supply them at a lower price (i.e. $1 less per smoothie). On this basis, the supply schedule will change as shown in Table 2.4 below:

Table 2.4 Supply schedule for green smoothies		
Price ($AUD) per 500 ml	Quantity supplied per day (S1)	NEW Quantity supplied per day after lower costs (S2)
1.00	50	60
2.00	60	70
3.00	70	80
4.00	80	90
5.00	90	100
6.00	100	110
7.00	110	120

Figure 2.4:
Supply of green smoothies [shift of supply curve]

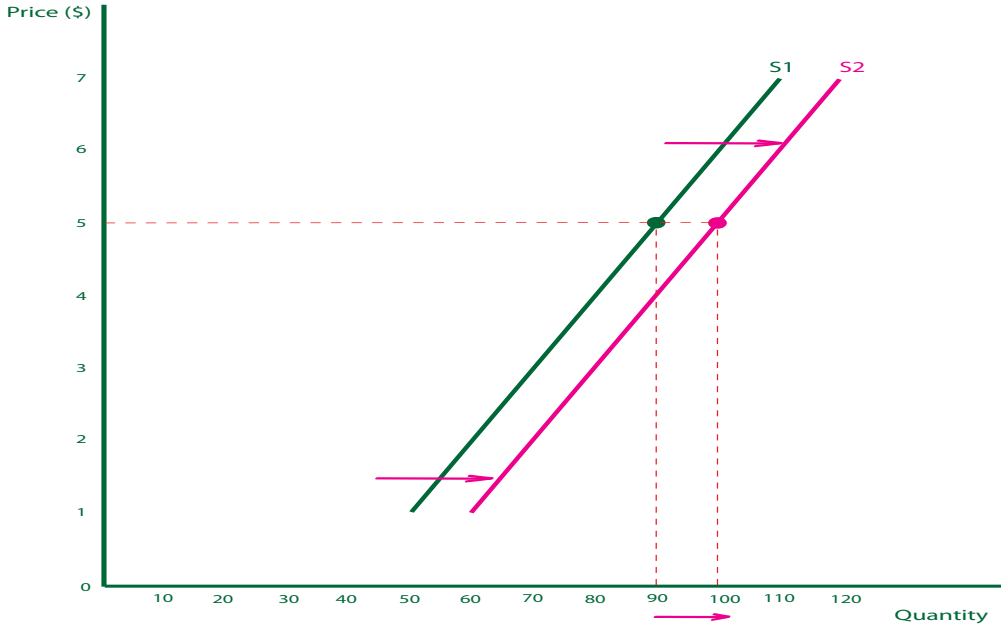


Figure 2.4 shows how the lower costs of production affects the supply curve for green smoothies. For example, at a price of $5.00 the supply has increased by 10 drinks per day, from 90 to 100. This increase in quantity supplied occurs at every other price, which is why the supply curve has shifted to the right in a parallel fashion.

Review questions 2.5 - 2.6

1. State the law of supply.
2. Explain, to someone who has never studied economics, how and why suppliers will react to an increase in the price of the product they are considering selling.
3. Distinguish between a movement along the supply curve and a shift of the supply curve. In your answer, make reference to the terms used to describe movements along and shifts of the supply curve.
4. Identify and explain two factors that may lead to a decrease in the cost of production for cleaning services.
5. Illustrate how the decrease in the cost of production will affect the position of the supply curve for cleaning services.
6. Explain how an increase in the price of bananas might affect the supply of pineapples (assuming they can be grown on the same land).
7. Explain how climate change may be associated with changes in the supply of certain products. Refer to at least three specific products as part of your answer. (This question may require some additional research)
8. Identify two recent technological changes that are not mentioned in the text and explain how they may be associated with an increase in supply for the relevant industries.
9. Describe a factor that might encourage new suppliers to enter a market and discuss the implications for price and quantities sold.

Activity 2d: Climate change and disruptions to supply



Extreme weather events tend to have a negative effect on supply. Firms are often willing but unable to supply. Australia regularly suffers from major weather events that temporarily lead to the destruction of infrastructure and the closure of key businesses. For example, in the summer of 2020, there were devastating bushfires in Victoria that led to the closure of key transport routes, key infrastructure like electricity wires and mobile phone towers were destroyed and businesses were unable to open because they had been burnt down. Similarly, the eastern Australian floods of 2022 destroyed an estimated 15,000 homes in Brisbane (significantly reducing the ability of the city to supply accommodation services) and created widespread damage to crops and infrastructure across Queensland and NSW.

According to the government website www.climatechangeinaustralia.gov.au, extreme weather events, like those mentioned in this case study, will become more prevalent due to climate change. Droughts are expected to last for longer periods and be more severe because they will be accompanied by hotter temperatures. Floods, bushfires and other erratic weather patterns are also expected to be more devastating to the nation's ability to supply.

Climate change is therefore expected to disrupt the ability of firms to supply. The impact on food production alone is hard to predict, but climate change scientists have suggested that the major regional food bowl, the Murray Darling Basin will experience increasing shortages of water (which is essential for irrigation). The lack of a key resource, such as water, will make it increasingly difficult to supply a large number of fruits and vegetables, as well as impose supply constraints on the production of wheat and dairy products. In 2022, the Great Barrier Reef experienced its sixth mass coral bleaching event. Bleaching occurs when the animal becomes stressed from above-average water temperatures. The bleaching of the coral has impacts for the whole ecosystem. Fish and other invertebrates that rely on coral for food and shelter are now more vulnerable. This could ultimately decrease the supply of fish and the decrease in marine activity is bound to flow through to the supply of lucrative tourism services which operate in the area. Coral reefs are also a valuable source of pharmaceutical compounds, another area where supply may be negatively affected.

Reponses to mitigate the effects of climate change will typically add to the costs of production for businesses (in the short run). Governments may also implement policies that seek to reduce carbon emissions (such as a carbon tax) which will also add to a firms cost of production (either directly or indirectly). Actions taken by firms to reduce their carbon footprint may, however, lower their costs of production in the long run. The installation of solar panels, whilst expensive in the short run, will reduce the amount that the firm has to pay for each future unit of electricity consumed. In the case of insurance costs, as insurers increasingly accept that climate change events are likely to be more frequent, then the risk of claims increases and the cost of insurance policies for businesses (and households) will rise.

Questions

1. **Identify and explain five different disruptions to supply that have occurred in recent years.**
2. **Explain how climate change might affect the supply curve for wheat.**
3. **Identify and explain a range of negative supply effects that arise from a bushfire or flood.**
4. **Explain how government and business responses to mitigate the effects of climate change might affect the willingness and ability of firms to supply.**
5. **Explain how business responses to climate change might result in an increase in supply in the long run.**

Activity 2e: How the closure of the Strait of Hormuz affected supply

Over the last few decades, countries have become increasingly reliant on global supply chains. Raw materials, energy, and other inputs are regularly transported around the world before being used to produce final goods and services. This means that any disruption to major shipping routes can have important consequences for supply. One of the world's most important shipping routes is the Strait of Hormuz, a relatively narrow waterway connecting the Persian Gulf to the Gulf of Oman and the Arabian Sea.
In 2026, the conflict in the Middle East effectively closed the Strait of Hormuz, with shipping volume through the Strait falling sharply. This had a major impact on the supply of oil and gas because a large share of the world's energy supplies normally passes through the Strait. Before the conflict, approximately 20 million barrels of oil and oil products passed through the Strait each day. In addition, nearly 20% of the world's trade in liquefied natural gas (LNG) was transported via this route.



The disruption meant that some oil and gas producers in the Persian Gulf were still willing to supply world markets, but their ability to do so was significantly reduced. There were only limited opportunities to transport the oil and gas using alternative routes. This reduced the amount of energy available to world markets and placed upward pressure on prices. The effects were also felt by businesses that use energy as an input into production. For example, higher oil and gas prices increase fuel, electricity, and transport costs, thereby raising production costs for many firms. This can cause the supply curves of these firms to shift leftward. Airlines, road transport businesses, farmers, and manufacturers are among the businesses that can be particularly affected by higher energy costs.The higher prices did, however, provide an incentive for oil and gas producers outside the affected region to supply more to the market. Existing producers could respond to the higher price by increasing production, resulting in an expansion of supply (or a movement up along the supply curve). If higher prices and profits were expected to continue, they could also encourage businesses to invest in additional capacity or encourage new producers to enter the market. This would result in an increase in supply, represented by the supply curve shifting to the right. Increased energy production from other parts of the world therefore had the potential to offset some of the supply lost due to the disruption to the Strait.

Questions

1. **State and explain the law of supply.**
2. **Explain why the effective closure of the Strait of Hormuz resulted in a decrease in the supply of oil and gas to world markets.**
3. **Explain how the disruption to oil and gas supplies might have affected the costs of production for Australian businesses.**
4. **Explain why higher oil and gas prices might lead to an expansion of supply from producers outside the affected region.**
5. **Discuss how the closure of the Strait of Hormuz could result in different effects on supply across different markets. In your answer, distinguish between a movement along the supply curve and a shift of the supply curve.**

2.7 Market equilibrium

The demand and supply curves have so far been considered in isolation. They have illustrated, respectively, the quantities that the consumers and firms are willing to buy and sell at each price. To determine the price and quantity sold in any market, the interaction between supply and demand is needed. It is this interaction that results in a market determined price, which then influences the quantity that is traded.

Remember that the consumer will want to obtain the good or service at the lowest possible price, while the supplier will want to sell at the highest possible price to maximise their profits. The compromise that is reached in the market is referred to as the **equilibrium price** – the price where the quantity demanded is equal to the quantity supplied. The market therefore clears at the equilibrium price because every product available for sale is sold, and there is no excess demand or supply.

In Table 2.5, the demand for and supply of green smoothies is reproduced. The table shows the demand and supply schedules after the respective increases in demand (resulting from income tax cuts) and in supply (resulting from lower production costs), as outlined in Tables 2.2 and 2.4 above. The table also shows the points of disequilibrium, where the price is either above or below the market clearing level, resulting in either a surplus or a shortage of green smoothies in the market.

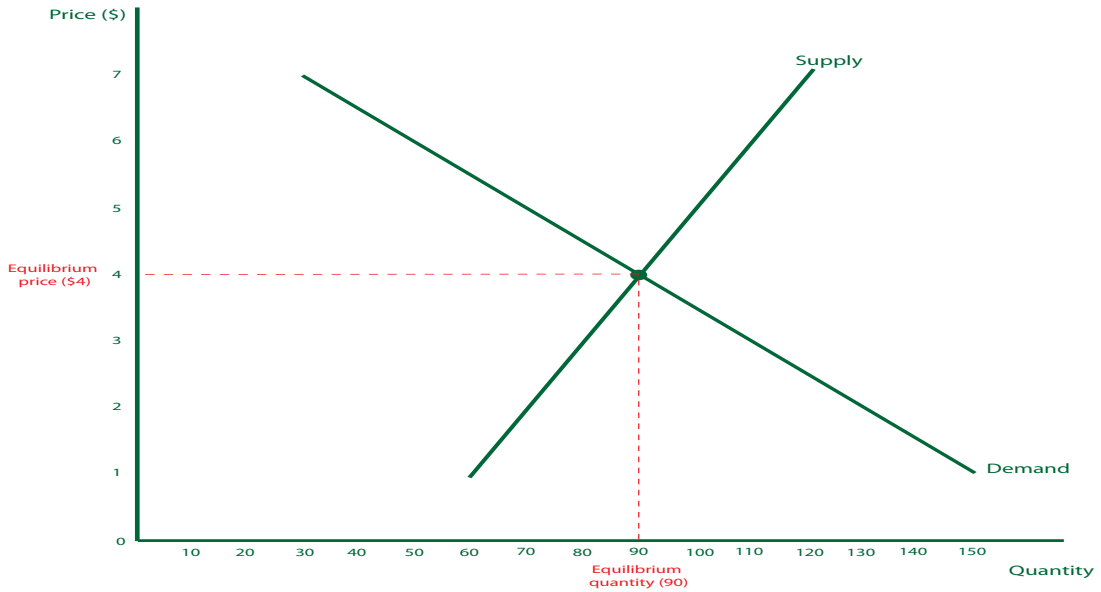
.

Table 2.5 Demand and supply schedule for green smoothies

Price ($AUD) per 500 ml	Quantity demanded per day	Quantity supplied per day	Surplus (+) or shortage (-)	Quantity traded
1.00	150	60	-90	60
2.00	130	70	-60	70
3.00	110	80	-30	80
4.00	90	90	0	90
5.00	70	100	+30	70
6.00	50	110	+60	50
7.00	30	120	+90	30

You will note that there is only one price and quantity at which the quantity supplied is equal to the quantity demanded. That price is $4.00 per smoothie – which is referred to as the equilibrium price. The quantity supplied and demanded at that price is 90 smoothies per day - which is the equilibrium quantity. Therefore, at that point, the market is 'in equilibrium'. At all other prices, there is either a **shortage** – where quantity demanded exceeds quantity supplied – or a **surplus** – where quantity supplied exceeds quantity demanded. The market in equilibrium is depicted in Figure 2.5 below:

Figure 2.5:
Market in equilibrium



When the market is in equilibrium, it is also referred to as being in a **state of rest**. For smoothies, a price of $4 will ensure neither a surplus nor a shortage at the end of every trading day. There is no pressure for the price to change from $4 unless there is a change (or shift) in demand and/or supply such that one or both of the curves move to a new position. If this were to occur, the market would be in a temporary state of disequilibrium, with the price either being too high or too low, and surpluses or shortages would develop. Consumers and suppliers would alter their behaviour in response to the disequilibrium, which would return the market to equilibrium.

Movement from disequilibrium to equilibrium

The market will always have a natural tendency to move towards equilibrium. When the price is above equilibrium, normal market pressures will drive it back down to the equilibrium price. Conversely, when the price is below equilibrium, normal market pressures will drive the price back up to the equilibrium price. Given that producers do not know precisely where the equilibrium price resides over any given period of time, it can become a process of trial and error, with producers changing prices until 'the right' price is achieved. This is often seen in fruit and vegetable markets around cities and towns, particularly towards the end of the day when impending shortages or surpluses become evident.

Price below equilibrium

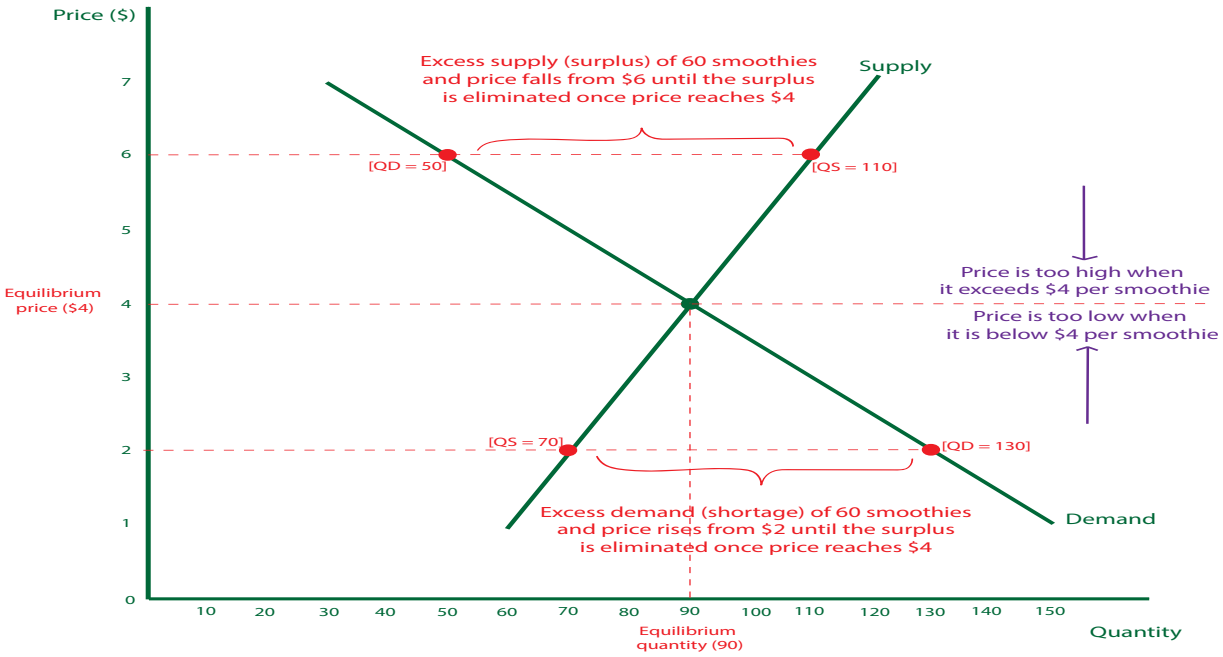
When the market price is set *below* the **equilibrium price**, such as at $2.00 in our market for green smoothies, there will be a **shortage** of 60 smoothies per day. You will notice in Table 2.5 and Figure 2.5 above that at this low price, only 70 smoothies are supplied, but 130 are demanded, so only 70 smoothies will be traded at a price of $2.00. The price may be set at this level because the suppliers have entered a new market and are trying to ascertain buyer response. They may not yet know whether the price is appropriate to clear the market. It will soon become evident to the supplier that the price they are charging is too low because they will run out of stock relatively quickly (resulting in a shortage and, hence, a missed opportunity). The supplier is then likely to take advantage of this by raising the price in order to maximise profits. In some markets, buyers may compete with each other and offer higher prices (outbidding) to obtain scarce products. As the price of smoothies rises, some buyers will leave the market because they are no longer willing or able to purchase them (due to income and/or substitution effects). The higher price will also act as an incentive for suppliers to make more smoothies available to the market, as it is now more profitable than alternative uses of their resources. This will be represented by movements along the demand (contraction) and supply (expansion) curves, as the price rises. The price will therefore continue to increase until the shortage is eliminated and the quantity demanded equals the quantity supplied at $4.00 per smoothie. This is clearly demonstrated in Figure 2.6 below.

Price above equilibrium

If the price is initially set *above* the equilibrium price, the market will also move naturally towards its equilibrium. If, for example, the price were set at $6.00, the suppliers would notice they are not generating enough sales. Table 2.5 shows that at this high price, 110 smoothies are supplied but only 50 are demanded, so 50 smoothies will be traded at a price of $6.00. The suppliers may have overestimated how much people will pay for green smoothies and set the price too high. This would create a **surplus** of 60 smoothies (quite a waste of resources), which should encourage suppliers to lower their selling price and entice new customers into the market. [This is often the motivation for stores that conduct regular sales to offload stock where prices were initially set too high.] When the price is lowered, however, it signals to potential suppliers in the market that this product may not be as profitable as it initially appeared. As a result, supply is likely to contract as prices fall, and some manufacturers or retailers will allocate their scarce resources to relatively more profitable areas. The price will continue to decrease (encouraging demand to expand and supply to contract) until there is no reason for suppliers to alter it, meaning the market has reached equilibrium. This analysis is highlighted in Figure 2.6



Figure 2.6:
Market in disequilibrium



2.8 The effects of changes in supply and demand on equilibrium prices and quantities traded

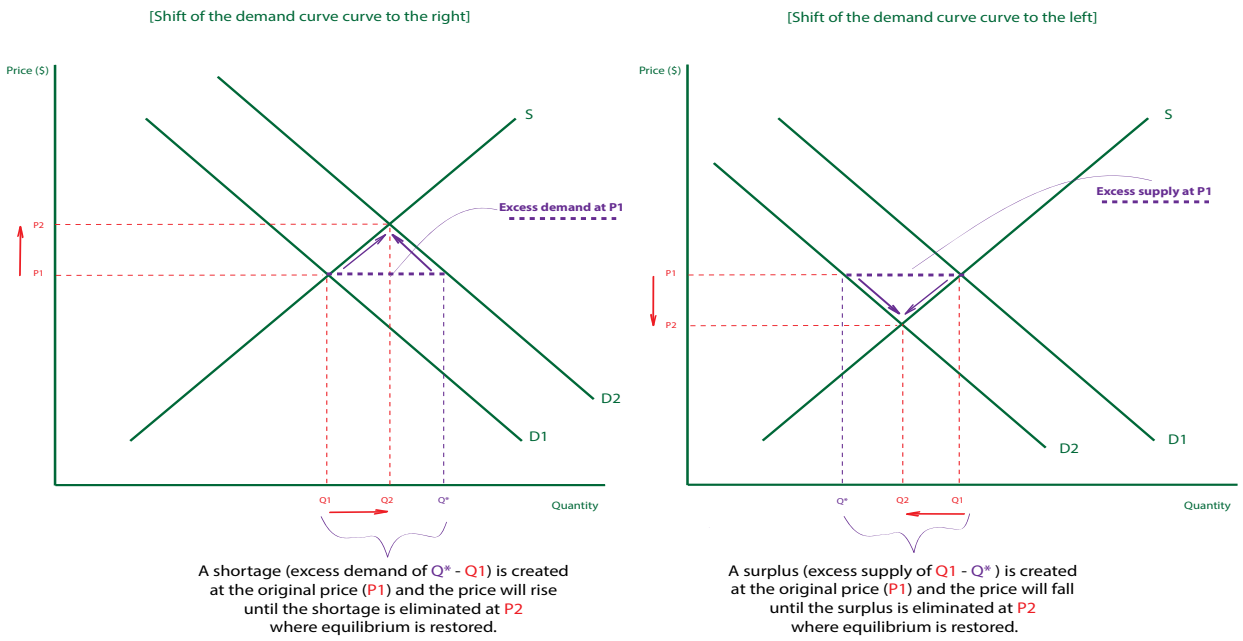
When the market is in equilibrium, there is no pressure for the price to change unless there is a change (or shift) in the non-price factors that affect demand and/or supply, such that one or both of the curves move to a new position. Should this happen, the market will be in a temporary state of disequilibrium, with the price either being too high or too low, and where surpluses or shortages will develop. Over time, the market price will adjust to eliminate surpluses or shortages, and equilibrium will be restored. A number of alternative outcomes are analysed below

Changes in demand while supply remains constant

Suppose demand for green smoothies increases because the government launches an extensive education campaign to encourage citizens to eat more green vegetables. This could increase demand for green smoothies across all price points, represented by a rightward shift of the demand curve. This is shown in the first diagram in Figure 2.7. The initial increase in demand causes a shortage at the original price (the suppliers may not have expected such a response from their customers). The popularity of green smoothies may therefore encourage suppliers to raise prices and/or customers to compete against each other to obtain the scarce smoothies (they bid up the price). Therefore, as the price rises, the higher price alters the incentives for both the consumers and the producers. Some of the original increase in demand may contract as prices rise (some people may not be able to afford the smoothies), but higher prices will act as an incentive to supply more, so supply expands. The end result is a higher equilibrium price and quantity traded for green smoothies.

Similarly, the demand for green smoothies may decrease. This may be caused by an increase in variable interest rates (indebted households would have less discretionary income to spend on smoothies), shifting the demand curve to the left. This is shown in the second diagram in Figure 2.7. When the demand curve shifts leftward, fewer smoothies will be demanded at each price level. This will initially create a surplus at the existing price, and sellers may conduct a sale and lower their prices. In doing so, the surplus is more likely to be eliminated. Some consumers will be enticed by lower prices due to income and/or substitution effects. Some suppliers will realise that the profitability of this market has fallen, so will contract their supply. They may decide to pursue other, more profitable, areas of production. The new equilibrium price is therefore lower, and the quantity traded also falls.

Figure 2.7:
Disequilibrium caused by a shift of the demand curve



Changes in supply while demand remains constant

Supply may increase due to technological advancements, for example, which makes it cheaper to produce each smoothie. This will increase the quantity supplied at each price level and is represented by a rightward shift of the supply curve. This is shown in the first diagram in Figure 2.8. The shift to the right will generally result in a surplus of stock available at the initial price. A surplus of stock creates the need for the seller to lower the price. By lowering the price, new customers are drawn to the market (demand expands), and supply contracts because firms realise they can no longer sell the smoothies at the previously high price. The increase in supply results in a lower equilibrium price and an increase in the quantity traded.

Conversely, a decrease in supply will reduce the quantity traded and raise the equilibrium price. This is shown in Figure 2.8. An increase in oil prices, for example, will affect most goods and services consumed. Oil is used as an input in the production of conventionally produced green vegetables (as a component of fertiliser), as well as in the transportation of the final product to the retail outlet. Therefore, less will be supplied at each price, and the supply curve will shift leftward. The shortage created at the initial price will affect how producers and consumers behave in the market. It is likely that those who really want the scarce smoothies may bid up the price, and some consumers will therefore leave the market as they are no longer willing and/or able to purchase the product. The shortage will also be eliminated by a possible expansion of supply as some suppliers see the added profitability from supplying more. These dynamics are summarised in Table 2.6 on the next page.

Figure 2.8:
Disequilibrium caused by a shift of the supply curve

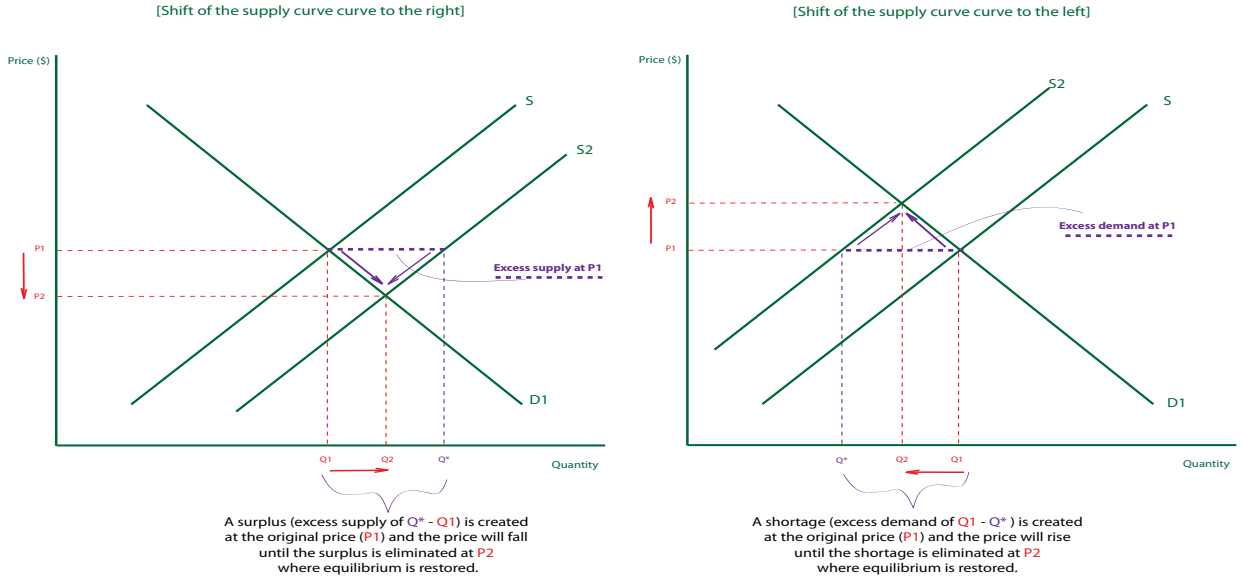


Table 2.6 Impact of changes in demand and supply		
Change in demand	Change in supply	Impact on market
Increase	Unchanged	P increase, Q increase
Decrease	Unchanged	P decrease, Q decrease
Unchanged	Increase	P decrease, Q increase
Unchanged	Decrease	P increase, Q decrease

There are also four more complicated scenarios. Sometimes the factors of demand and supply can both change concurrently. This can happen when a factor of demand is also a factor of supply. For example, a decrease in interest rates will affect both the demand and supply curves for green smoothies. Lower interest rates will mean that indebted households have more discretionary income to spend on a range of goods and services (such as green smoothies). Lower interest rates also reduce the incentive to save, encouraging greater consumption. This would shift the demand curve to the right. At the same time, lower interest rates will reduce the financing costs faced by firms that operate with some level of debt, increasing their willingness and ability to supply. Their supply curve will therefore also shift to the right. When the demand and supply curves both shift to the right, this unambiguously increases the quantity traded (because both demand and supply are increasing). However, the two changes have conflicting effects on the market price. The increase in demand places upward pressure on price, while the increase in supply places downward pressure on price. In theory, the final change in price will depend on the relative size of the shifts in demand and supply.

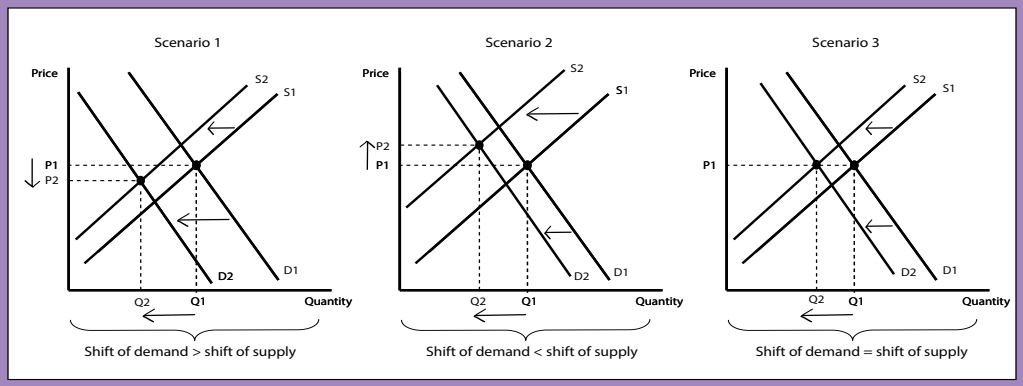
In the case of a change in interest rates, however, the impact on demand would typically outweigh that on supply. This is because interest rates can have a relatively broad impact on household spending, affecting both disposable income available to indebted households and the incentive to save rather than consume. In contrast, the supply-side effect operates mainly through a reduction in financing costs, which represent only one component of the total costs faced by businesses and are less important for firms with little or no debt. Accordingly, a decrease in interest rates would normally be expected to cause a larger increase in demand than supply, resulting in both a higher equilibrium price and a higher quantity traded. This is also consistent with the economy wide effects of lower interest rates (which will be considered when discussing monetary policy in Chapter 9). Box 2.3 below includes an elaboration of the possible outcomes when demand and supply shift concurrently. It considers the relative impact of each shift on the market price and quantity traded.

Box 2.3 Shifts of demand and supply

Assume that there is a change in tastes and preferences that causes smoothies to go out of favour. At the same time, the cost of hiring labour increases. If the change in demand and supply factors are illustrated on a suitably labelled supply and demand diagram, both curves will shift to the left, but there are three possible market outcomes:

- Scenario 1 – the demand curve shifts further to the left than the supply curve. In this case, the price will decrease, and the Scenario 1 – the demand curve shifts further to the left than the supply curve. In this case, the price will decrease, and the quantity traded will fall.
- Scenario 2 – the demand curve shifts to the left by a smaller distance than the supply curve. In this case, the price will increase, and the quantity traded will fall.
- Scenario 3 – the demand and supply curves shift by a similar distance such that the equilibrium price remains unchanged and the quantity traded falls.

These three scenarios are depicted in the diagrams below.



Notice how the change in price depends upon the relative changes in demand and supply. This reflects the fact that the fall in demand places downward pressure on prices but the increase in costs of production (which reduces supply) places upward pressure on prices. Without further analysis it is hard to determine the final impact on prices. We have a high degree of confidence that given both curves are shifting left, the quantity traded will fall. Therefore, it can be concluded that the change in the quantity is negative but the change in the price cannot be definitively determined without further analysis of the relative changes in demand and supply. If faced with a scenario like the one described above, it would therefore be appropriate to state that the change in price is 'unknown'.

The four more complicated scenarios are summarised in Table 2.7. This table highlights that when both curves shift, there will be one of the two parameters (price or quantity) which is difficult to determine (expressed as 'unknown') and further knowledge of the individual market will be required to reach a more definitive conclusion. In reality, the predicted result may not eventuate as a number of other factors may influence how the market reacts (remember these other factors are held constant for the purposes of our analysis but in reality, they are always changing).

Table 2.7 Impact of changes in demand and supply [more complicated scenarios]

Change in demand	Change in supply	Impact on market
Increases	Decreases	P increase, Q ?
Decrease	Decreases	P ?, Q decrease
Increase	Increase	P ?, Q increase
Decrease	Increases	P decrease, Q ?

Review questions 2.7 - 2.8

1. Define what is meant by the term 'equilibrium'. Explain why the equilibrium price is seen as a compromise between the forces of demand and supply.
2. Explain how the market for smoothies would be affected by an increase in consumer confidence and describe how the market would move from disequilibrium to a new equilibrium.
3. Explain how the market for smoothies would be affected by favourable weather conditions and describe how the market would move from disequilibrium to a new equilibrium.
4. Explain how the market for smoothies would be affected by higher interest rates and describe how the market would move from disequilibrium to a new equilibrium.
5. Explain how the market for smoothies would be affected by an increase in the minimum wage and describe how the market would move from disequilibrium to a new equilibrium.

Activity 2f: Making predictions using demand and supply diagrams

For each of the following examples, use a fully labelled demand and supply diagram to illustrate the impact on the equilibrium price and quantity. You should also provide a written explanation of your response, which makes reference to the relevant demand and/or supply factor and how the market returns to equilibrium from disequilibrium.



1. The impact of the floods on the market for lettuce.
2. An increase in the price of oil on the market for petrol.
3. An increase in the price of petrol on the market for taxi services.
4. An increase in the price of Spotify on the market for Apple Music.
5. An increase in consumer confidence on the market for BMW vehicles.
6. An increase in employment on the market for second-hand clothes.
7. An increase in the value of the AUD on the market for records (all of which are imported).
8. The impact of an economic slowdown in China on the market for Australian iron ore.
9. An increase in the price of electricity and gas and the market for heaters.
10. An increase in child-care subsidies and more generous paid parental leave and the market for baby clothes.

Activity 2g: A visit to the market to purchase Pink Lady apples

At the Queen Victoria Market (QVM) there are a large number of fruit and vegetable sellers, each selling Pink Lady apples. Consumers are able to easily compare prices between the sellers and the price paid to rent a stall is relatively low. Assume that an economist has conducted some detailed market analysis of apple sales and she has determined that the demand and supply for Pink Lady apples is as follows:

Price per kilo ($)	Quantity demanded (kg)	Quantity supplied (kg)
$0.50	100,000	55,000
$1.00	90,000	60,000
$1.50	80,000	65,000
$2.00	70,000	70,000
$2.50	60,000	75,000
$3.00	50,000	80,000
$3.50	40,000	85,000

a. Using the above information, construct a suitably labelled demand and supply diagram.
b. Use your diagram or the above schedule to determine the equilibrium price and quantity determined in the market.

Imagine that the QVM was featured on a high rating cooking show. This provided the people of Melbourne with valuable information about how the prices at QVM are very low and the atmosphere is 'amazing'. This led to a change in the market outcomes in the following week as shown below:

Price per kilo ($)	Quantity demanded (kg)	Quantity supplied (kg)
$0.50	120,000	55,000
$1.00	110,000	60,000
$1.50	100,000	65,000
$2.00	90,000	70,000
$2.50	80,000	75,000
$3.00	70,000	80,000
$3.50	60,000	85,000

c. Update your demand and supply diagram to show how the equilibrium price and quantity has changed.
d. With reference to a relevant demand or supply factor, explain how the free promotion on the television program led to a change in the market outcome for Pink Lady apples. Make sure you describe how the market moved from disequilibrium to equilibrium.

Due to the increased popularity of the QVM, there is more competition for stall space. In response to this, the management of QVM increases the rent charged to stall holders. This results in a decrease in the ability to supply at each price level by 10,000 kg per week.

e. Use your demand and supply diagram and/or the schedule to determine the new equilibrium price and quantity traded (assume that the other conditions in part c are maintained).
f. Predict what might happen to the equilibrium price and quantity traded for Pink Lady apples at QVM based on the following changes in demand and/or supply conditions.
   i. A lack of frosts across growing regions due to climate change (frosts are needed for apples to grow)
   ii. A protest organised for the busiest shopping day of the year
   iii. A shortage of pears
   iv. The exemption from GST that applies to fruit and vegetables is removed
   v. The closing of the Footscray fruit and vegetable market
   vi. A strike by public transport workers

Extension: Organic apples are grown without the use of synthetic fertilisers, herbicides or pesticides. There are only three sellers of organic apples at the QVM. Most apples sold at the QVM are referred to as 'conventional' which means that artificial chemicals are used in the production process.

g. With reference to relevant factors of demand and supply, explain why the price of organic apples is sometimes 'twice the price paid for conventional apples.'
h. Explain why apples sold at the QVM are generally cheaper than the price paid in the major supermarkets.
i. Explain why the price of apples falls at the QVM at the end of each day of trading.

Activity 2h: The growing market for household batteries



Over recent years, there has been a significant increase in the number of Australian households purchasing batteries to store electricity. Australia already has a very large number of homes with rooftop solar panels, and for these households, adding a battery means electricity generated during the day can be stored for use at night (or at other times when the solar panels are producing little electricity). This reduces the amount of electricity that needs to be purchased from the electricity grid.

There are several reasons the demand for household batteries has increased. Higher electricity prices have encouraged households to seek ways to reduce their reliance on grid-purchased electricity. There has also been a change in tastes and preferences, with some households placing greater value on energy independence and making better use of the electricity produced by their solar panels. These factors have contributed to an increase in demand, represented by the demand curve for batteries shifting to the right.

Government policy has also had a major impact on the market. In 2025, the Australian Government introduced the Cheaper Home Batteries Program, which provided households with financial assistance towards the purchase of eligible batteries. The subsidy effectively reduced the cost of purchasing a battery for consumers, thereby increasing their willingness and ability to purchase batteries at each market price. This resulted in an increase in demand, represented by the demand curve for household batteries shifting to the right. The resulting increase in demand placed upward pressure on the market price received by suppliers and increased the equilibrium quantity of batteries traded.

The growth in battery sales has also affected supply. The prospect of a larger and more profitable market provides an incentive for manufacturers, importers and installers to devote more resources to the industry. New businesses might also be attracted into the market. Over time, this should result in an increase in supply (i.e. the supply curve shifting to the right). Improvements in technology and falling production costs could provide a further boost to supply.

The increase in battery sales also has flow-on effects to other markets. Batteries and rooftop solar panels are complementary products because a battery's usefulness is generally greater for a household that can generate its own electricity. Growth in battery installations can therefore contribute to greater demand for solar panels as well as electricians and other installation services. On the other hand, households with batteries can store more of their own electricity, which can reduce their demand for grid-purchased electricity.

It is difficult to predict what will happen to battery prices in the future. Continued government assistance, higher electricity prices and changing tastes and preferences could contribute to stronger demand. At the same time, technological improvements, greater competition and the entry of additional suppliers could increase supply. If both demand and supply increase, the quantity of batteries traded will rise, but the impact on the market price will depend on the relative magnitudes of the shifts.

Questions

1. **Identify and analyse two factors that have contributed to an increase in the demand for household batteries.**
2. **Explain how the Australian Government's subsidy for household batteries affects the demand curve for batteries and the equilibrium price and quantity.**
3. **Construct a suitably labelled demand and supply diagram to illustrate and explain the effect of an increase in demand for household batteries.**
4. **Identify and explain two factors that could cause the supply curve for household batteries to shift to the right.**
5. **Explain how an increase in the demand for household batteries might affect other markets. In your answer, refer to complementary products.**
6. **Assume that the demand and supply curves for household batteries both shift to the right. Explain why the equilibrium quantity will increase, but the impact on the equilibrium price will depend on the relative size of the two shifts.**

2.9 The effect of relative prices on resource allocation

Resource allocation is the study of how the factors of production such as land, labour and capital are directed towards the production of goods and services to meet the needs of households, businesses, governments and other economic agents. An exploration of resource allocation is intrinsically linked to the three basic economic questions considered in Chapter 1.

Economists are interested in **'What'** goods are produced. Therefore, they want to know where the resources are being directed in terms of production. For example, we may want to ask the following sorts of questions:

- Why is Australia using its labour resources to produce mineral exports rather than to manufacture cars?
- Why have some of our scarce resources been moved from mining to more service-based industries in recent years?
- What will happen to the allocation of resources as the earth's climate systems become increasingly disrupted?

Economists may also be interested in **'How'** resources are being used in the production process. In a free market, it is assumed that self-interested firms (who are motivated by profit) will try to minimise their production costs and offer the best product they can in their chosen market. This may mean that they seek the most efficient way to convert their land, labour and capital into the end product. We might consider the following:

Study tip

Most markets in Australia are interconnected. It is possible to make links between seemingly unrelated markets if one is prepared to investigate far enough. For example, any change in one market will affect labour and other factor markets for substitutes and complements as well as financial markets.

- How will scarce resources be allocated in response to perceived changes in labour market conditions in the future?
- How will the invention of more sophisticated artificial intelligence affect the mix of labour and capital in the production process?
- How can community pressure and the buying decisions of consumers influence the methods of production employed by firms in a country?

Finally, economists will look at how the products that are made are ultimately distributed in the economy - in other words, **'Who'** gets to enjoy the goods and services that are produced. In a purely market capitalist economy, markets will typically allocate resources to those who are willing and able to pay. Given that no economy in the world is completely market capitalist, it is not surprising that the predictions our model may make may not eventuate. However, in a country like Australia, the market mechanism is a very useful model that can provide consumers, businesses and other economic observers with the capacity to predict changes in prices and quantities (as well as explain retrospectively why these parameters may have changed). With respect to this question, we may consider:

- What influences the wages paid to different professions?
- How does the scarcity of labour affect the allocation of the world's scarce resources?
- How do the buying decisions of the very wealthy affect the ability of low-income earners to access necessities?

Markets reveal information about individual and collective preferences because consumers willingly exchange their income for goods and services they believe will maximise their wellbeing. These buying decisions are instrumental in how a nation allocates its scarce resources. The ability to make free choices signals to producers what consumers value, their priorities, and their preferences. Ultimately, the price of any good or service is determined by the buyer's willingness to pay (demand) relative to its availability (supply). The price is therefore used to ration scarce goods and services to the point where the market will allocate resources to the highest 'end use'.

Across the economy, there will be a set of prices for every good or service that is offered for sale. Economists are

interested not only in the prices of individual goods and services but also in **relative prices**. A relative price is the price of one good or service expressed in terms of another. It is usually calculated by dividing the price of one good by the price of another. Relative prices are therefore closely related to opportunity cost (which was discussed in Chapter 1), because they indicate how much of one good needs to be given up to obtain another. For example, if the price of Vitamin Water is $2.50 per bottle and the price of a green smoothie is $5 (the new equilibrium price determined in our earlier example), then the relative price of a green smoothie is two bottles of Vitamin Water ($5/$2.50 = 2). For every green smoothie purchased, the consumer therefore foregoes the opportunity to purchase two bottles of Vitamin Water. Alternatively, the relative price of Vitamin Water is 0.5 green smoothies ($2.50/$5 = 0.5). Changes in relative prices are important because they influence the choices made by consumers and producers. A change in the relative price will therefore alter opportunity costs and provide signals and incentives that can ultimately influence how resources are allocated across different markets.

Markets are usually dynamic places and, as we have seen earlier, the factors affecting demand and supply frequently change. Relative prices can therefore change at any time. For example, if the cost of producing Vitamin Water falls, its supply will increase, and its price might fall from $2.50 to $2. The relative price of a green smoothie will then rise from two bottles of Vitamin Water to 2.5 bottles ($5/$2 = 2.5). To obtain one green smoothie, the consumer must forgo the opportunity to purchase 2.5 bottles of Vitamin Water. Even though the price of a green smoothie has remained unchanged at $5, it has become relatively more expensive because more of a substitute product can now be purchased for the same price. Some consumers might therefore substitute away from green smoothies and towards Vitamin Water, causing the demand curve for green smoothies to shift leftward. This will place downward pressure on the equilibrium price and quantity of smoothies and reduce the incentive for producers to devote resources to their production. Over time, some of these resources are likely to be shifted towards the production of other goods and services where the returns are relatively higher.



With respect to the question of **what to produce,** an economy that relies on the market or price mechanism will generally allocate more resources towards goods and services that are in relatively high demand. When the relative price of a good or service rises due to increased demand (and/or decreased supply), this sends signals to economic agents. Suppliers are likely to equate the higher price with greater profit opportunities and decide to allocate more of their resources towards producing that good or service. Consumers are therefore considered an important driver of resource allocation in a market-based economy. The market for electric vehicles (EVs) provides a good example. Over recent years, Australian consumers have become increasingly attracted to EVs because of factors such as lower running costs, high petrol prices, greater model choice and changing preferences towards lower-emission forms of transport. This contributed to an increase in demand for EVs (the demand curve shifted to the right), initially placing upward pressure on their relative price and creating greater profit opportunities for suppliers.

The price signals and growing demand encouraged vehicle manufacturers to allocate more resources towards EV production and introduce more models into the Australian market. By 2026, consumers had access to a much wider range of EVs, including a growing number of lower-priced models. The entry of additional suppliers and greater competition, particularly from China, increased supply (the supply curve shifted to the right), exerting downward pressure on EV prices. This illustrates the way the price mechanism can cause resources, such as labour and capital, to move towards areas where demand and potential returns for producers are relatively high. Similar adjustments occur in energy markets. Higher prices for oil and other fossil fuels provide an incentive for producers to increase exploration and production, while encouraging resources to shift towards alternative energy sources, such as solar, wind and battery storage. [See Box 2.4 for examples of relative prices and resource allocation in the energy sector.]

.

The price mechanism describes how the forces of demand and supply determine relative prices of goods and services, which then ultimately determine the way our productive resources (e.g. labour and capital) are allocated in the economy.

The price mechanism will also influence the second fundamental economic question of **how to produce** the good or service. Generally speaking, a business will seek to maximise its profits by minimising its costs and selling the good or service at the highest price possible. The competitive market will ensure that resources are used as efficiently as possible, enabling producers to offer their products at the most attractive price to consumers. When the price of one resource increases relative to the price of another, this may influence firms to change how they produce goods and services (and, in the process, alter the allocation of resources). For example, if unions are successful in raising the wages of unskilled labour, this increases the price of labour relative to capital and may cause some substitution away from labour and toward capital in the production process. The relatively high price of labour (compared to capital) for

unskilled workers in Australia may have encouraged the supermarket industry to implement self-serve checkouts, which reduces the need to hire as many workers. Higher labour prices in Australia have also encouraged many firms to shift their manufacturing (and sometimes service) activities to countries with cheaper labour. For example, most clothing and technology products are not made in Australia because the relative price of labour is too high, and resources are allocated to alternative products where value added might be higher.

Similarly, the price mechanism will effectively allocate resources within factor markets, with changes in the relative prices of factor inputs sending clear signals to the owners of these resources about how best to use them in production. For example, in **labour markets**, the shortage of engineers over recent years has resulted in a higher price for engineers (i.e. the salary or remuneration), relative to the price for other professions, which has sent a signal to people, such as university entrants, that a career as an engineer is relatively more lucrative. This is likely to lead to a greater allocation of labour resources to this particular section of the labour market. In other words, there will be greater supply of engineers to this market as the price (or wage) of engineers has increased relative to the price offered in other professions. Again, the price mechanism has facilitated this movement of (labour) resources from one activity to another.

The answer to the third fundamental question of for **whom to produce** is determined by the potential consumers' willingness and ability to pay. Resources are usually allocated to the production of goods and services demanded by consumers, but some consumers will be able to access more goods and services than others. More land, labour and capital resources may therefore be devoted to satisfying the material needs of high-income earners in our society, as they can afford to purchase more goods and services. Therefore, the relative wages of different professions will ultimately influence who gets to consume the resources available in a country (or the world at large). In a free market, this could mean that a large section of the population lacks access to basic needs and lives below the poverty line. For example, there is an increasing number of Australians who lack access to affordable housing. The inability to earn enough income in the market system significantly reduces their capacity to obtain a loan or successfully apply for a rental property. Investors' market activity (which has contributed to significant price increases) has also made it more difficult for younger generations to purchase property (sometimes referred to as the '**housing affordability crisis**').

Generally speaking, goods and services that are profitable to produce in a competitive market will be produced, while those that incur a loss will not. However, governments will intervene to promote what is perceived as a more efficient allocation of resources if there is evidence that the market has failed. [**Market failures** are examined in Chapter 3]. The government will also reallocate resources when equity in income distribution is not achieved. This is based on society's preference to support those who may not be able to achieve a dignified standard of living without some government intervention.

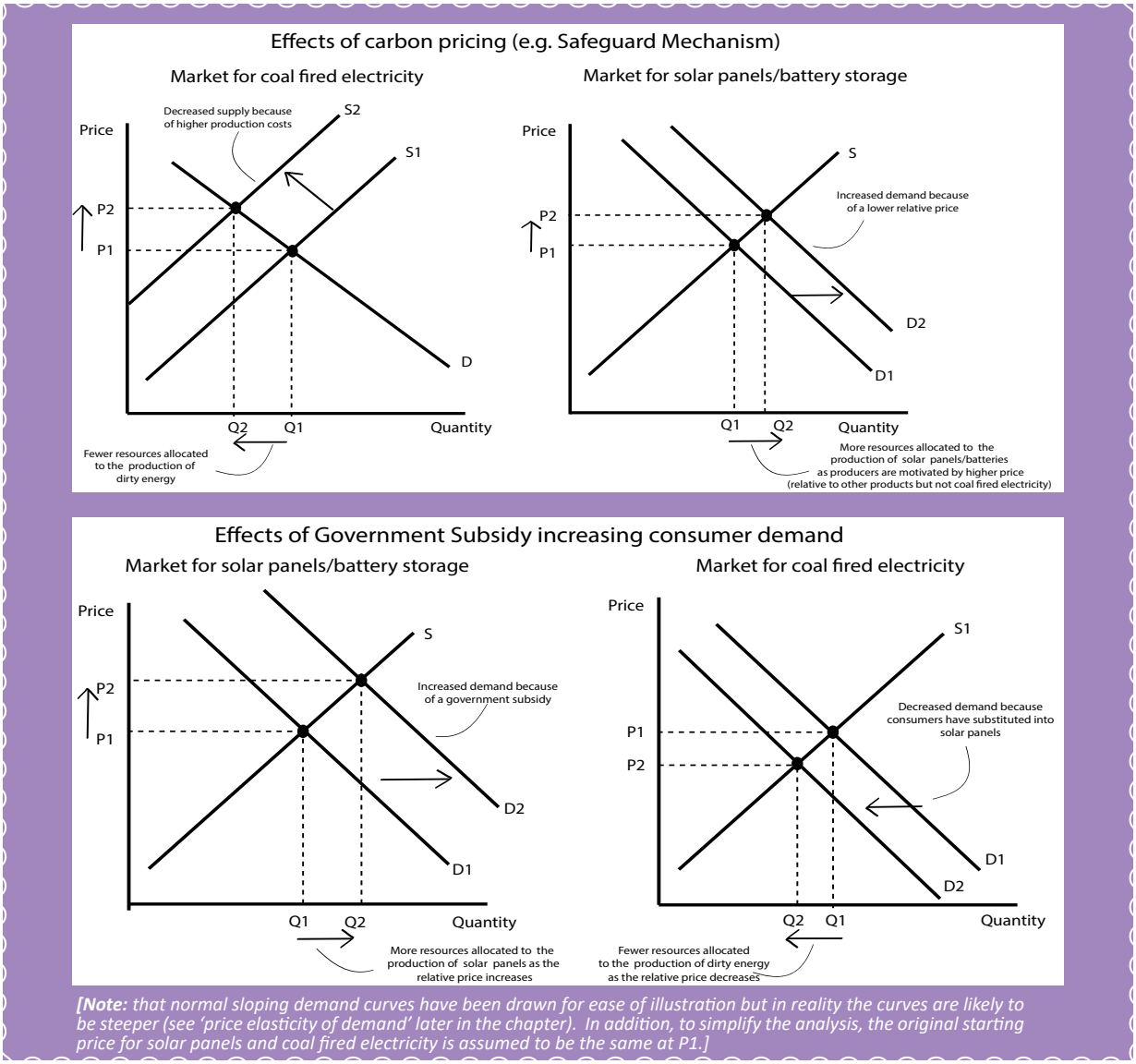
Box 2.4 Examples of relative prices and resource allocation in the energy sector

Government policies designed to reduce carbon emissions can influence relative prices and therefore the allocation of resources. For example, under the Australian Government's Safeguard Mechanism, many of Australia's largest industrial facilities face limits on their greenhouse gas emissions, with these limits generally declining over time. Firms exceeding their limits may incur additional costs for reducing emissions or purchasing eligible carbon credits. This raises the relative cost of carbon-intensive production and provides an incentive to allocate resources towards cleaner production methods.

Changes in relative prices also influence the choices consumers make. If electricity generated from fossil fuels becomes more expensive relative to renewable energy, households and businesses have a greater incentive to use alternatives such as rooftop solar and battery storage. An increase in demand for these products signals to producers that greater profit opportunities exist. Over time, more labour and capital are likely to flow into the production and installation of renewable energy equipment and away from carbon-intensive energy production.

Government subsidies can speed up this process. From July 2025, the Australian Government's Cheaper Home Batteries Program provided financial assistance towards the installation of eligible batteries. By reducing the effective cost to consumers, the subsidy increased households' willingness and ability to purchase batteries at each market price (the demand curve shifted to the right). The higher demand placed upward pressure on the price received by suppliers and increased the quantity of batteries traded. This provided an incentive for existing suppliers to expand and new suppliers to enter the market.

Interestingly, the relative price of batteries can change in different directions during this process. The subsidy initially makes batteries cheaper for consumers than other energy options. The resulting increase in demand can then place upward pressure on the market price received by suppliers, encouraging more resources to flow into the industry. Over time, increased production, new suppliers and improved technology can increase supply and place downward pressure on battery prices. This illustrates how changes in relative prices provide signals that help to allocate resources in a market-based economy. The changes in resource allocation are summarised in the diagrams below.



*[**Note:** that normal sloping demand curves have been drawn for ease of illustration but in reality the curves are likely to be steeper (see 'price elasticity of demand' later in the chapter). In addition, to simplify the analysis, the original starting price for solar panels and coal fired electricity is assumed to be the same at P1.]*

Review Questions 2.9

1. Explain how the market might answer the fundamental economic question of 'what to produce'. Make reference to the role of relative prices in your response.
2. In a competitive market, relative prices play a very important role in allocating scarce resources. With reference to a particular example, explain how an increase in demand has resulted in a change in relative prices and how this influenced the change in resource allocation.
3. Explain how the price mechanism will cause a reallocation of labour resources in the event that there is a shortage of economists.
4. Explain why reliance on the price mechanism will often result in an unequal distribution of income and therefore access to the goods and services that are produced.
5. With reference to a specific example, explain how an increase in supply of a particular product may result in a change in the allocation of resources in that particular market.
6. Consider the example you provided in Question 5. Explain how another (alternative) market may be affected by the change in supply you described.
7. With reference to different markets to those discussed in questions 5 and 6, explain how a decrease in demand for a particular product may affect the allocation of resources in that particular market.
8. Based on the example provided in Question 7, explain how an alternative market may be affected by the change in supply conditions.
9. Australia has recently experienced periods of below average wages growth. Explain how this might be linked to the relative price of capital, the rate of unemployment and the price of labour in other nations.
10. With reference to a specific market(s), explain how an increase in demand may affect a factor market(s).
11. Explain why a competitive market is likely to promote allocative efficiency.
12. Explain why a competitive market is likely to promote technical efficiency.
13. Explain how changes to relative prices play an important role in answering the three basic economic questions.

Activity 2i: How artificial intelligence might affect the allocation of resources



Artificial intelligence (AI) refers to computer systems capable of performing tasks that would normally require human intelligence. Machine learning is a form of AI in which machines can learn from data and improve their performance on particular tasks. More recently, generative AI has enabled machines to produce written material, images, computer code, and music. The rapid development of AI is likely to have significant effects on how labour and capital resources are allocated across the economy.

Businesses are already using AI to complete tasks that were previously performed by workers. For example, AI can be used to answer customer enquiries, analyse data, prepare written material, produce advertising content and write computer code. If a business can use AI to complete these tasks more quickly or cheaply, then it has an incentive to substitute capital for labour. This is particularly likely to occur if the relative price of using AI falls compared to the wages that need to be paid to workers. The demand for some types of labour could therefore fall (the demand curve shifts leftward), while more resources are allocated to AI-related capital.

This does not mean that AI will necessarily reduce the demand for all types of labour. In some cases, AI will make workers more productive rather than replace them. A worker who can use AI to complete tasks more efficiently may become more valuable to an employer. There is also likely to be increased demand for people who develop and maintain AI systems, as well as workers with the skills needed to use the technology effectively. The demand curve for these types of labour could therefore shift to the right, resulting in higher wages and employment.

Transport provides another example of how AI might change the allocation of resources. Autonomous vehicles are already being used in some parts of the world, and further improvements could reduce the demand for drivers in taxi, freight and delivery businesses. At the same time, more resources would need to be allocated towards producing and maintaining the vehicles, computer systems, sensors and other equipment required to operate them. There could also be flow-on effects to other markets, including vehicle repairs, insurance and public transport.

Similar changes are occurring in agriculture. Farmers can use AI together with drones, cameras, sensors and other machinery to monitor crops and livestock, detect weeds and disease and determine where water or fertiliser is required. This might allow a farmer to produce the same output using fewer labour resources and less water, fertiliser or chemicals. However, more capital resources will be required, and there may be greater demand for workers capable of operating and maintaining the new equipment.

These developments have implications for each of the three basic economic questions. With respect to what to produce, the growing demand for AI has encouraged more resources to flow towards software, computer hardware, data centres and other AI-related products. The biggest changes, however, are likely to relate to how to produce. Businesses seeking to maximise profits and remain competitive will have an incentive to use AI where it can lower costs, increase productivity, or improve the quality of the product they sell.

The for whom to produce question is more difficult. If AI replaces some workers, those workers could experience unemployment or wage pressure. At the same time, workers whose skills complement AI might experience higher demand for their services and higher incomes. This could contribute to greater income differences among workers. One suggestion sometimes raised is the introduction of a universal basic income (UBI), in which people receive a minimum income regardless of employment status. Others argue that resources would be better directed towards education and training so that displaced workers can move into areas where the demand for labour is growing.

Questions

1. **Distinguish between labour and capital resources.**
2. **Explain how the use of artificial intelligence might reduce the costs of production for firms and affect how they answer the economic question of 'how to produce'. Make reference to specific examples.**
3. **Explain how a fall in the relative price of AI-related capital compared to labour might change the way resources are allocated.**
4. **Using demand and supply analysis, explain why AI might cause the equilibrium wage to fall for some types of labour but rise for others.**
5. **With reference to either transport or agriculture, explain how the increasing use of AI could result in a change in the allocation of resources. Extend your analysis beyond the industry selected.**
6. **Research another recent development in artificial intelligence and explain how it might affect the allocation of resources. Use demand and supply analysis and make reference to relative prices in your answer.**

2.10 The meaning and significance of price elasticity of demand

The demand curve shows the relationship between the various possible prices of a particular product and the quantities that buyers are willing and able to purchase at each price. The law of demand suggests that consumers will respond to a fall in price by purchasing more of the good or service in question.

Economists are also interested in the extent to which quantity demanded changes in response to a change in price. This can be studied using the concept of elasticity, which measures the **responsiveness** of one variable to a change in another variable, typically by comparing the relative percentage change in each.

Price elasticity of demand (PED) measures the responsiveness of the quantity demanded of a good or service to a change in price of that good or service. It can be calculated using the following formula:

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

By using percentage changes in the calculation of the PED, we can compare the degree of responsiveness across different types of goods and services. It also allows for comparisons of the PED across different countries (and regions within countries) for the same types of products. When the PED is calculated, the value will generally be negative (because the relationship between price and quantity demanded is inverse). For simplicity, this negative sign is usually ignored, and the PED will take on a value between 0 and ∞ (infinity).

High PED (elastic)

A product will have a **high PED** if the absolute value is greater than 1. In this situation, the percentage change in quantity demanded will be greater than the percentage change in price. A demand curve where the PED is high would be one that is relatively flat. [See Figure 2.9.]

Low PED (inelastic)

The product will have a **low PED** if the value is less than 1. In this situation, the percentage change in quantity demanded will be less than the percentage change in price. A demand curve where the PED is low would be one that is relatively steep. [See Figure 2.9.]

Medium PED (unit elastic)

In some cases the percentage change in quantity demanded and price may be **equal**. This is called **unit elasticity** because the elasticity value will be exactly 1. [See the middle diagram in Figure 2.9.]

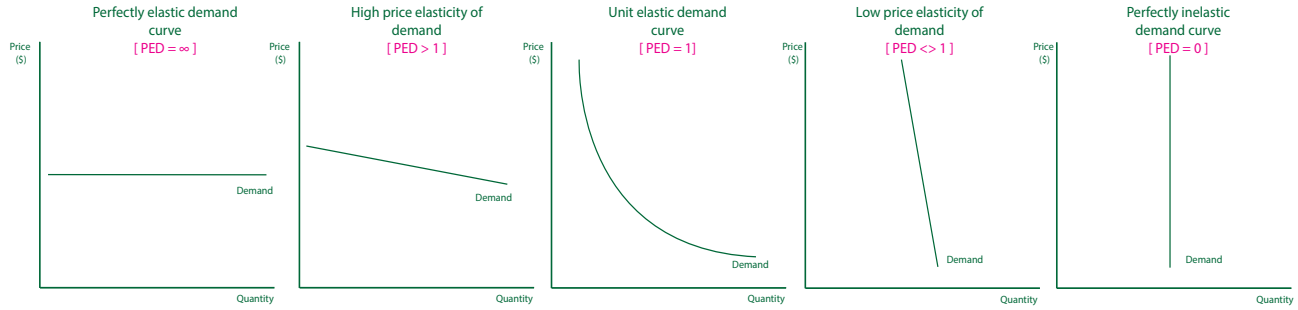
Box 2.5 Price Elasticity of Demand and Pricing

One way to determine whether a product has a relatively high or low price elasticity of demand (PED) is to examine how total revenue changes in response to a change in price. If an increase in price results in an increase in total revenue, demand is relatively inelastic (PED is less than 1). This is because the percentage increase in price outweighs the percentage decrease in quantity demanded, causing total revenue (P × Q) to rise. Conversely, if a decrease in price results in an increase in total revenue, demand is relatively elastic (PED is greater than 1). In this case, the percentage increase in quantity demanded outweighs the percentage decrease in price, resulting in an increase in total revenue.



If a product has a low PED, this does not generally mean that consumer demand is completely unresponsive to price changes. A perfectly inelastic demand curve, however, would be vertical, as quantity demanded would remain unchanged regardless of price changes. At the other extreme, a perfectly elastic demand curve would be horizontal. In this situation, even the smallest price increase would result in a complete loss of sales. Consider, for example, an individual seller operating in a highly competitive market such as the Queen Victoria Market (QVM), where many sellers might offer virtually identical (homogeneous) products at the same price. If buyers can easily purchase the same product from another seller, an attempt by one seller to increase their price could result in a complete loss of sales.

Figure 2.9: Price elasticity of demand



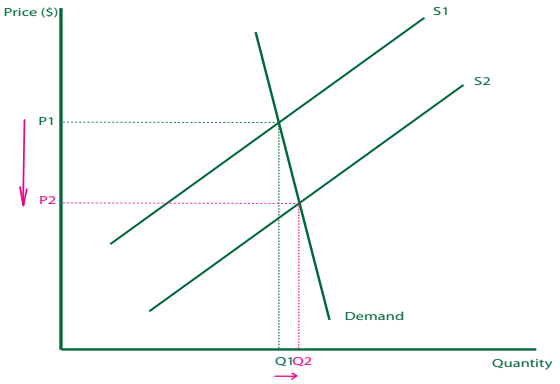
The significance of PED

PED is an important measure for businesses and the government. Business owners would generally prefer to sell products with a relatively low PED, particularly when they have some control over the price they charge. This is because an increase in price will result in a smaller percentage decrease in quantity demanded. Accordingly, the business will experience an increase in total revenue. Businesses therefore have an incentive to find ways to reduce the PED for their products, such as through advertising, product differentiation and the creation of brand loyalty.

This does not mean, however, that a business can simply continue to increase its prices and expect revenue to keep rising. As prices become higher, consumers are likely to become more sensitive to further price increases. They might search harder for substitutes, change their spending patterns or simply decide that the product is no longer worth buying. Eventually, PED may rise above one, at which point a further increase in price will cause total revenue to fall.
The PED of a product is also important for the government when it comes to indirect taxes. It can influence the amount of revenue collected from a tax as well as the extent to which the tax burden falls on consumers or producers. Consider an indirect tax placed on cigarettes. The tax increases the costs faced by suppliers, shifting the supply curve to the left and increasing the equilibrium price. One reason for taxing cigarettes is to discourage their consumption. However, the effect on the quantity demanded is likely to be relatively small, particularly in the short run, because cigarettes tend to have a low PED. This allows the government to collect substantial tax revenue because the higher price is accompanied by a relatively small percentage decrease in the quantity of cigarettes sold.

When a product has a low PED, more of the burden of an indirect tax tends to fall on consumers. Businesses can pass on much of the tax through higher prices without suffering a large percentage decrease in sales. If the product instead had a high PED, passing the tax on would be more difficult. A higher price would result in a larger percentage decrease in quantity demanded, and businesses would therefore be more likely to absorb some of the tax themselves.

Figure 2.10



There can, however, be disadvantages for producers selling products with a low PED. This is particularly relevant for primary producers, whose output can be heavily influenced by weather conditions. Suppose, for example, that favourable growing conditions result in farmers producing a much larger volume of food. This would cause the supply curve to shift to the right, as shown in Figure 2.10. While farmers now have more produce available for sale, this does not necessarily mean that their total revenue will increase. To sell the additional produce, the market price may need to fall considerably. Because many agricultural products have a relatively low PED, the resulting percentage increase in quantity demanded may be smaller than the percentage decrease in price. There is, after all, only so much additional food that people are willing and able to consume simply because prices are lower. Farmers might attempt to sell more of their produce on world markets, but this will be of little assistance if other countries are also experiencing an increase in supply. In this situation, world prices are likely to fall, and farmers' incomes may decline. Figure 2.10 shows how an increase in supply can therefore cause a relatively large fall in price but only a relatively small increase in quantity demanded.

This can also have implications for the broader economy. Countries such as Australia export large quantities of primary commodities, many of which have a relatively low PED in the short run. Changes in world supply can therefore have a large impact on commodity prices and Australia's export revenue. Russia's invasion of Ukraine in 2022, for example, disrupted world energy supplies and contributed to large increases in the prices of energy commodities such as LNG and

thermal coal. Both are important Australian exports. The higher prices therefore contributed to an increase in revenue received by Australian exporters, as the percentage increase in prices exceeded the percentage decrease in quantity demanded. More recently, conflict in the Middle East during 2026 again disrupted global energy markets. Interruptions to oil and LNG supplies put upward pressure on energy prices and increased demand for alternative energy sources, including thermal coal. Given that LNG and coal remain important Australian exports, these events provide another example of how changes in global supply, together with a relatively low PED, can lead to significant movements in Australia's export prices and revenue.

2.11 Factors affecting price elasticity of demand

The following factors will affect whether the demand for a good or service has a low or a high PED: The degree of necessity, availability of substitutes, proportion of income, and time.

The degree of necessity

Goods and services that are deemed to be **necessities** will usually have a low PED (less than 1), whereas luxury products will have a higher PED. Consumers usually have less choice when it comes to the purchase of a necessity, because, by definition, it is linked to survival. If the price of bread increased, for example, the quantity demanded would decrease, but by a smaller percentage than the increase in price, as bread is a staple (and perhaps a necessary food item) for most households. Similarly, if a person is a diabetic, they are unable to decrease their consumption of insulin if the price increases. Therefore, both products would have a low PED.

Study tip

Although a low PED will result in a less-than-proportional decrease in the quantity demanded of a product when the price rises, it is important to remember that there will still be some decrease in demand, unless the product has a perfectly inelastic PED. Students should avoid making statements such as 'even if the price increases, people will still buy the same amount' – as this is rarely true. The law of demand still applies meaning that when price increases, some members of the public will no longer be able to afford the relevant good or service (or they will be enticed by a relatively cheaper substitute).

Addiction can also turn a seemingly discretionary item into a good with a low PED. The addicted person will perceive the product to be a necessity and make their buying decisions without much consideration of the price. As a consequence, any price increase will usually be associated with a proportionately smaller drop in quantity demanded. This is evident in the markets for cigarettes and alcohol, which helps to explain why governments generate a significant amount of tax revenue when these products are sold.

Luxury goods, on the other hand, can be foregone more easily because, by definition, they are not necessities (they are considered to be items of discretionary spending). If the price increases, there is likely to be a greater percentage reduction in the quantity demanded. For example, Warren Buffet has often urged investors to steer clear of investing in the airline industry. One reason for this recommendation is that airline travel tends to have a high PED (especially when it comes to recreational travel). When oil prices were high, airline operators charged their customers a fuel levy. This consequently raised the price of a trip. With a high PED, this would have led to a more than proportionate decrease in the demand for airline travel and reduced the firms' profitability.

Availability of substitutes

Products that have a large number of viable **substitutes** will tend to be associated with a higher PED (greater than one). If substitutes are available, consumers are likely to switch to a close substitute quickly when the price of a product rises. At a highly competitive fruit market, like the Queen Victoria Market, the price elasticity of demand for each orange would be very high. If one stallholder increases their prices by a small percentage, they may find that they lose a much larger percentage of sales (in a perfectly competitive market, their sales would fall to zero). Consumers would be able to compare prices easily, and there would be a multitude of suppliers to whom they could turn quickly and easily. This is also a key reason insulin has a low PED: there are no viable substitutes.

Activity 2k analyses the role of advertising in influencing the viability of substitutes. Effective advertising will decrease the viability of competitors' products since it promotes the idea that the product being advertised is unique, and therefore has few substitutes. Advertising is designed to reduce the price elasticity of demand for products by building brand loyalty and convincing the consumer that the product is unique.

Proportion of income

The greater the **percentage of income** that is needed to purchase a good or service, the higher the PED. If the price of a box of matches increased by 50% for example, it would be surprising to see a decrease in sales by 50%. A 10% increase in the price of a new house, however, could amount to tens of thousands of dollars which, for the average person, could be the deciding factor that excludes them from the market. The resulting drop in the quantity demanded would therefore exceed 10%.

This explains why a good can have a low PED at low prices but may turn into a product with a high PED as its price increases. This suggests that the PED along the demand curve increases as the price increases. Eventually, as the price of a product rises, it will reach a price where it becomes increasingly difficult to purchase the product because it takes up a larger proportion of income.

Time



Over time, the PED for a product might increase. In the **short term**, many consumers tend to undertake their buying decisions in a habitual fashion. This may mean that initially, they may not notice a price increase or cannot be bothered seeking out a viable alternative since they might need the product now and it is a hassle to go somewhere else to find a cheaper alternative. Over time however, consumers may notice the price increase and start to consider possible substitutes. Consider the market for gas, traditionally used to heat the family home. The substantial increase in the price of gas that has occurred in recent years may not result in a significant decline in demand, especially in the short term. The first time a household might notice the price increase is when they get 'bill shock' – when the latest bill is much higher than the previous one. They may not be able to alter their heating system in the short term but, over time, if the price hike persists, they may look for ways to decrease consumption of gas. They could install new appliances that rely on alternative sources of energy (reverse cycle air-conditioning that uses solar power) or improve insulation so that less heating is lost during the winter months. The steady rise in the price of petrol over recent years has had similar effects. Many consumers might find it difficult to reduce their consumption in the short run - they may not live in an area that has public transport and they have to maintain their current mode of transportation. However, as high(er) petrol prices become more permanent, then consumers have more time to change their behaviour. They may seek out ways to reduce their consumption by working from home, carpooling with work colleagues, catching public transport and in the very long term, they may seek out an electric vehicle or bike. As you can see, the change in behaviour over time alters the PED, such that it will be higher in the **long term** compared to the short term.

The increasing ability of consumers to research their chosen product using the internet may reduce the time taken for the PED to increase. If the consumer purchases a product regularly, then they may be disgruntled by a price increase. The ability to compare prices has been enhanced by price comparison websites and so changes in price can be acted upon in a more timely fashion. For example, each year health insurance companies increase their prices. This should be a product with a relatively high PED but due to the hassle involved in changing companies, many households tend to stick with their incumbent insurer. The introduction of comparison websites reduces the effort associated with changing companies and therefore the time taken to respond to price increases might have been shortened.

Activity 2j: Price elasticity of demand

Determine whether the PED is relatively high (price elastic with a PED greater than 1) or low (price inelastic with a PED less than 1) and identify the likely impact on the firm's revenue. The first one has been done for you.

Scenario	H/M/L PED	Reason	Effect on revenue
A fruit and vegetable seller increases the price of cherry tomatoes from $6.00 to $7.50 per kilogram.	**High (because >1)**	**The high number of substitutes for cherry tomatoes encourages consumers to demand alternatives (such as Roma tomatoes)**	**Decrease**
During a particularly severe flu season, a supermarket increases the price of a box of tissues from $2.50 to $3.00.			
Qantas increases the price of economy airfares between Melbourne and Los Angeles following a substantial increase in aviation fuel costs.			
Following a sharp increase in world oil prices, petrol prices in Australia rise from $1.90 to $2.30 per litre.			
The price of electricity increases by 10%.			

The monthly price of a major video-streaming service increases from $15 to $20.			
Apple increases the price of its latest iPhone by 10%.			
A café increases the price of a regular takeaway coffee from $5.00 to $5.50.			
The price of a particular prescription medicine used to treat a serious medical condition increases substantially.			
An increase in the excise tax on cigarettes causes the average price of a packet to increase from $40 to $45. Quantity demanded falls by 5%.			
Flooding in an important agricultural region causes the retail price of iceberg lettuce to increase substantially.			
An airline increases the price of tickets for flights from Melbourne to Sydney departing tomorrow morning.			

Activity 2k: Advertising to boost demand and reduce PED



Firms often spend thousands, or even millions, of dollars each year on advertising and other forms of marketing. In demand analysis, there can be a number of reasons to do so. One aim is to provide consumers with information about the product and encourage them to purchase it. After all, it can be difficult to sell a product if the target market does not know that it exists or how it might improve their enjoyment of life. A business might be attempting to create a new market altogether or capture a greater share of an existing market (thereby taking some market share away from its competitors). If the advertising campaign is successful, consumers will be willing to purchase more of the product at each given price level. This represents an increase in demand and a rightward shift of the demand curve as consumer tastes and preferences change. (Note that advertising will also add to the firm's costs of production and these costs will ultimately need to be recovered from the sale of its products.)

Advertising can also be used to increase brand loyalty. Brand loyalty occurs when consumers develop a strong preference for a particular brand and continue to purchase its products over time. This provides another potential benefit from advertising. If consumers become more attached to a particular brand, they may be less willing to switch to competing products when the brand's price increases. In effect, competing products become less attractive as substitutes. A successful advertising campaign can therefore reduce the PED for a product. The demand curve might not only shift to the right but also become steeper, reflecting that consumers have become less responsive to price changes. A lower PED can provide a business with greater scope to increase prices without experiencing a large percentage decrease in quantity demanded. This can increase total revenue and may help explain why some well-established brands are able to charge premium prices. Apple provides a useful example. The first iPhone was released in 2007, and new versions have been released regularly since. In September 2025, Apple released the iPhone 17 range in Australia, once again accompanied by extensive promotion surrounding the launch.

The regular release of new models forms part of a broader marketing strategy that can encourage existing customers to upgrade their phones, even when their current phone continues to work perfectly well. Despite the relatively high price of an iPhone, it could be argued that demand from many existing Apple customers has a relatively low PED. Sensitivity to the upfront price can also be reduced by how mobile phones are purchased in Australia, with consumers able to spread the cost of a new phone over periods such as 12, 24, or 36 months.

Apple has also been very successful in differentiating its products from those of its competitors. Some consumers may consider an iPhone to be sufficiently different from competing smartphones that they do not regard those phones as close substitutes. This effect can be strengthened by the Apple ecosystem. A consumer who already owns products such as an Apple Watch, AirPods, an iPad, or a Mac and uses services connected to Apple's iOS will typically find switching to another brand less attractive. The availability of substitutes has therefore effectively been reduced for these consumers, helping to explain why their demand for an iPhone is relatively price inelastic.

Questions

1. **With reference to a relevant non-price factor, explain why successful advertising and marketing is likely to result in a shift of the demand curve to the right.**
2. **With reference to a relevant non-price factor, explain why advertising is likely to be associated with a shift of the supply curve to the left.**
3. **With reference to the relevant formula, explain what is meant by the price elasticity of demand.**
4. **Explain what is meant by 'brand loyalty' and outline how advertising can generate brand loyalty.**
5. **Identify one other product (apart from Apple products) where there appears to be a degree of brand loyalty. Discuss how the company has influenced you (or consumers more generally) to perceive this product when compared to others in the same industry.**
6. **Discuss the possible relationship between an increase in advertising expenditure, brand loyalty and the PED.**
7. **Explain why it is considered to be profit-maximising behaviour if a business raises the price on those products with a low PED.**
8. **With reference to at least two relevant factors, explain whether the price elasticity of demand for iPhones is likely to be high or low.**

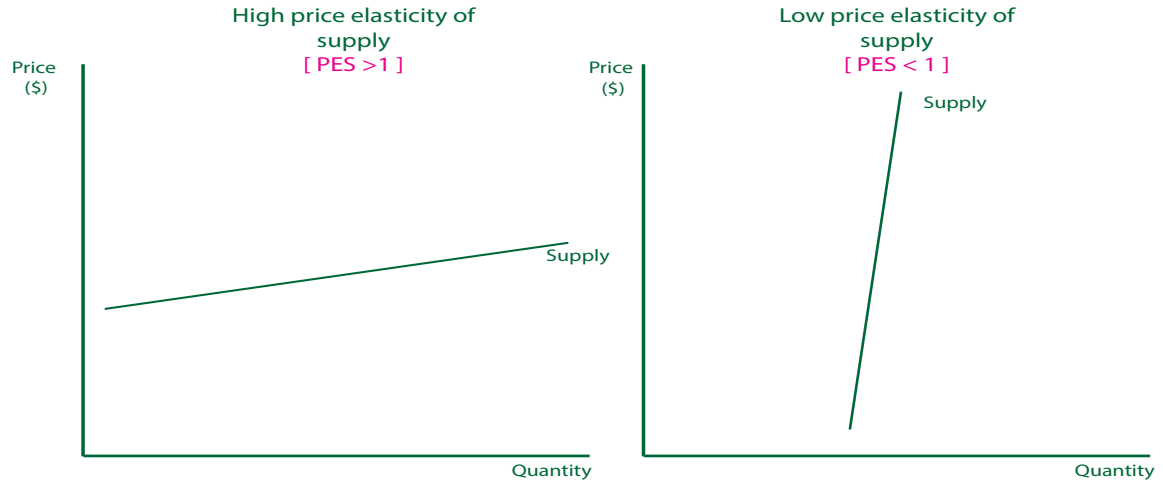
2.12 The meaning and significance of price elasticity of supply

Price elasticity of supply (PES) measures the responsiveness of the quantity supplied of a good or service to a change in price of that good or service. It can be calculated using the following formula:

$$PES = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$$

Supply curves with a high PES and a low PES are depicted in Figure 2.11. A product with a PES that is greater than one will have a relatively flat supply curve. This means that suppliers are willing and able to increase the supply by a larger percentage than the price increase. If the PES is less than one, the supply curve will be relatively steep. This means that when prices increase by a certain percentage, suppliers are either unwilling and/or unable to increase supply by the same percentage.

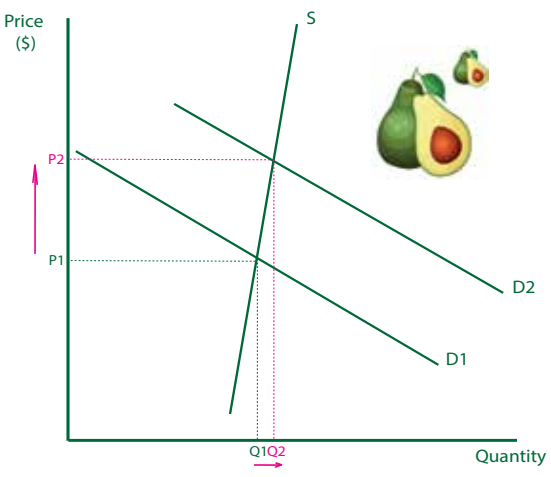
Figure 2.11



The significance of PES

The price elasticity of supply can affect a business's economic viability and its ability to respond to changing price signals. Generally speaking, primary products (such as food and mining products) tend to have a lower price elasticity of supply than manufactured goods. Countries such as Australia, which generate large revenue from mining and agricultural exports, often face volatile revenue swings. For example, if coal prices were to increase dramatically, it may be difficult for firms to rapidly increase their output levels (especially in the short run). The low PES is also partly due to price volatility in this sector. The companies need to wait for clear price signals before undertaking the investment needed to build the productive capacity required to meet the higher demand. Uncertainty surrounding government policy can also reduce the incentive to respond to changing price signals, especially if they, too, are perceived as temporary (given that governments in Australia can change every three years).

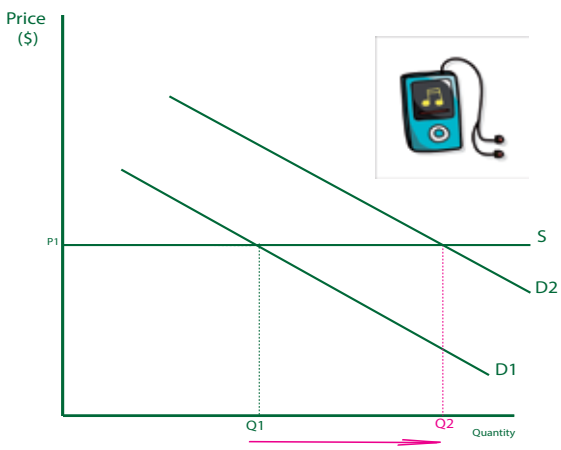
Figure 2.12



With a **steep supply curve**, signifying a low PES, any change in demand will result in a significant change in price. For example, the supply curve for many agricultural products is relatively price inelastic (less than one and therefore depicted as steep) because the production period is relatively long [See Section 2.13.] This adds to the volatility of prices for primary producers. Any change in demand can lead to significant changes in prices. This is illustrated in Figure 2.12, which shows what happens when demand rises for a primary or agricultural product, such as avocados. In recent years, the demand for avocados has increased, causing a shortage at the original price. Given that avocado trees can take up to 4 years before they fruit, the PES tends to be low (in the short run) and prices can remain high for some time.

The advent of digital technologies has had a disruptive effect on both demand and supply. The disruption may be positive for some but negative for others. Consider the example of streaming services such as Netflix and Stan. Because these files can be used by any number of consumers simultaneously, the PES for this product is effectively infinite, resulting in a horizontal supply curve. Any increase in demand can be supplied instantaneously, resulting in **no shortage** and no need for the price to rise. This is highlighted in Figure 2.13.

Figure 2.13



As more products become available in digital formats, including books, movies, music and games, the PES can influence producers' decisions about whether to enter a market. If you were a potential producer, would you be more encouraged to enter a market where supply could be increased quickly and at relatively little additional cost, or one where it was difficult and expensive to adjust supply when the price changed? Digital products can often be supplied to additional consumers without the producer having to manufacture another physical product. Once an e-book, audiobook, movie, or game has been produced and made available digitally, supplying it to another consumer can involve very little additional cost. This makes supply potentially much more responsive to changes in market conditions and gives producers greater flexibility in making supply decisions. It can, however, also expose producers to problems such as piracy and associated revenue losses. The ability to readily increase supply also means consumers are much less likely to find a digital product 'out of stock'. Consider, for example, hearing an author discussing a new book during a radio interview. Within minutes, you could have purchased and downloaded the e-book or audiobook onto your smartphone and started reading or listening to it. Unlike the physical version of the book, there is no need to wait for another copy to be printed, transported to a retailer and made available for sale.

2.13 Factors affecting price elasticity of supply

The following factors will determine whether the supply of a good or service is likely to have a low or a high PES.

Production period

If prices increase for a particular product, this will signal to suppliers that allocating resources into this area may now be more profitable. Firms may wish to increase their supply, but it may take time to attract the resources that are needed to increase production volumes. For example, if there were an increase in demand for apricots, the demand curve would shift to the right, resulting in a higher equilibrium price. The higher price will therefore serve as an incentive to grow more apricots.



Unfortunately, the supply response may be minimal because they cannot be produced instantly. Apricot trees may need to be planted, with time taken to grow, ripen and harvest the fruit. As a result, the PES of apricots (and many other seasonal fruits) will tend to be very low in the **short term**. However, the PES will increase over time as more resources can be shifted toward the production of apricots (assuming the increased preference for apricots is permanent and the price of apricots remains high). In contrast, a song that has been written and recorded can be supplied at the tap of a button in the digital era. The production of new copies has a minimal production period, so the PES of such products is very high.

This factor highlights the importance of time for the PES. Over time, firms will be able to respond to changing **price signals**, and this will vary from industry to industry. Consider a farmer who makes his/her living from grazing cattle. Imagine how they might respond to an increase in the world price for beef. In the short term, the farmer may not be able to meet the increased demand which has caused the relative price to increase. The farmer will also want to ensure that the price change is not temporary, so may need to study the causes of the price increase (are they cyclical or structural changes in the market?). If the price is expected to remain high, the farmer will look to raise more cattle in the future and will be able to respond more effectively to higher prices.

Spare capacity

If a firm has spare capacity, it means that its factors of production are not being fully utilised (they may be idle at times). This will mean it has a greater ability to respond quickly to changing prices. The **underemployed labour** may be able to work more hours, and machinery can be utilised to increase supply quickly. In contrast, if businesses are operating at productive capacity and there are **skills shortages**, it will be hard to attract suitable labour to expand operations. The PES for products under this scenario will tend to be relatively low. Over time, the firm may be able to increase its productive capacity (through investment and training, for example) and attract new labour (by offering higher wages to encourage workers to leave an alternative supplier). The government may also help to address the underlying causes of these capacity constraints by expanding skilled immigration targets and allocating more of the budget to training those who are structurally unemployed.

This factor also highlights why the PES will tend to change over time. As the firm approaches productive capacity, the PES will tend to decrease. For example, if there were an increase in demand for movie tickets due to an excessively hot summer (too hot to go outside), firms may initially face a relatively high PES. This is because cinemas may be able to respond to higher demand by opening longer and filling more of the seats that were empty in the past. Eventually the cinema would reach its productive capacity, at which point its PES would drop significantly. If the cinema owners believed that unpredictable weather conditions would continue (due to climate change) and that they could maintain high cinema ticket prices, they might permanently expand their productive capacity by investing in new cinemas. This would, in turn, raise the PES for these services.



Durability of goods

If the goods can be stored, then it will be much easier to respond to changing prices. The supplier can simply access the stored **inventory**. Storage is, however, often costly for firms, and they may want to reduce the stock that they hold at a given time. Advances in technology have also helped firms as they can now employ 'Just In Time' (JIT) inventory management systems. By building closer connections with their suppliers through digital technologies, firms can more easily respond to rising prices caused by increased demand.

Many fresh food products tend to have a low price elasticity of supply as they have a limited storage life. Processed food products, however, such as soft drinks and baked beans, can be stored for extended periods and will therefore tend to have a higher PES. If there were a sudden increase in demand that resulted in higher prices for, for example, baked beans, the supplier could simply access any available inventory and reap the rewards. It is important to note, however, that once all of the stock is sold into the market, the firm faces the same factors that can make it difficult to increase supply (i.e., the production period and the degree of spare capacity in the canning factory will affect the PES).

Activity 2I: Determining elasticities

With reference to relevant factors, examine whether the price elasticity of demand and the price elasticity of supply are likely to be high or low for each of the following products:

1. **Chocolate**
2. **A bottle of wine**
3. **Digital movie rentals**
4. **New cars**
5. **Surfboard**
6. **Education**
7. **Opioid drugs**
8. **Coal**
9. **Pet cats**
10. **Hairdressing services**







Activity 2m: Vaping – understanding the growth in demand



The rapid growth in vaping provides an interesting example of how demand for a product can change over a relatively short period. E-cigarettes, or vapes, were initially promoted largely as an alternative to conventional cigarettes, particularly for existing smokers. Over time, however, the market expanded considerably, and vaping became popular among many people who had never previously smoked. This was particularly noticeable among younger consumers.

There are a number of demand factors that can help to explain this growth. Vapes became available in a wide range of flavours and designs and were generally small, portable and easy to use. Their visibility on social media also increased significantly. In much the same way that advertising can increase the demand for other products, exposure to vaping through social media, friends and other forms of promotion can influence consumer tastes and preferences. If vaping becomes more fashionable or socially acceptable among a particular group, more consumers will be willing to purchase the product at each price level. This will cause the demand curve to shift to the right.

The product's design can also play an important role. Flavours, packaging and the development of different types of vaping products can be used to differentiate one product from another and make them more attractive to particular groups of consumers. This is not particularly different from what occurs in many other markets. Businesses are constantly looking for ways to make their products stand out from competitors' offerings. If successful, this can increase demand for their particular product and potentially reduce the attractiveness of substitutes.

There is, however, another feature of the vaping market that makes it particularly interesting when examining PED. Many vaping products contain nicotine, which is addictive. A person who is experimenting with vaping for the first time might be quite sensitive to price (i.e. the PED for this consumer is likely to be relatively high). For example, if the price increased significantly, they might simply decide that the product is too expensive and stop purchasing it. However, the situation may be quite different for someone who has been vaping regularly and has developed a dependence on nicotine. This consumer may be much more reluctant to reduce their consumption when prices increase (i.e. the PED for this consumer is likely to be relatively low). Accordingly, the PED for vaping products will not necessarily remain constant and will typically differ between consumers and may also change over time.

From the perspective of producers, there are obvious benefits from both increasing demand and reducing PED. An increase in demand means that more of the product can potentially be sold at any given price. A reduction in PED means that existing consumers become less responsive to changes in price. This provides the producer with greater scope to increase prices without experiencing a proportionately larger decrease in quantity demanded. If, for example, the price increased by 10% but quantity demanded fell by only 4%, demand would be relatively price inelastic, and the producer's total revenue would increase.

The vaping market therefore highlights an important point about demand and the PED. Businesses do not simply sit back and respond to existing consumer tastes and preferences. Through advertising, product design, branding and other forms of marketing, they can attempt to influence these tastes and preferences and increase demand for their products. In some markets, they may also be able to develop a group of regular consumers who become less responsive to price changes over time. In this way, the factors influencing demand and PED can become closely connected.

Questions

1. **Describe a potential opportunity cost associated with the consumption of e-cigarettes.**
2. **Explain the law of demand in relation to e-cigarettes and, in your response, refer to the income and substitution effects.**
3. **Explain how successful advertising and marketing of e-cigarettes could affect both the demand for e-cigarettes and their price elasticity of demand. Use a diagram to illustrate your response.**
4. **Describe the role of the profit motive and relative prices in influencing the allocation of resources towards the production of e-cigarettes.**
5. **Describe one factor that might explain why the price elasticity of demand for e-cigarettes is relatively low.**
6. **Describe one factor that might explain why the price elasticity of supply for e-cigarettes is relatively high.**

Activity 2n: The changing car market: COVID to EVs (2025–26)



Traditionally, used cars sell for less than equivalent new cars. Indeed, there is an old saying that a new car loses a significant amount of its value the moment it is driven out of the dealership. There are a number of reasons for this. Consumers generally prefer a new product to an otherwise identical used product, and there can also be uncertainty surrounding the quality and history of a used car. A buyer might not know, for example, whether the vehicle has been involved in an accident, driven particularly hard or properly maintained. [The problem of asymmetric information will be examined in more detail in Chapter 3.]

The period following the COVID-19 pandemic, however, demonstrated that the normal price relationship between new and used cars does not always hold. Between 2020 and 2022, used-car prices increased dramatically and, in some cases, relatively new used cars were advertised for more than the recommended retail price of an equivalent new vehicle. At first glance, this seems strange. Why would someone pay more for a used car when they could purchase the exact same car new? Demand and supply analysis helps to provide the answer. During the pandemic, the supply of new vehicles was disrupted by a combination of factors. Car manufacturers experienced shortages of semiconductors (computer chips), factories were temporarily closed, and international shipping was disrupted. Shipping costs also increased, and manufacturers faced higher prices for several key inputs. These factors made it more difficult and expensive to produce and deliver new cars, effectively shifting the supply curve for new vehicles to the left.

The result was a shortage of new cars and a significant increase in waiting times. Consumers who might previously have walked into a dealership and driven away in a new car were sometimes told they would need to wait many months for delivery. For someone who actually needed a car immediately, being told that a new vehicle would arrive in six or twelve months was not particularly helpful. This had a significant effect on the used car market. New and used cars are substitutes and, as new cars became more difficult to obtain, some consumers turned to the used car market instead. This caused the demand curve for used cars to shift to the right. The supply of used cars could not immediately respond to the increase in demand because the existing stock was limited. The combination of stronger demand and relatively restricted supply resulted in substantial increases in used-car prices. Other demand factors were also at work. Interest rates fell to exceptionally low levels during the pandemic, reducing the cost of borrowing. Government support payments helped protect household incomes, and many households accumulated additional savings because opportunities to spend money on travel, entertainment, and other services were restricted. Once lockdowns ended, some consumers were therefore in a stronger financial position to purchase a vehicle. At the same time, concerns about using public transport (due to the increased risk of infection) may have increased the attractiveness of private car ownership.

The situation has changed considerably since then. The global shortage of computer chips eased, factories returned to more normal production levels, and international supply chains improved. Consequently, the supply of new vehicles increased, and waiting times generally fell. Australia recorded more than 1.24 million new-vehicle deliveries in 2025, while the used-car market also became much more settled. Approximately 2.32 million used vehicles were sold in 2025, but prices generally softened as vehicle availability improved and buyers gained more bargaining power.
By 2026, another interesting change was taking place in the Australian car market. Consumers were increasingly choosing not only between new and used cars but also among different forms of propulsion. Petrol and diesel vehicles now compete with conventional hybrids, plug-in hybrids (PHEVs) and battery electric vehicles (EVs). During 2025, sales of new petrol vehicles fell while sales of hybrids, PHEVs and EVs increased. This trend continued into 2026, with particularly strong growth in EV and PHEV sales.

There are several possible explanations for these changes in demand. The range of electrified vehicles available in Australia has increased considerably, and greater competition between manufacturers has provided consumers with more choice. Improvements in battery technology and driving range have also made EVs more attractive to some consumers. At the same time, petrol costs can influence the relative attractiveness of an electric or hybrid vehicle because consumers need to consider not only the purchase price of a car but also the expected operating costs over several years.

Changes in consumer tastes and preferences are therefore affecting the allocation of resources within the motor vehicle industry. If consumers increasingly prefer EVs, PHEVs and hybrids, producers have an incentive to devote more resources towards their production. The arrival and growth of additional manufacturers, particularly from China, has also increased competition and expanded the range of vehicles available to Australian consumers.
The experience of the Australian car market since 2020 therefore provides a useful demonstration of how markets continually adjust. A disruption to the supply of one product can affect the demand for a substitute; changes in interest rates and household incomes can influence demand; and changes in tastes, technology, and relative prices can alter the types of products that businesses choose to supply.

Questions

1. **Over the period 2020-22, identify and explain two factors that contributed to the decrease in the supply of new cars and two factors that contributed to the increase in demand for used cars.**
2. **Using a demand and supply diagram, explain why the price of new cars increased and waiting times became longer during the period 2020–22.**
3. **Explain why a decrease in the supply of new cars contributed to an increase in the demand for used cars. Explain why used-car prices generally fell from their unusually high levels as the supply of new vehicles recovered.**
4. **Identify and explain two factors that could account for the increased demand for EVs in Australia.**
5. **Explain how changing consumer preferences for different types of vehicles can influence relative prices and the allocation of resources within the motor vehicle industry.**

Review questions 2.10 - 2.13

1. Define what is meant by price elasticity of demand and explain how PED affects the slope of the demand curve.
2. With reference to two relevant factors, explain why the PED for airline travel would be higher than the PED for cigarettes.
3. With reference to the concept of brand loyalty, explain why advertising expenditure may cause the demand curve for a specific product to shift to the right and become steeper.
4. Explain how knowledge of PED may affect the government's decision to place taxes on certain goods and services.
5. With reference to the consumption of electricity, explain why the PED will tend to increase over time.
6. Use a suitably labelled supply and demand diagram to explain why farmers, whose products tend to have low PED and low PES, face huge variations in their incomes.
7. Define what is meant by price elasticity of supply. Explain how PES affects the slope of the supply curve.
8. With reference to two relevant factors explain why the PES for streaming services may be higher than the PES for fresh pineapples.
9. Explain how the increasing use of artificial preservatives may have affected the PES of food products.
10. With reference to iron ore, explain why the PES will tend to increase over time.

Multiple choice review questions

1. Which of the following statements about the relationship between price and quantity demanded is incorrect?
a) As the price of the product increases, the quantity demanded is likely to decrease
b) As the price of the product decreases, the quantity demanded is likely to increase
c) As the demand for a product increases, its price is likely to fall
d) The quantity demanded for a good or service is dependent on its own price

2. The demand curve for teddy bears is likely to shift to the right if:
a) there is a decrease in the price of teddy bears
b) there is an increase in the birth date
c) the price of cuddly toy rabbits decreases
d) there is a new invention that allows the suppliers to produce more teddy bears per hour

3. The demand for special edition sneakers is likely to 'expand' in Australia if:
a) their own price increases
b) the price of traditional sneakers decreases
c) there is an appreciation of the Australian dollar
d) the unemployment rate in Australia increases

4. The supply curve for soft drinks is likely to shift to the left if:
a) the Victorian Government bans the advertising of soft drink
b) the price of soft drink increases
c) the price of sugar increases
d) there is a decrease in the price of glass

5. There will be a movement to the right along the supply curve for chocolate (i.e. an expansion) if:
a) the price of chocolate decreases
b) the price of cacao beans (used to make the chocolate) decreases
c) chocolate is proven to contain polyphenols that extend the average person's lifespan
d) the price of ice cream decreases

6. A pandemic, where the government bans the selling of cinema tickets is likely to cause which of the following changes in the streaming service market?
a) A shift of the demand curve to the right and a decrease in the price of streaming services.
b) A shift of the demand curve to the left and a decrease in the price of streaming services.
c) A shift of the supply curve to the right and a decrease in the price of streaming services.
d) A shift of the demand curve to the right and minimal change in the price of streaming services.

7. A large increase in real disposable incomes is likely to lead to a decrease in the demand for:
a) Amazon Prime memberships
b) High end restaurant meals
c) Mass produced sausages
d) Financial advice

8. A movement down along the demand curve (i.e. expansion) for peanut butter is likely to be caused by:
a) An increase in the price of almonds
b) A ban on all nut products in all schools across Australia
c) Higher cost of labour for peanut farmers
d) A glut in the market for peanuts

9. An increase in the price of petrol is likely to result in:
a) A decrease in the sales of petrol powered vehicles
b) An expansion of the demand for petrol
c) A decrease in the demand for public transport
d) An increase in the price of electric vehicles

10. What would happen in the market for BMW vehicles if there was an increase in the price of Mercedes vehicles?
a) The demand curve would shift to the right and the price would fall
b) The demand curve would shift to the right and the price would increase
c) The demand curve would shift to the left and the price would increase
d) The demand curve would shift to the left and the price would fall

11. An increase in Australia's unemployment rate is likely to cause which of the following to occur in the market for home brand baked beans?
a) the supply curve would shift to the right causing the price to increase
b) the demand curve would shift to the right causing the price to increase
c) the demand curve would shift to the left causing the price to decrease
d) there would be no change in this market

12. If the price for soft drinks increases by from $2 to $2.20 and this resulted in a fall in the quantity demanded for soft drinks from 20 million litres per week to 19 million litres per week, then the product:
a) Has a high PED
b) Has a low PED
c) Is unit elastic
d) Has a PED that cannot be determined from the information given

13. Which of the following products is likely to have a PED that is higher than its PES?
a) Cans of baked beans
b) Smart phones made by Apple
c) A cordless drill
d) Paintings by Pablo Picasso (a deceased artist)

14. The demand for McDonald's hamburgers is likely to decrease if:
a) McDonalds doubles the licence fees for their franchise operators
b) The government raises income tax rates
c) Hungry Jacks closes down
d) McDonalds introduce a loyalty scheme

15. An increase in the price of lawn mowing services may result in:
a) An increase in the price of lawn mowers
b) An increase in the price of synthetic grass
c) A contraction along the supply curve for lawn mowing services
d) all of the above

16. Consider a business producing a good with a low Price Elasticity of Demand (PED). To maximise its revenue, it should:
a) increase its price
b) decrease its price
c) keep the price at its current level
d) increase supply

17. The equilibrium price and quantity for which of the following is likely to increase when there is an increase: in interest rates
a) Gucci handbags
b) New Mini Cooper vehicles
c) Shares
d) Public transport

18. There will be an increase in the quantity of resources allocated towards solar storage batteries if:
a) immigration to Australia is temporarily halted
b) the cost of materials to make the batteries decreases
c) there is a recession that causes an increase in unemployment
d) the government removes the subsidy for solar panels

19. The Price Elasticity of Supply (PES) for canteen food, such as a chickpea salad, is likely to be affected by:
a) The disposable income of the students
b) The price and availability of sushi rolls
c) The size of kitchen
d) A campaign by the students and teachers to introduce healthy, brain boosting food options

20. An increase in the popularity of a product, which is traded in a highly competitive market, is likely to result in:
a) a short run increase in the price and a long run decrease in the price
b) a short run increase in the price and a long run increase in the price
c) a short run decrease in the price and a long run decrease in the price
d) a short run decrease in the price and a long run increase in the price

Chapter summary

1. Microeconomics is the study of the individual parts of the economy that interact to make up the whole economy.
2. A market is anywhere that facilitates the exchange of goods and services. Buyers and sellers may exchange goods in person or via online facilities.
3. In a competitive market, it is assumed that all economic agents are price takers. No individual buyer or seller has the market power to influence prices. It is easy for new competitors to enter these markets because setup costs are low and the government does not restrict new entrants.
4. Consumers will try to obtain the product at the lowest possible price, while the seller will try to extract the highest possible price. Analysis of demand and supply predicts the likely compromise between the two parties.
5. The law of demand states that as the price of a product increases, the quantity demanded will tend to decrease. Conversely, if the product's price decreases, the quantity demanded tends to increase.
6. The law of demand is based on the observation of human behaviour that suggests that at higher prices a consumer's ability and willingness to purchase tends to decrease because the consumption of most goods is subject to the law of diminishing marginal utility.
7. The effect of an increase in price on demand is represented by a leftward movement along the demand curve (called a contraction). The effect of a price decrease on demand is represented by a movement along the demand curve to the right (called an expansion).
8. When the demand curve is drawn with price on the vertical axis and quantity on the horizontal axis, all other factors affecting demand for the product are assumed to be held constant. A change in any of these factors will result in a shift of the demand curve to the left or right.
9. A shift of the demand curve to the right means that more is being demanded at each given price. A shift to the left of the demand curve means that less is being demanded at each given price.
10. An increase in disposable income will generally lead to a rightward shift of the demand curve for normal goods and a leftward shift for inferior goods.
11. A decrease in interest rates will increase discretionary income for indebted households and businesses and usually result in higher demand for most goods and services. Changes in the prices of other essential items, such as petrol, will also affect households' discretionary income and may affect demand for seemingly unrelated products.
12. If the price of a substitute good or service increases, demand for the alternative product will increase (resulting in a rightward shift of the demand curve).
13. A complementary good or service is one that is consumed together with another. An increase in the price of a complementary good or service will raise the cost of consuming both goods, reducing demand for the complementary good (even if its price has not increased).
14. An increase in population will generally increase demand for most goods and services. Demographic change can lead to an increase in the demand for some goods but a decrease in others.
15. An improvement in consumer sentiment (confidence), which measures consumers' general expectations about the future state of the economy and their employment prospects, will generally increase their marginal propensity to consume and raise demand for a broad range of goods and services.
16. If a product becomes fashionable, it is likely to increase demand. This is described as a change in tastes and preferences.
17. The law of supply states that as the price of a good or service increases, the quantity supplied generally increases.

18. The law of supply is logical because, at higher prices, suppliers have greater incentive to shift resources into areas that generate higher profits.
19. An increase in the price of a product will result in a movement along the supply curve to the right (an expansion). A decrease in the price of a product will result in a movement along the supply curve to the left (a contraction).
20. When the supply curve is drawn with price on the vertical axis and quantity on the horizontal axis, all other factors affecting supply are assumed to be held constant. A change in any of these factors will result in a shift of the supply curve to the left or right.
21. If the supply curve shifts to the right, a greater quantity will be supplied to the market at each given price. A shift of the supply curve to the left means that less will be supplied at each given price.
22. An increase in the cost of any inputs used to produce a product will shift the supply curve to the left. Common costs of production include wages, utility costs and rent.
23. New technology may reduce the cost per unit and shift the supply curve to the right. This increase in firms' willingness and ability to supply is associated with the boost in productivity, which is enhanced by technological change.
24. Climatic conditions affect firms' willingness and ability to supply. Human activity can also disrupt supply (such as wars).
25. The market equilibrium occurs when the demand for a good or service equals its supply.
26. A shortage develops when the price is below the equilibrium price, and demand exceeds supply for the product.
27. A surplus develops when the price is above the equilibrium price and the demand is less than the supply for the product.
28. A movement of the demand and/or supply curve will result in a new equilibrium price and quantity traded.
29. The relative price is the price of one good or service measured in terms of another.
30. Relative prices send clear signals to producers and consumers, thereby directing resources to their highest end use.
31. Prices help to answer the three economic questions: what to produce, how to produce and for whom to produce. They therefore determine how resources are allocated in the economy.
32. The price mechanism describes how the forces of demand and supply interact to determine the relative prices of goods and services, which ultimately determine how our productive resources (land, labour and capital) are allocated in the economy.
33. Price elasticity of demand is the responsiveness of demand to changes in price, measured as the percentage change in quantity demanded divided by the percentage change in price.
34. A low price elasticity of demand means that the percentage change in quantity demanded is less than the percentage change in price. A high price elasticity of demand means that the percentage change in quantity demanded is higher than the percentage change in price.
35. PED is an important economic measure because it helps businesses analyse the impact of price changes on revenues and allows the government to consider which goods are most appropriate to impose an indirect tax on.
36. Price elasticity of demand will tend to be higher if there are a number of viable options available for the consumer, as small price increases are more likely to result in a substitution towards these alternative products.
37. Price elasticity of demand tends to be lower if the good or service is considered a necessity or highly addictive.
38. Price elasticity of demand tends to be higher if the product's purchase consumes a large share of a purchaser's income.
39. Generally speaking, the PED will increase over time because consumers will have more time to consider alternatives and to adjust their behaviour in response to the price change.
40. Price elasticity of supply measures the responsiveness of quantity supplied to changes in price, calculated as the percentage change in quantity supplied divided by the percentage change in price.
41. A low price elasticity of supply means that the percentage change in quantity supplied is less than the percentage change in price. A high price elasticity of supply means that the percentage change in quantity supplied exceeds the percentage change in price.
42. Price elasticity of supply is an important economic measure because it helps businesses to determine the impact of price changes on their profitability, and it may also determine how vulnerable a country is to changes in the prices of the goods and services it exports.
43. Price elasticity of supply is likely to be higher if the product can be stored easily.
44. Price elasticity of supply is likely to be higher if firms are operating with some spare capacity and can ramp up production quickly.
45. Price elasticity of supply will tend to be lower in the short term, but as resources are reallocated across the economy to more profitable areas, it will tend to increase.