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 has been applied to a range of markets. It is used to make predictions about changing economic circumstances and prices and quantities sold in both product and factors markets. This area of study is referred to as microeconomic analysis. **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 in what motivates each of the economic agents and how they respond to changing incentives in individual markets. We are especially interested in the role of relative prices in allocating resources. Microeconomics underpins the use of 'macroeconomic analysis, the study of which follows later in the course. This chapter will analyse how the market mechanism, which relies heavily on changes in prices, is able to determine the types of goods and services that are produced, how those products are produced and ultimately the allocation of resources.

2.2 Perfect markets

A **market** is the main instrument for allocating scarce resources in Australia. It is therefore the primary way to answer the three key economic questions discussed in Chapter 1:

What to produce
How to produce
For whom to produce

A **market** is seen as any type of arrangement (which may or may not be a physical space) that facilitates exchange between buyers and sellers. 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 of goods and services are generally businesses, but in the market, households supply businesses with their labour. In Australia, government bodies also frequently supply goods and services. Buyers and sellers may meet in the same space, such as a shop, or they may communicate online, either domestically or internationally. Goods and services are sold in **product markets** while the factors of production (inputs) are sold in **factor or resource markets** (such as the labour market).

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, **competition** is defined with reference to a set of criteria.

The market structure that forms the basis of demand and supply analysis (to illustrate how the market mechanism works) is called **perfect competition**, sometimes also referred to as a 'perfect market' or a 'perfectly competitive market'. The three conditions required for a perfect market 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**. This means that they are virtually identical and easily substitutable. This encourages the suppliers to offer the products at the lowest price possible 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, referred to in economics as **'abnormal profits'** or **'super-normal profits'**. [See the Study Tip below for an explanation of how economists view profits and costs.

In addition, the perfectly competitive market is based on the following assumptions:

- 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.

In a perfectly competitive market there is generally minimal intervention by the government. If the government intervenes in the market it would distort the price mechanism and lead to a different set of relative prices and therefore influence how resources are allocated. (Relative prices is an important concept that is defined later in section 2.9 of this chapter.) The role of government in the market will be considered in Chapter 3, but for most of this chapter, the role of the government in influencing the market will be mostly ignored. In some of the case studies, the effect of government policy initiatives will be analysed and this will provide more insight into how the government can affect relative prices and the allocation of resources.

The behaviour of producers and consumers in a competitive market

In a **perfect market**, consumers and businesses are assumed to be acting in their own self-interest at all times. Consumers will want to obtain the good or service they wish to purchase for the lowest possible price. If they are willing to purchase the good or service at a certain price, then they are giving the suppliers a clear signal that they value the good or service 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 seller in a competitive market, on the other hand, will try to sell their product at the highest price possible to maximise their **profits** (revenue less expenses). If they are able to sell the product at a price above their minimum selling price (which is assumed to be equal to their economic costs) then they generate a **producer surplus (**the difference between the price the producer is willing to sell the product for and the market price). The price that is determined in any market is therefore a compromise between how much the consumers are willing to pay for the product and how much suppliers are willing to accept for their product.

Study tip

*'Economics costs' have a specific meaning that makes them quite different to the accounting cost. 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 or loss. Instead, it is a **normal profit** and, ceteris paribus, is just enough to keep her in the business. Anything less than normal profits over time and she is likely to exit the industry and anything more is likely to entice other producers to enter the industry in search of 'above normal profits' (also called **super-normal profits**).*

When discussing the perfectly competitive market we are therefore analysing how consumers and businesses are behaving and interacting, and we would expect to find many different kinds of competition between economic agents in these markets. We expect firms to compete against each other to attract customers. The main way they do this is to offer the lowest price possible to the consumer. Competition therefore encourages them to seek the lowest cost method of production. We also expect consumers to compete against each other to gain access to the scarce products that are available in the market. When there is more demand for a product than supply, the consumers may try to compete with each other by offering higher prices to purchase the product. Competition also takes place between individuals seeking to obtain the best job or between firms trying to secure the best workers. Nations, which produce a wide range of similar goods and services, are also seen to be competing against each other in international markets.

While not all markets that are studied will meet all of the criteria for a perfect market, the conclusions reached in this analysis are often transferable to other market structures. Prices may not change quickly in some markets and resources may be difficult to move from one industry to another, but for most markets, changes in behaviour and circumstances will result in some form of disruption to the market that leads the types of changes that is predicted by the models we

will use. As you become more competent with your application of these models, you may wish to analyse how accurately they can predict what is happening in the real world. As you will come to see, in most markets, competitive or otherwise, the laws of demand and supply are still relevant.

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 price possible, and will exchange the amount of 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 costs associated with purchasing the product will increase, resulting in some buyers dropping 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** indicates that there is an inverse relationship between the price (the independent variable) and the quantity demanded (the dependent variable). This law is based on the assumption that all other variables that could affect the demand for a product are held constant. In other words, if we assume that nothing else in the market changes, just the prices, then the quantity demanded will change in response to that change in price.

As the price decreases, the quantity demanded increases.

As the price increases, the quantity demanded decreases.

The law of demand makes sense for the following reasons:

- Some people may no longer be able to afford the product as the price rises. At a lower price we can afford more of a good or service. As the price increases, however, some household budgets will no longer cater for the purchase of the product. Economists commonly refer to this as the **'income effect'**.
- 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, 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 recognises that each additional unit (referred to as the 'marginal' unit) that is consumed 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 consumer. 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

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.

will yield even less satisfaction, so the amount you are willing to pay for those extra apples tends to decrease. So you will only buy the extra units, if the price is lowered.

Attending a **house auction** is one way to experience the law of demand in action. There is one unique product available for sale (the house) and there are generally a number of possible buyers who are interested in the property. In this environment, the potential buyers generally compete against one another. Those who are interested in the property are likely to place bids for the property, with the bids usually starting below what a number of those interested in buying are willing to pay. 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 get to purchase the house if their bid is above the vendor's (seller's) reserve, which is the lowest price the seller is prepared to sell for. Those who have dropped out of the race have either accepted that the price is above their budget (income effect) or have decided that the house is not worth the price that has been 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 is unable to read the mind of the potential buyers.

An alternative way to think about the law of demand is to think about the sales conducted by retail outlets. When stock is released to the market, it may sit on the shelf for longer than what the retailer would like. The retailer is then keen to free up shelf space and reduces the price to attract customers. As the price is reduced, some consumers will decide that the product is now worth the lower purchase price and sales should increase. More consumers will also be able to afford the product. When shops have sales in the modern era, it also has a psychological effect and it is not unusual for consumers to queue for hours to 'grab a bargain'. Retailers create the feeling that the sales won't last and people may fear missing out on the bargain.

Constructing a demand curve

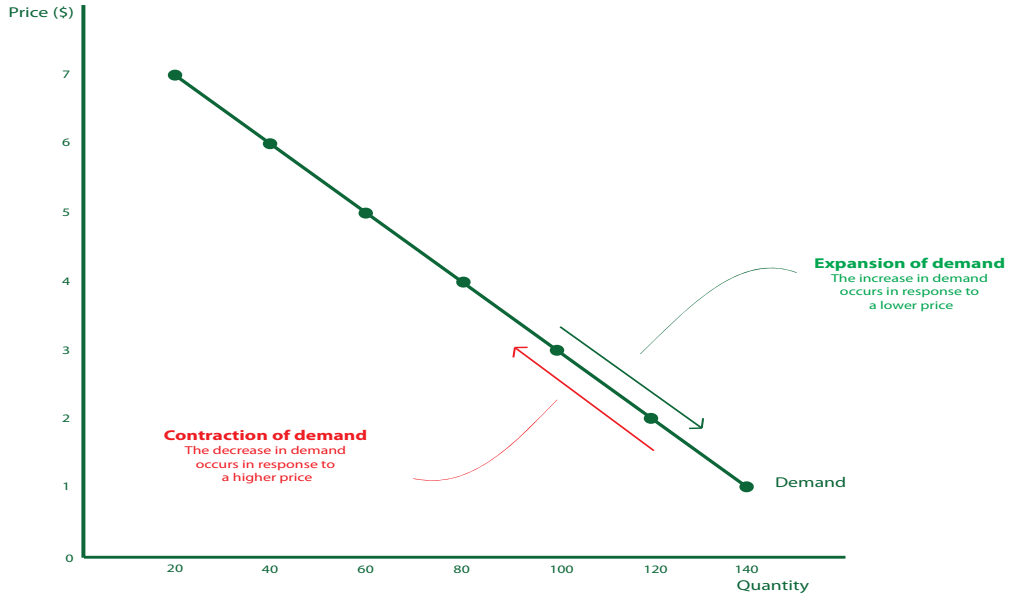
There are a range of factors that affect the quantity demanded in any market, but people cannot generally visualise more than two dimensions. Economists have therefore decided that it makes more sense to choose the most important factor that influences the demand for most goods and services, namely price. 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. It is important to be aware that demand is not considered to be hypothetical. Consumers must not only want to buy the good or service but they must be able to purchase it (i.e be able to afford it). 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 will not enter into our demand and supply analysis. This is sometimes 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 daily number of green smoothies that would be purchased at any given price on any given day. 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

It is also necessary to be able to 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 are different. A movement along the curve occurs when there is a change in the price of the good or service being analysed. A movement along the demand curve to the left (a contraction) is caused by an increase in the price of the good or service being analysed. A movement along the demand curve to the right (an expansion) is caused by a decrease in the price. A shift of the entire demand curve will occur when one of the other factors of demand (i.e. not price) have changed, resulting in either an increase or decrease in the quantity demanded at any given price. These demand factors will be discussed in section 2.4.

Review questions 2.1

1. Define a market and describe its role in allocating resources.
2. What are the conditions for a perfectly competitive market? Explain how each condition increases the degree of competition in the market.
3. Explain how consumers might compete against each other in a competitive market.
4. Explain how suppliers might compete against each other in a competitive market.
5. Define what is meant by the law of demand.
6. Distinguish a movement along the demand curve from a shift of the demand curve.
7. Give two reasons why the law of demand is a good explanation of how humans might behave in a perfectly competitive market.
8. Describe how an auction process highlights the law of demand. In your answer, distinguish the income effect from the substitution effect.
9. Explain what is meant by 'diminishing marginal utility', using the consumption of chocolate as your example.
10. Distinguish a shift of the demand curve from a movement along (expansion or contraction) a demand curve.

2.4 Microeconomic demand side factors that influence price and quantity

Until now, we have focused on the role of price influencing demand, since price is a significant factor that influences the demand for any good or service purchased in the market. There are, however, a range of other factors that will affect the quantity demanded for a given product When the demand curve is constructed, it is assumed that each of these other demand factors is held constant (ceteris paribus). However, changes in these factors do occur, and such changes will cause the demand curve to ***shift – a whole new demand curve*** will be created whenever one of more of these factors changes.

If the demand curve shifts to the right this means that for each given price, there is a greater quantity demanded. Accordingly, if a demand factor causes demand to increase, the demand curve will shift to the right. If a demand factor causes demand to decrease, the demand curve will shift to the left. Some of the more significant factors that affect the demand for goods and services include: disposable income, changes in interest rates, the price of substitutes, the price of complements, preferences and tastes, population and demographic changes and changes in the general level of consumer confidence across the economy. Each of these is discussed 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 can increase 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.

Disposable income

=

Factor income

[e.g. wages for contibuting labour]

+

government transfers

–

direct (income) taxes on factor income

An increase in disposable income is generally associated with an increase in the demand for **normal goods**. This will shift the demand curve to the right, as consumers may be willing and able to purchase a greater quantity at any given price. A normal good is therefore defined as one where consumption of the good increases when income increases.

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 will affect discretionary income. Discretionary income is a measure of how much households have to spend on non-essential items.

Economic theory predicts the opposite behaviour for consumers with regard to **inferior goods**. These are goods where demand actually decreases when disposable income increases. Goods that are often considered inferior include second-hand clothes, generic (**'homebrand' or no-name**) products sold in supermarkets and travel by bus. As income increases, consumers may choose to purchase new clothes, branded products and move away from public transport and into their own vehicle instead.

Referring to the previous example regarding green smoothies, if the government granted an income tax cut to all workers, then the disposable income of all those who receive a taxable income would increase. Some of these workers may choose to spend their increased income on purchasing healthy beverages, even if the price remained the same. Even if only some people allocated their extra income to these drinks, overall demand for green smoothies would increase and therefore more would be sold at each price level.

This would be represented by a shift of the demand curve to the right and the demand information could change as follows in Table 2.2:

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]

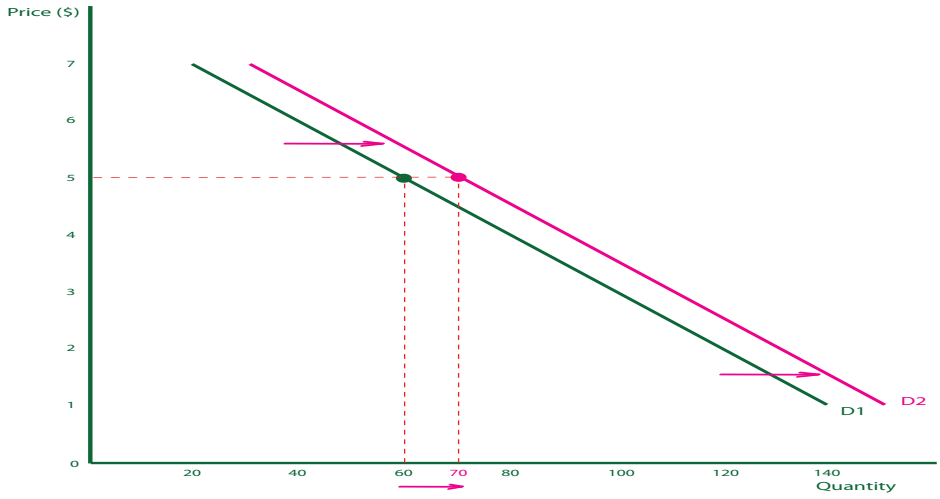


Figure 2.2 shows how a personal income tax cut affects the demand for green smoothies. For example, at a price of $5.00 the demand has increased by 10 drinks per day, from 60 to 70. This increase in quantity demanded occurs at every other price, which is why the demand curve has shifted to the right in a parallel fashion. Although the assumption that increased disposable income will affect demand for green smoothies specifically may or may not be realistic, at this stage it is still an effective way to illustrate how increases in disposable income affect demand for products in general. 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 upon the willingness and ability of suppliers to respond, 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 will result in a decrease in demand and a shift of the demand curve to the left for many goods and services. In this case, less will be purchased at each price. Those goods that are deemed by consumers to be less necessary may be affected more than essentials such as food.

There are a number of other ways (called transmission mechanisms) that changes in interest rates can affect the demand for goods and services. These will be discussed in more detail in the consideration of monetary policy (Chapters 11 and 12).

When using the word discretionary income, economists are referring to the amount of disposable income that is left over after households have paid their essential bills. The word 'discretionary' indicates that there is some degree of choice involved in what they are spending money on. Therefore, spending on such non-essential items is often classified as **'discretionary spending'**. For example, during 2015, the price of petrol fell from approximately $1.50 per litre to $1.00 per litre. At the time, many economists were suggesting that this was equivalent to a 0.25% decrease in interest rates, because the discretionary income for the average family increased. While their disposable income (income received after income tax) had not changed, for many households, petrol is a necessity, and therefore a significant fall in the petrol price meant they had more money left over after spending on essentials. Hence, their discretionary income had risen. Other key bills paid by households that would therefore influence discretionary income, in addition to mortgage repayments, include utility bills such as gas, electricity and water, rates and rent (for those who do not live in their own home).

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 fall, resulting in a shift of the demand curve to the left as consumers substitute into the relatively cheaper good. In the market for green smoothies, Boost Juice and Pulp Juice are competitors. Pulp would like to attract customers from Boost, so imagine they start to offer their smoothies for a dollar cheaper than Boost. This new information must be incorporated into our demand analysis. Some consumers, noticing the lower prices at Pulp, will purchase their smoothies from Pulp resulting in a decrease in demand for green smoothies from Boost. This is likely to result in a shift to the left of the demand curve for Boost green smoothies.

You will find substitutes in most product categories and whenever there is a change in the price of one of these products

it will have implications for another. Some may see Fuji and Pink Lady Apples as substitutes. For those who prefer sugary drinks, Coke and Pepsi are substitutes and when seeking out new trainers one might see Adidas and Nike as viable alternatives.

The price of complements

Complementary products are generally consumed together. They are products that are sold separately but are used together, each creating a demand for the other. Therefore an increase in the price of a complementary good will be viewed by the consumer as an increase in the price of the combined experience for both goods. The recent resurgence of vinyl (records) in the 2010s has surprised many analysts, especially those in Australia who closed down all manufacturing operations in this area. Therefore as the price of record players has continued to decrease (due to being able to produce larger volumes), this has 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 use the records. So if vinyl records get cheaper (which may happen if the producers are able to manufacture on a larger scale), then demand for the record players might increase. The market for vinyl records is discussed in more detail in Activity 2b.

Complementary products also highlight how markets can be interdependent. An increase in the price of milk, for example, could lead to a decrease in the demand for gluten free muesli. An increase in the price of petrol could result in a decrease in the demand for cars that are less fuel efficient because the degree of complementarity is high.

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 its detoxification properties, for example, could influence tastes and preferences. As a result, the demand curve for green smoothies has 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 recent (and somewhat surprising) 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 increased by a large percentage. This has occurred despite the fact that vinyl records are often twice as expensive as the CD or digital download substitute.

Similarly, when performance artists tour Australia, their music sales tend to increase. Consumers are exposed to the music of the performer and the performer may become more fashionable. Going to see a music concert can influence the way the consumer considers and appreciates the music. The death of an artist also tends to have a positive effect on demand for their art. Advertising is obviously designed to heavily influence tastes and preferences. Successful advertising campaigns can result in a significant shift in the demand curve to the right and could negatively impact the demand for substitute goods. The role of advertising in the mobile phone market is considered in Activity 2e.

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 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 situation of housing prices is considered in the Applied Economics Exercise at the end of this chapter.

The structure of the population may also affect the range of goods and services that are sold in the market. Australia has an **ageing population** 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. This means that a larger percentage of

the population are currently over 65. In fact, this percentage is currently higher than ever before in history. People from this generation are living longer and this may mean 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.

A mini-baby boom that occurred in the early part of the 21st century may have contributed to the growing market for infant-related products and has created extra demand for education professionals.

Consumer confidence (sentiment)

Consumer sentiment (also called **'**consumer confidence**')** is a measure of the general expectations about the future state of the economy. Consumers' expectations may affect their marginal propensity to consume (which in turn affects their willingness to save) and their willingness to take on new debt. The **marginal propensity to consume** measures the change in consumption that would result from a one dollar increase in income. If consumers feel secure about their future employment opportunities, for example, they may be more willing to bring forward purchases and go into debt to purchase items. Therefore when consumer confidence is high, the marginal propensity to consume might increase. This means that for every extra dollar consumers receive, they might wish to spend a greater percentage of it. During periods of high confidence, households are more likely to take on debt as they feel secure with their ability to service the debt. This would particularly affect the purchase of discretionary items such as a new car or a holiday. When confidence is high this is often reflected in a low savings rate across the macroeconomy.

Review questions 2.2

1. Explain, using sound economic reasoning, why chocolate would be described as a normal good.
2. Explain what is meant by the term 'disposable income' and outline how an increase in disposable income will affect the position of the demand curve.
3. Explain why indebted households are likely to be sensitive to changes in Australian interest rates.
4. Discuss how an increase in interest rates and a decrease in interest rates will each affect the position of the demand curve for a range of goods and services.
5. 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.
6. 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.
7. Identify two different goods that have experienced an increase in demand due to changing tastes and preferences. Explain the reasons for the change in tastes and preferences and predict whether this trend is of a short term or long term nature.
8. Explain how a significant increase in the rate of population growth might affect the demand curve for a range of goods and services.
9. Identify and explain two industries that may experience a decrease in demand due to the ageing of the Australian population.
10. 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. Will there be an expansion of demand, contraction of demand, increase in demand (shift to the right of the demand curve) or decrease in demand (shift to the left of the demand curve)?
2. Identify the relevant demand factor that will influence this outcome.

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**
Cadbury Chocolate	A decrease in the price of Lindt Chocolate		
Lettuce	A tax cut for all workers		
Tennis racquets	A decrease in the price of tennis lessons		
Guitars	An increase in petrol prices		
Movie tickets	An excessively hot summer		
Eggs	A new report is released in 2016 suggesting that egg consumption helps to lower cholesterol		
Apple iphones	Samsung smartphones have become unreliable		
Houses	Immigration numbers increase substantially		
Marijuana	Marijuana consumption is legalised if used for medicinal purposes		
Baby products	The birth rate decreases to very low levels		

Activity 2b: The changing fortunes of the vinyl record

Over the financial year 2014/15, sales of vinyl records more than doubled. Vinyl records (sometimes referred to simply as 'vinyl') are a media used to play music and require the use of a purpose-built record player (otherwise the records cannot be heard). Vinyl represents an interesting case study because there are a number of factors of demand that can be analysed and used to explain the changes that have occurred in this market.

Vinyl sales peaked during the 1980s. The music industry was a strong market and record companies had enormous budgets to devote to promotion and the making of very expensive video clips. While there were substitutes for buying music (such as cassette tapes), records were seen as the preferred option by many music lovers because they tended to provide a superior listening experience (the best available sound quality at the time). When the compact disc was invented and then became mainstream, record sales quickly tumbled as the manufacturers successfully convinced the public that CDs sounded better and that they had greater longevity. One of the key arguments against the continued use of vinyl as a music medium was that each 'play' of the record resulted in some deterioration. Records could be easily damaged if the record was bumped or came into contact with any liquid. As CDs came to replace vinyl, many vinyl production plants around the world closed down and most observers expected that it was the permanent demise of vinyl records.

Fast forward to the mid-2000s and vinyl sales started to experience a resurgence. There has been a reversal of tastes and preferences. While the initial taste change saw the decline of the vinyl record as a music medium, more recently there has been a definite increase in its popularity. So what changed to make it popular again? There are a number of factors and these have been summarised below:

There is no viable substitute. For some keen music consumers, there is nothing that can replicate the experience of listening to an analogue recording from a vinyl record. Consumers can listen to pretty much any song at a marginal cost of zero (assuming they are utilising a legal streaming service such as Spotify or Apple Music) but for some consumers in the market, this is a markedly inferior product. The lack of a viable substitute for these consumers means that they are willing to forgo a relatively large amount of money to obtain the product (its inherent value to the consumer must therefore be high). It has been argued by music aficionados that digital recordings are 'flat' when compared to the 'big warm open tone' provided by vinyl recordings.

The popularity of records has also been somewhat credited to the success of a worldwide phenomenon called Record Store Day. This event was created in 2007 in the US and was designed to support independent record stores. Artists released limited editions for the day and it has continued to grow in popularity with people often queuing for access to these special releases. Some have blamed the increased sales on nostalgia and retro-mania, but other fashions that have resurfaced have quickly disappeared. The demand for vinyl has continued to grow, year upon year.

The resurgence of vinyl has seen a change in the allocation of resources in certain record stores. JB Hi Fi for example carries an extensive range of vinyl in its larger stores and the space allocated to compact discs has continued to decline.

The increased availability and popularity of vinyl has had flow on effects to complementary markets. Sales of turntables (used to play the records) have also increased significantly and new hybrid models have been developed which allow listeners to convert their vinyl album into a digital recording.

Despite these significant changes, the demand for vinyl is still relatively low compared to digital downloads. The industry has experienced growth from a very low base (given that it was almost obsolete). This means the technology used to the produce the records is rare and, consequently, that records are relatively expensive compared to other forms of music. Ninety percent of the raw materials used to produce the vinyl are actually owned by one company.

Questions

1. **Identify and explain two factors that could explain why there has been a change in tastes and preferences towards vinyl records in the last 10 years.**
2. **Show how the demand curve for vinyl has moved as a result of the change in tastes and preferences.**
3. **Identify and explain two reasons why the demand for compact discs may have decreased in the last 10 years.**
4. **Explain how the demand for vinyl has affected a good that is considered a complement.**
5. **Suggest and explain one reason why the market for vinyl is unlikely to significantly increase in the future.**

2.5 The law of supply and the supply curve

While a higher price may act as a deterrent to the consumer, it tends to act as an incentive for the supplier of a particular good or service. To the supplier, each unit sold represents an increase in their revenue. A higher price received for each product will also result in an increase in revenue received. Assume, for example, a farmer can use his or her land to grow a range of crops, but he or she has 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 and fashion in the market) would tend to encourage this farmer, and indeed all strawberry farmers, to increase the supply of strawberries in the market. They might be able to achieve this by using up more of their available land or by increasing productivity. They recognise more profits are likely to be made from strawberries than any alternative use of the land, therefore the opportunity cost of producing anything other than strawberries is higher.

In addition, for some suppliers, a higher output level might be associated with higher per unit costs of production. When the scale of production increases beyond a certain point, the firm's capital resources may become crowded at relatively high production levels The production facility becomes stretched, bottlenecks start to appear and efficiency declines. As a consequence, production costs rise and higher prices are needed to justify higher production volumes.

Law of Supply

The law of supply indicates that there is an 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

The law of supply makes sense because:

- a higher price received for the product represents an increase in revenue for the supplier;
- 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. the marginal cost might rise).

As part of our basic microeconomic model, we have intrinsically assumed that the business operates to maximise its profits. Therefore it makes sense that, if all else is held constant,a firm will prefer to sell its product at a higher price. The firm will therefore supply more if it thinks it can get a higher price for it.

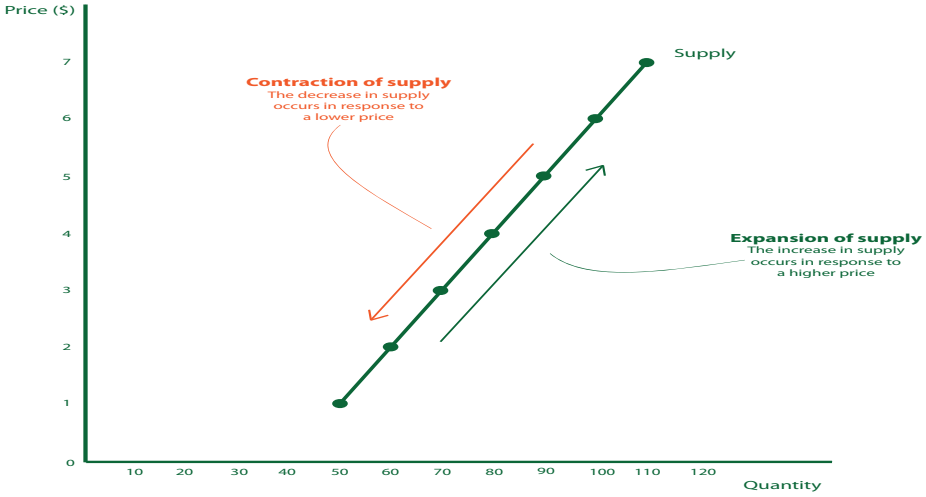
It is useful to think about supply in terms of what prices will be required to encourage producers to supply the market with a given quantity. At the very minimum they need to cover their economic costs. There are a range of factors that affect the quantity supplied in any market, but it is assumed that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

Constructing a supply curve

Table 2.3 shows the number of green smoothies that would be supplied at any given price. It is clear that the supply for green smoothies follows the law of supply. Lower prices decrease the quantity supplied. 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 discussed in section 2.3 with regard to the demand curve, it is also necessary to be able 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 and this causes 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 being analysed. 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 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 have changed (i.e. not price), and, therefore, at any given price there is either an increase or decrease in the quantity supplied. These supply factors are discussed in section 2.6.

2.6 Microeconomic supply side factors that influence prices and quantity

There are 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 (other than price) is held constant. Whenever one or more of them change, the position of the supply curve will change and ***a whole new supply curve is created.***

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 line to shift left.

A change in a factor of supply (also called a supply factor) will cause a shift in the supply curve. If a supply factor causes supply to increase, the supply curve will shift to the right. If a supply factor causes supply to decrease, the supply curve will shift to the left. Some of the more significant factors that affect the supply of goods and services include the costs of production, technological change, productivity growth and climatic conditions. Each of these will be examined below.

Changes in the costs of production

Each good and service that is produced in the economy requires resources, which are often referred to as the **factors of production** (i.e. land, labour and capital). The position of a firm's supply curve will depend on the costs involved in making a good or service as this will influence the price the producer is willing to accept in return for the good.

Referring back to the market for green smoothies, there are a number of resources that are needed to put together this nutritious drink. The drink may be made from spinach, kale and something like an apple to provide the sweetness needed to stomach these other ingredients. 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 oil increased then each smoothie would cost more to make as it would cost more to transport the ingredients to the store (since oil is the key ingredient in the petrol used to power most transport). Similarly, 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 supply will decrease at each given price, which is represented by a shift to the left of the supply curve. In other words, the higher costs of production reduce the willingness and/or ability of the retailer to supply at a given price. Refer to Box 2.1 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 your willingness and ability to supply (at each given price point) if you were business owner. Try, at least to begin with, to analyse this independently of any change in demand.

Box 2.1 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 will generally increase the productivity of existing resources. **Productivity** measures the output per unit of input. One measure of productivity is **labour productivity**, which is measured by the total output (the volume of production) for each hour that is worked. The introduction of new and more advanced capital in the production process may result in a greater volume of goods and services produced for each hour of worked. If the price of the resources used (such as labour) remains constant, this should result in a decrease in the cost per unit. Higher levels of productivity would therefore allow the supplier to supply more at a given price.

With reference to the smoothies market, the introduction of robots in the production process could result in a reduction in the costs of production for the supplier. If robots were able to take orders from the consumers and then make the drinks, then over time, the supplier will experience lower production costs, especially at the margin (even though the initial cost to introduce the robots may be very high). The robots would be unlikely to get tired and make mistakes, need a rest or to go to sleep, so a greater volume of drinks may be able to be produced per hour.

New technology could also, over time, reduce the cost of operating a smoothies business. Electricity costs could decrease as solar technology improves and new technology could be introduced in the agricultural sector that increases the productivity of land. This could increase the supply of kale such that the supply of smoothies could increase. Therefore technological improvement is likely to result in an increase in productivity and lower the costs of production, therefore resulting in an increased supply at all price points (shifting the supply curve to the right).

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.

The impact of changing technology in the supermarket industry is discussed in Activity 2d.

Climatic conditions and other disruptions

Most goods and services rely upon nature for the provision of the raw materials 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 decrease the availability of key resources in the production of smoothies such as kale and spinach. This may push up their prices in the market, raising the cost of production. In some extreme circumstances, the smoothie operator may not be able to purchase as much kale as they need to meet demand so they have a reduced ability to supply.

Climate scientists predict that, as climate change worsens, there will be an increase in the occurrence of erratic weather patterns that cause disruptions to supply. Suppliers in regions affected by floods and bushfires have been significantly affected in the past and this has, in some cases, reduced their ability to supply to zero. For example, during the Queensland floods in 2011, a number of coal mines were flooded and unable to supply for up to six months. Similarly, supply of bananas was reduced by 90% in early 2011 as Cyclone Yasi decimated crops. For each of these supply-side shocks, the supply curve shifted to the left. Favourable climatic conditions will have the opposite effect and shift the supply curve to the right.

Human actions can also cause supply-side shocks. Acts of terrorism or human error have, on occasion caused disruption to supply. Acts of terrorism have disrupted transport infrastructure and added to costs for the airline industry for example.

Activity 2c: Analysing supply

Complete the following table. For each of the markets:

1. Identify the impact on the supply curve. Will there be an expansion of supply, contraction of supply, increase in supply (shift to the right of the curve) or decrease in supply (shift to the left of the curve)?
2. Identify the relevant supply factor that will influence this outcome.

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**
Milk	An increase in the price of milk		
Cadbury Chocolate	A frost in Brazil		
Lettuce	An increase in wage price index		
Tennis racquets	The relocation of a factory from Sydney to Bangladesh		
Guitars	A depreciation of the Australian dollar		
Movie tickets	An excessively hot summer		
Taxi market	Oil and gas prices increase		
Retail clothing	Landlords charge higher rent as property prices rise		
Televisions	Advances in technology occur		
Wine	An appreciating exchange rate		

Review questions 2.3

1. **Define what is meant by the law of supply.**
2. **Explain, using sound economic reasoning, why the law of supply is a good explanation of how a business is likely to behave when they are able to sell their products for a higher price.**
3. **Distinguish between a movement along the supply curve and a shift of the supply curve.**
4. **Identify and explain two factors that may lead to an increase in the cost of production for Apple iPhones.**
5. **Explain how an increase in the cost of production might affect the supply curve.**
6. **Explain how an increase in the price of kale will affect the supply curve for green smoothies.**
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.**
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.**

Activity 2d: Self-Serve Checkouts and Supply

A significant change has taken place in the way consumers pay for their groceries in the two major supermarkets. Coles, leading the way, has introduced self-serve checkouts in 750 of its 780 stores. A self-serve checkout requires the customer to scan and then pay for the groceries themselves, in some cases with no interaction with another human being. Self-serve checkouts have a significant impact on the willingness and ability of the supermarkets to supply.

When a self-serve checkout is introduced, one might expect that the cost of production will gradually fall. While the checkouts are expensive to introduce, they require significantly fewer staff to operate them. One staff member can supervise 10 or more self-serve checkouts and this significantly reduces the wages bill for the supermarket. This is fairly obvious because it replaces a system where one staff member was needed for every checkout. The technology is also less likely to get sick, need to be paid for its (non-existent) holidays, and does not demand penalty rates on the weekend. In fact, the marginal cost of using the self-serve check-outs is close to zero. (The reference to marginal costs here acknowledges that the checkouts cost a substantial amount to develop and install, but once operational, cost very little to run.)

The technological change has therefore helped to reduce the cost of production and increased the output per hour worked (if measured by the volume of sales). Fewer workers are needed, and shoppers are able to exit the supermarket in shorter times. This might encourage shoppers to make more frequent visits to the supermarket.

The introduction of the new self-serve checkouts do, however, create some additional costs of production. The research and development is costly and the supermarkets hope that these costs will eventually be spread across a large consumer base, over time lowering the cost per unit sold. The increased use of the self-service checkouts has also have resulted in an increase in theft (direct and indirect). People may choose to scan only some of the items they purchase or they may enter the wrong category for a fresh food product. For example, a person might purchase an expensive avocado and enter it in as a carrot (which is much cheaper). This reduced selling price represents a cost of production for the supermarket and may reduce the willingness and ability of the supermarket to supply, pushing the supply curve to the left.

However, it is likely the supermarkets have conducted a thorough cost/benefit analysis before installing the new technology, and come to the conclusion that it is much cheaper to introduce self-serve checkouts. Evidence seems to support this conclusion. In 2015/16, Coles' wages bill, expressed as a percentage of sales, fell to 9.5%, which is the lowest it has been since 2004. Coles representative, Blair Speedy, in an interview with news.com.au was quoted as saying that 'In stores where most people are only buying a few items, we've found that assisted check-outs (the supermarket's name for self-serve checkouts) are actually twice as fast as traditional staffed check-outs'.

Questions

1. **Explain why a business such as a supermarket would want to contain its costs of production.**
2. **Explain how the introduction of self-serve checkouts might lead to a decrease in the cost of wages for the major supermarkets.**
3. **Identify and explain one reason why the introduction of self-serve checkouts in supermarkets might lead to an increase in the overall costs of production, at least in the short run.**
4. **Explain why the introduction of the self-serve check-outs might lead to an increase in productivity in the workplace.**
5. **Using a fully labelled diagram, illustrate how the introduction of the self-serve check-outs has affected the supply curves of firms operating in the supermarket industry.**

To illustrate how these factors 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). The suppliers will be willing to increase their supply of smoothies to the market at every price. Alternatively, it means that for any given quantity of smoothies it produces, it 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]

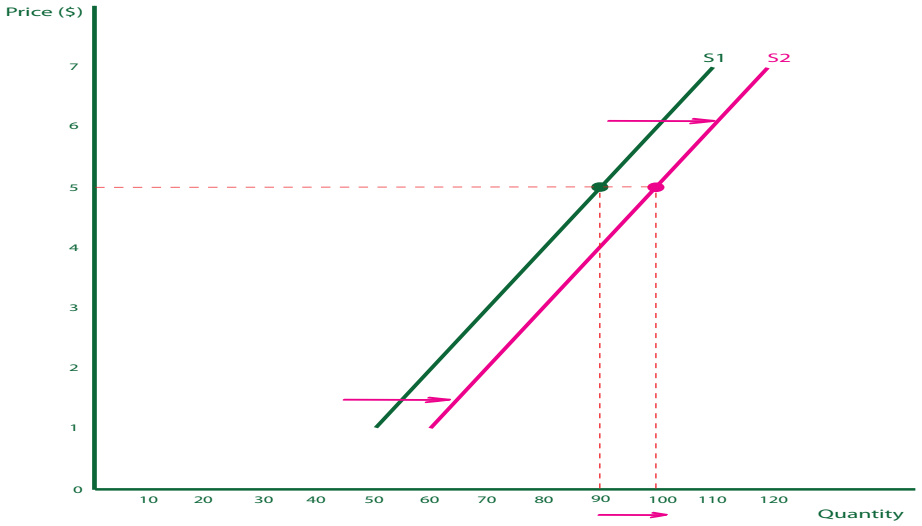


Figure 2.4 shows how the lower costs of production affects the supply curve for green smoothies. For example, at a price of $5.00 the supply has increased by 10 drinks per day, from 90 to 100. This increase in quantity supplied occurs at every other price, which is why the supply curve has shifted to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

2.7 Market equilibrium

Study tip

The market is generally seen as the best way to achieve the market clearing price. If prices are determined by a central body, which is unresponsive to the desires of consumers, then shortages and surpluses can develop. If the government, for example, set a price floor (a minimum price) for a certain product and this price was above the equilibrium, then a surplus would be created and equilibrium could not be achieved.

The demand and supply curve have so far been considered separately. They have illustrated, respectively, the quantities that the consumers and firms are willing to buy and sell at each price. In order to determine the price in any market, both supply and demand are needed. In reality, each market will arrive at a single price at a point in time. This is described 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 that is made available for sale (at the going price) is sold and there is no excess demand or supply. The efficiency of this outcome will be discussed in section 2.9.

In Table 2.5, the demand for and supply of green smoothies is reproduced in one table. 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.

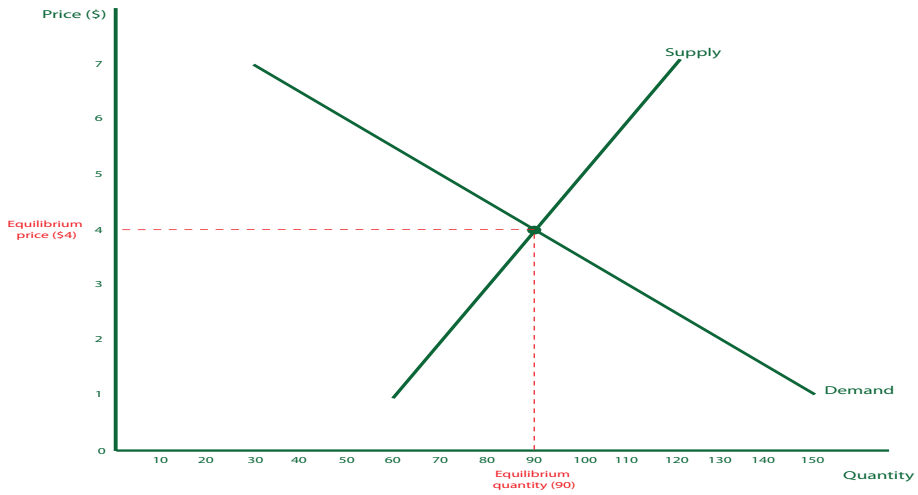
Table 2.5 Demand and supply schedule for green smoothies

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 the same as 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**. In the case of smoothies, a price of $4 will ensure that there will neither be surplus or a shortage at the end of every trading day. There is no pressure for 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. In this case, the market will be in disequilibrium, with the price either being too high or too low, and where surpluses or shortages will develop.

Movement from disequilibrium to equilibrium

The market will always have a natural tendency to move towards equilibrium. When price is above equilibrium, normal market pressures will drive the price back down to the equilibrium price. Conversely, when 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 experimentation 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.

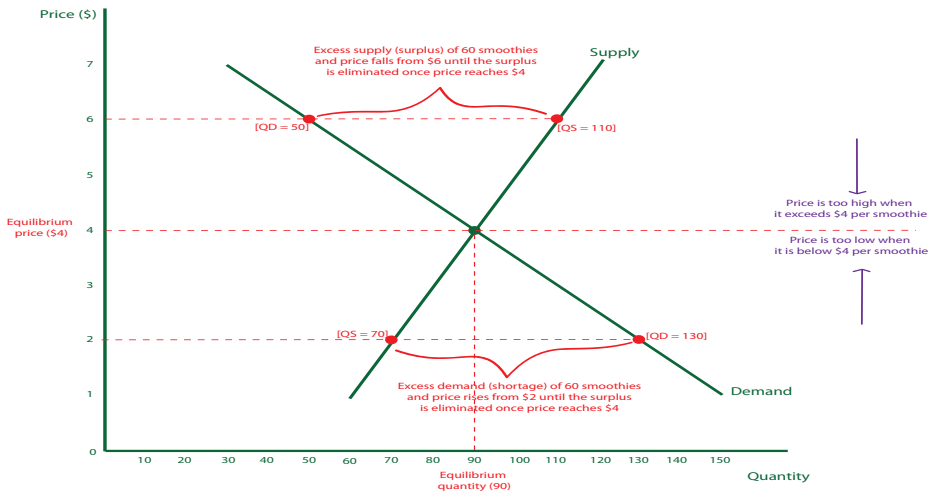
Price below equilibrium

When the market price is set below the **equilibrium price**, such as $2.00 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 smoothies are demanded, which means that 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 know what would be a good price to set 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). The supplier is then likely to take advantage of this by raising the price in order to maximise profits. In some markets the buyers may actually try to outbid each other to obtain the scarce products. As the price of the smoothies rises, some buyers will decide to leave the market because they are no longer willing or able to purchase the smoothies. The higher price will also act as an incentive for the suppliers to make more smoothies available to the market. Some entrepreneurs may notice that there is money to be made in green smoothies and may enter the market for the first time. This will be represented by movements along the demand and supply curves. Demand contracts while supply expands in response to the higher prices. This price will therefore continue to increase until the shortage is eliminated and the quantity demanded is equal to 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 was set at $6.00 then the suppliers would notice that they are not generating enough sales. Table 2.5 and Figure 2.5 show that, at this high price, 110 smoothies are supplied, but only 50 smoothies are demanded, which means that 50 smoothies will be traded at a price of $6.00. The suppliers may have overestimated the amount that 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 who conduct regular sales to offload stock where prices were initially set too high.) When the price is lowered, however, it gives a clear signal to potential suppliers in the market that this product may not be as profitable as it first appeared. As a result, supply should contract as the price falls and some manufacturers or retailers will decide to allocate their scarce resources to relatively more profitable areas. The price will continue to decrease until there is no reason for suppliers to alter it, which means that the market has reached a state of equilibrium. This analysis is highlighted in Figure 2.6.

Figure 2.6:
Market in disequilibrium



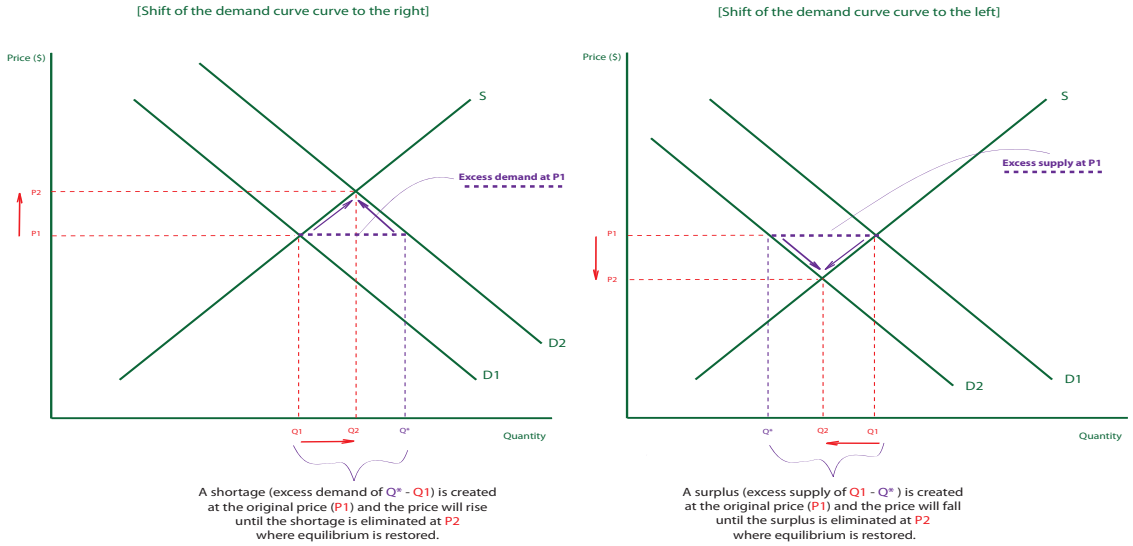
2.8 The effects of changes in supply and demand on equilibrium prices and quantities traded

When the market is in equilibrium, there is no pressure for price to change 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. As noted in sections 2.4 and 2.6, the factors of demand and/or supply can change at any point in time. In this case, the market will be in disequilibrium, with the price either being too high or too low, and where surpluses or shortages will develop. Over a period of time, the market price will adjust to eliminate surpluses or shortages and equilibrium will eventually be restored. For example, an increase in the price of a substitute will generally result in an increase in demand for the cheaper product at all price points. This would be represented by a shift of the demand curve to the right for these products, which may result in a new set of equilibrium prices and quantities traded. Consider the following simple cases outlined below:

Changes in demand while supply remains constant

Suppose demand increases for green smoothies because the government undertakes an extensive campaign to encourage citizens to eat more green vegetables. Governments may be motivated to do this due to the rising healthcare costs across the country and consequently many people believe what they hear in the campaign. For some people, eating green vegetables is just too much to bear so they turn to the next best thing – green smoothies. This causes there to be an increase in the demand for green smoothies at all price points, which is represented by a shift of the demand curve to the right. This is shown in the first diagram in Figure 2.7 below. The initial increase in demand causes there to be a shortage at the original price. The popularity of the green smoothies may therefore encourage the suppliers to increase the price and/or the customers to compete against each other to obtain the scarce smoothies. 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 the price increases (some people may not be able to afford the smoothies), but the 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.

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

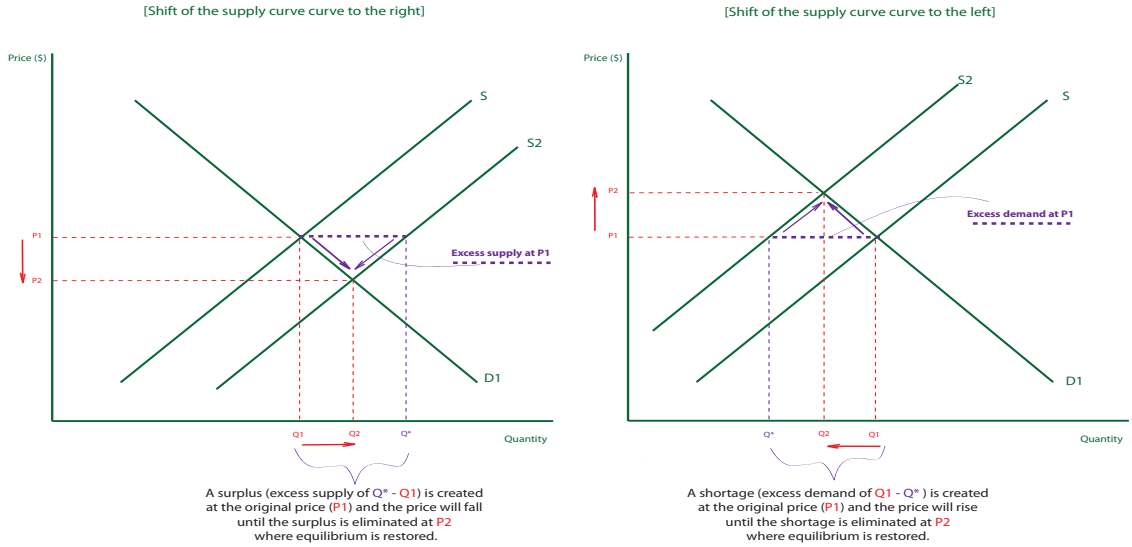


Similarly, the demand for green smoothies may decrease. This may be caused by an increase in variable interest rates (indebted households would have less discretionary income to spend on smoothies), causing the demand curve to shift to the left. This is shown in the second diagram in Figure 2.7. When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

Changes in supply while demand remains constant

Supply may increase due to technological advancements, for example, that makes it cheaper to produce each smoothie. This will result in an increase in the quantity supplied at each price level and is represented by a shift of the supply curve to the right. This is shown in the first diagram in Figure 2.8 below. The shift to the right will generally result in a surplus of stock available at the initial price. A surplus of stock provides the need for the seller to lower the price. By lowering the price new customers are drawn to the market (demand expands) and at the same time the supply contracts because firms realise that it is no longer possible to 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.

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



Conversely, a decrease in supply will result in a decrease in the quantity traded and a higher equilibrium price. This is shown in Figure 2.8. An increase in the cost of oil, for example, will have an impact on most goods and services consumed. The oil is used as an input in the production of conventionally-produced green vegetables (as a component in 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 to the left. The shortage that is created at the initial price will affect how the producers and consumers behave in the market. It is likely that those who really want the scarce smoothies will 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 an expansion of supply as some suppliers see the added profitability from supplying more. These dynamics are summarised in Table 2.6.

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 happens to also be a factor of supply. For example, a decrease in interest rates will affect both the demand and supply curves for green smoothies. The lower interest rates will mean that indebted households will have more discretionary income to spend on a range of goods and services (such as green smoothies). This would shift the demand curve to the right. At the same time, the lower interest rates will tend to reduce the cost of production for firms who operate with some level of debt. [Even if firms have no debt, it reduces the opportunity cost of allocating the funds to the green smoothie business]. Their supply curve will therefore shift to the right. When the demand curve and the supply curve both shift to the right this will lead unambiguously to an increase in the quantity traded (because both demand and supply are increasing). However, the changes in demand and supply have conflicting effects on the price offered in the market. It may, at first glance, seem impossible to determine what impact this will have on the price of green smoothies. Further knowledge of the degree to which consumers and

suppliers respond to changing interest rates is needed to make a meaningful prediction. The price change will depend upon whether changes in interest rates will have a bigger effect on consumers or producers.

Given that many producers may not be operating with debt and producers are unlikely to pass on any savings in a climate of higher demand, it is more than likely that the prices for green smoothies will increase. It is therefore assumed that the demand curve will shift to the right by more than the supply curve. This may also depend on other factors such as the level of confidence in the economy, the degree of spare capacity and the price and income elasticity of demand. 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 and further knowledge of the individual market will be required to reach a definite 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).

A summary of the more complicated scenarios appears in Table 2.7.

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 ?

Activity 2e: 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.

1. The impact of a drought on the market for oranges.
2. The impact of a decrease in the market price of tomatoes on the market for tomato sauce.
3. The impact of an increase in the price of sushi rolls on the market for soy sauce.
4. The impact of an increase in the number of people retiring on the market for caravans.
5. The impact of a decrease in the price of petrol on the market for iPhones.
6. The impact of a decrease in interest rates on the market for black jeans.
7. The impact of a depreciation of the Australian dollar on the market for washing machines (assume all washing machines sold in Australia are imported).
8. The impact of an increase in hairdressers' wages on the market for haircuts.

Review questions 2.4

1. Define what is meant by the term 'equilibrium'.
2. Explain how the market for smoothies would return to equilibrium, if the price was initially set above the equilibrium.
3. Explain how the market for smoothies would return to equilibrium, if the price was initially set below the equilibrium.
4. Explain how the market for smoothies would be 'disturbed' by an increase in demand and describe how equilibrium will eventually be restored.
5. Explain how the market for smoothies would be 'disturbed' by an increase in supply and describe how equilibrium will eventually be restored.
6. Explain how the market for smoothies would be 'disturbed' by a decrease in demand and describe how equilibrium will eventually be restored.
7. Explain how the market for smoothies would be 'disturbed' by a decrease in supply and describe how equilibrium will eventually be restored.

Activity 2f: Analysing the impact of D/S factors on a market

Consider the market for female haircuts offered by a "high-end" salon in Melbourne's Central Business District (CBD). The owners of the salon cannot decide what price they should charge their customers. An economic consultant has undertaken extensive research and provided the owners with the following demand and supply information to help them with their pricing and hiring decisions.

Price per haircut	Demand per week	Supply per week
$30	**200**	**50**
$50	175	**75**
$70	150	**100**
$90	125	**125**
$110	100	**150**
$130	75	**175**

a) Using the above information, prepare a suitably labeled demand and supply diagram.
b) What is the equilibrium price and quantity for haircuts in this salon?

The owners of the salon have been advised that if they start advertising on social media instead of in the local paper, they might be able to increase sales by 50 haircuts per week. This is reflected in the new demand and supply schedule.

Price per haircut	Demand per week	Supply per week
$30	**250**	**50**
$50	225	**75**
$70	200	**100**
$90	175	**125**
$110	150	**150**
$130	125	**175**

c) Use the information above to adjust the demand curve on your diagram and show how the equilibrium price and quantity have changed.
d) Explain how the market would move from the initial equilibrium to the new equilibrium.
e) After a successful six months of operation, the hairdresser's landlord decides to increase the rent. This reduces the ability and willingness of the owners to supply by 50 haircuts per week. Use your demand and supply diagram to predict what will happen to the equilibrium number of haircuts sold and the new price.
f) Predict how the following changes in demand and/or supply conditions might affect the entire market for haircuts in the CBD.
   i. An increase in the price of hairdressing scissors
   ii. An increase in the wages paid to hairdressing staff
   iii. An increase in the price of car parking in the city
   iv. An increase in the unemployment rate
   v. The rapid expansion of apartment building in the CBD
   vi. A decrease in interest rates
g) Why might the price of haircuts be higher in the Central Business District than they are in the outer suburbs of Melbourne?

Activity 2g: The market for new cars

In a small country such as Australia, with a population of approximately 24 million, it is often a surprise to many commentators that people buy so many new cars. In 2015 a new record for new car sales was set, with over 1.1 million being sold each year, four years in a row. The sales recorded in 2015 were 1,155,408, which was 3.8% higher than the previous year.

The car market is not a perfectly competitive market. There are generally a few large car manufacturers around the world who control a large share of the market. Each car is also highly differentiated and there are very high barriers to entering this market (due to high set up costs and the difficulty in attracting new customers who may have developed brand loyalty for the existing brands). Even though the market does not fit a perfectly competitive market, it is still possible to use the models developed in sections 2.3 through 2.7 above to analyse the factors that could affect the demand for and supply of new cars.

For many people, the purchase of a car involves some level of debt financing. It is therefore not surprising that the Federal Chamber of Automotive Industries quoted low interest rates as the main driver of the strong growth in car sales. A decrease in interest rates lowers the total cost of purchasing a car, as less interest has to be paid back to the lender over the course of the loan. The purchaser is likely to compare the repayments on the loan to their monthly income and the lower rates might encourage new entrants into the market.

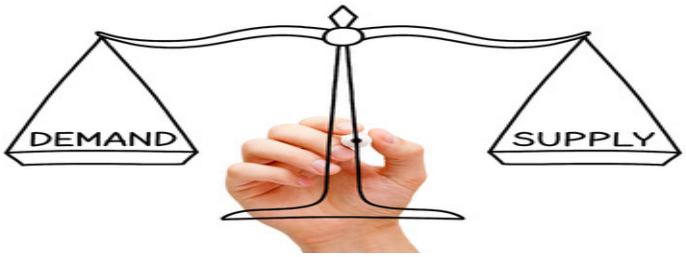
Commentators also credited the increase in sales to the increase in the number of new models available. This could be linked to the factor of tastes and preferences. The brands that experienced the most significant increases tended to be at the luxury end of the market. For example, Audi increased sales by 20%, while Porsche's sales increased by 45% in the space of one year.

The cost of producing and operating a vehicle also remained low during 2014/15. Petrol prices were significantly lower than they were in previous years and this may have influenced both the selling price and the level of demand in the economy. It is estimated that the production of each car uses approximately 50 barrels of oil. A low oil price therefore decreases the cost of production and should result in lower prices for the consumer. For those considering the purchase of a new car (or their first car), petrol or other fuel is a necessary complementary good. Lower petrol prices reduce the overall long term price for the consumers and therefore it may have encouraged some consumers to move away from other forms of transport such as bikes or public transport and towards owning a car.

The car industry is expected to undergo significant changes in the coming years. Production by all local car manufacturers will cease and Australia will become totally reliant on imported vehicles. In recognition of this fact, the government is set to introduce new legislation that will allow consumers to directly import a new car or motorcycle from a country with comparable Australian standards. The vehicle must be less than 12 months old and have been driven less than 500km. It is expected that the government will also remove the $12,000 customs duty (tariff) on imported used vehicles in 2018. It is expected that these policy decisions could significantly lower the cost of importing second-hand vehicles -especially luxury vehicles. It has been estimated that a top of the range Tesla electric vehicle could be $10,000 cheaper than its current price, if imported directly.

Questions

1. **Discuss how the market price for cars would be determined.**
2. **Explain how a decrease in interest rates has affected the sales of new cars in Australia. Illustrate this effect on a fully-labeled demand and supply diagram.**
3. **Explain why the introduction of new models helps to generate extra vehicle sales.**
4. **Explain how low oil prices may have affected the market for new cars. Discuss both the demand side and supply side effects, and illustrate the overall effect using a fully-labeled supply and demand diagram.**
5. **Explain how the changes to government legislation mentioned in the article may result in a change in the price of new vehicles sold in Australia.**
6. **Explain why the changes in legislation with regards to importing new cars might also lead to a decrease in the price of used cars.**



2.9 The effect of relative prices on resource allocation

Resource allocation is the study of how resources 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. We can consider resource allocation by returning to the three basic economic questions considered in the 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. Is the country using its labour resources to produce mineral exports or to manufacture shoes?

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 costs of production 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.

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.

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 market in the world is completely market capitalist, it is not surprising that the predictions that may be made by our model 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).

Markets are able to reveal information about consumer preferences which helps to direct the allocation of resources. The ability to make free choices shows producers what consumers value, their priorities and preferences. Ultimately, the value 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 the scarce goods and services to the point where the market will allocate resources to the highest "end-use". Most economists would argue that utilising the market to allocate resources leads to the most efficient outcome (that is, society's wellbeing is more likely to be maximised). However, markets do sometimes fail, and this will be explored in Chapter 3.

Across the economy there will be a set of prices for every good or service that is offered for sale. Economists are not only interested in the price of individual goods and services but also **relative prices**. The relative price is seen as the price of any one good or service measured in terms of the price of another good or service. This usually involves dividing the price of one good by the price of another. It is therefore a measure of opportunity cost (which was discussed in Chapter 1), as the relative price of one good can be expressed in terms of what is given up to obtain the other. For example, if the price of Vitamin Water is $2.50 per bottle and the price for a green smoothie is $5 (the new equilibrium as determined in our previous example), then the relative price is $5/$2.50 or 2:1. For every green smoothie that is purchased, the consumer foregoes the opportunity to purchase and enjoy 2 bottles of Vitamin Water. Alternatively, for every bottle of Vitamin Water that is purchased, the opportunity cost is 0.5 green smoothies.

Markets are usually dynamic places and, as we have seen earlier, the factors of demand and supply change often, so the relative price could change at any time. For example, if the costs of producing Vitamin Water falls, and it leads to a fall in the price to $2, the relative price becomes $5/$2, leading to a ratio of 2.5:1. Therefore, to obtain one green smoothie, the consumer now gives up 2.5 bottles of Vitamin Water. Even though the price of the smoothies has remained unchanged at $5, it has become relatively more expensive in terms of the price of what else could be bought. The higher relative price of smoothies is likely to cause a fall in demand at each price level given that there is a degree of substitutability between Vitamin Water and green smoothies.

With respect to the question of **what to produce**, an economy that relies on the market mechanism will generally allocate resources to those goods that are in high demand. When the relative price of a good or service increases due

to an increase in demand (and/or a decrease in supply) this sends a clear signal to economic agents. A supplier may see the price movements and decide that it is now more profitable to use their resources to produce that good or service. Consumers are therefore said to be the main driver of resource allocation in the market based economy. For example, if there was an increase in the price of oil (which peaked in 2007) then people may look for cheaper forms of transport such as scooters (because they use less fuel). This will result in an increase in the demand for scooters (the demand curve shifts right) and this would create a shortage of scooters at the existing price. The shortage will encourage some potential buyers to bid up the price and existing suppliers will take the opportunity to raise the price. The price of scooters has now risen relative to other forms of transport (such as cars), which indicates that this is an area of production providing greater profit opportunities. Producers will therefore decide to allocate more land, labour and capital to the production of scooters. At the same time, the higher oil prices encourage suppliers to seek out new energy sources, which leads to increased exploration and the development of new methods of oil extraction. The effect of changing resource allocation in response to changing relative prices is discussed in the example of fracking in Activity 2h.

The introduction of the **carbon tax** from July 2012 (albeit for a brief period) also influenced the structure of relative prices. The carbon tax was imposed on the country's largest carbon emitters and it resulted in an increase in the price of carbon intensive products, such as electricity produced at coal-fired power stations. The supply curve for coal-fired electricity shifted to the left, and the price of coal-fired electricity increased relative to the price of installing solar panels, which then raised the demand for solar panels (shifting the demand curve to the right) and resulted in a higher equilibrium price for solar panels. As a result, producers noticed the higher 'relative price' of solar panels (compared to other goods that they might wish to produce), and allocated more resources to the production of solar panels. The higher price of electricity generated from coal led to a contraction along the demand curve for coal generated electricity and less coal resources were ultimately utilised within Australia to make electricity.

Interestingly, a carbon tax (or carbon pricing more generally) both increases and decreases the relative price of solar panels, providing important signals to economic agents and helping to explain why and how resources are allocated in response to price signals. First, *the relative price of solar panels will fall* when compared to coal-fired electricity, encouraging demand to move away from the carbon intensive form of energy production and toward less carbon intensive forms of energy production. Resources will therefore shift out of the production of coal-fired electricity. Second, *the relative price of solar panels will rise* when compared to other products, resulting in more resources flowing to the production of solar panels. After a period of time, the price of solar panels again fell, because the larger market encouraged both new suppliers to enter and the development of better technology to make the panels.

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 so that producers can offer their product at the most attractive price to the consumer. Therefore, when the price of one resource increases relative to the price of another, this may influence firms to change the way they produce their goods and services (and in the process alter the allocation of resources). For example, if unions are successful in raising wages of unskilled labour, this increases the price of labour, relative to capital, and may cause some substitution out of using labour and into using capital in the production process. The relatively high price of labour (when compared to capital) offered to unskilled labour in Australia, may have encouraged the supermarket industry to implement self-serve checkouts, which decreases the need to hire as many workers.

Similarly, the price mechanism will effectively allocate resources within factor markets themselves, with changes in the relative prices for factor inputs sending clear signals to the owners of these resources about how best to use their resources 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 wage 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 third fundamental question of **for whom to produce** is determined by the potential consumers' willingness and ability to pay. Resources will usually be allocated to the production of goods and services that are demanded by the consumers but some consumers will be able to access more goods and services than others. More land, labour and capital may therefore be devoted towards the material needs of the high income earners in our society because 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 live without access to basic needs and could live below the poverty line.

Generally speaking, those goods and services that are profitable to produce in a competitive market will be produced and those that involve making a loss will not. However, governments will intervene to ensure that efficient outcomes are achieved when the market is unable to do so, and to reallocate resources when equity is not achieved. Some of these instances are investigated in Chapter 3.

2.10 The effect of relative prices on living standards

What do economists mean when they discuss living standards?

Throughout this book, there will be regular reference to the concept of living standards. This is an important consideration for economists when decisions are made and is seen by many to be the ultimate aim of all economic (and other) decision making. Governments will alter their policies to achieve what they hope will be an increase in living standards. It is therefore worth considering briefly what is meant by this term and how it might be measured. This will be discussed in greater detail in Chapter 4.

Generally speaking, a study of **material living standards** looks at the ability of households to access (in most cases this means purchase) goods and services. The easiest way to measure this is to examine real GDP (or income) per person (capita). This gives us a general view of the purchasing power of the average individual in a country. We can use **real GDP per capita** as the basis of comparison between countries (after adjustment for exchange rates and purchasing power are made), although statistics between countries may be difficult to compare due to the reliability of data.

Measuring living standards by access to goods and services alone is somewhat limited, however, as it does not recognise and explore all of the factors that add to a person's quality of life. There is a growing body of economists and reviewers of economic thought who have questioned the modern focus on material consumption (especially when compared to how traditional societies functioned). The dominant belief has been that increased access to material possessions and experiences should make us happier, and we have built our economies around this assumption. There are, however, a range of factors that can affect a person's quality of life which may not be related to the size of their income. These are often gathered together under the umbrella term **'non-material living standards'**. Social scientists have concluded that the quality of human relationships has a strong correlation with a person's quality of life. Strong social networks are generally associated with lower crime rates, better child welfare and public health. A society that is democratic, supports equality across sexes and minority groups seems to be happier. It has also been shown that people in committed relationships have higher levels of happiness and life expectancy. Some people may experience higher standards of living when they spend more time alone while others thrive on time spent with others. The complex nature of non-material living standards (which differ for each person) makes it very difficult to measure. Any assessment of a policy decision or an analysis of the impact of market on non-material living standards will invariably be incomplete. Nonetheless, there is a recognition that these non-material factors do indeed influence our quality of life and hence our 'standard of living' and thus are also considered when discussing living standards.

The **market mechanism** has been adopted as the primary method by which many countries around the world allocate scarce resources. It is therefore seen as the most effective way to boost the living standards of people living within an economy, and in particular their material living standards. This could be linked to the idea of efficiency and the ability of an economy to maximise society's needs and wants.

Consider how the market promotes economically efficient outcomes (and therefore how this might boost **living standards**). In a competitive market, **relative prices** act as signals to producers and consumers and therefore affect the types of goods and services that are produced. The suppliers will be constantly monitoring the prices that they are offering their products for and the prices offered for both substitutes and complements and seemingly unrelated goods in the market. Changes in relative prices give the supplier the incentive to alter the types of goods and services that are produced and may also alter the way goods and services are produced.

For example, if there is an increase in demand for chocolate, this will shift the demand curve for chocolate to the right, resulting in an increase in its relative price (assuming all other factors have remained constant). This change in relative prices will give the incentive for current suppliers to expand their production because to do so will result in higher profits. The higher relative price also sends a signal to other potential suppliers that this is a lucrative market and that they could benefit from entering the market (remember that in a competitive market there are low barriers to entry which make this possible).

Notice how the changes in prices have resulted in a change in the allocation of resources and a change in the types of goods and services that are produced. This allocation is deemed to be allocatively efficient because it reflects the needs and wants of the people. If the market had not responded to the change in relative prices and production of chocolate continued at its current levels then some consumers may have missed out on their chocolate needs being fulfilled and some resources may have been wasted because they would have continued to be allocated to another area of production that was less beneficial to society. The producer who does not pay attention to the needs and wants of the consumer will soon go out of business, so they have an on-going incentive to monitor changes in prices (both prices of their inputs and the price of their own products). By responding to consumer needs, material living standards can be maximised and it may also reduce some angst in the markets, knowing that markets will respond when the desires of consumers change.

Markets also encourage on-going developments in the way goods and services are produced so that technical efficiency is achieved. A firm that is exposed to **competition** has a discipline imposed upon them that provides the incentive to seek the least-cost method of production. If we assume that products offered in the competitive market are similar, then the best way to attract customers is to offer your product at a lower price than your competitors. This can be achieved by raising the **productivity** of the workforce or utilising technology that increases the volume of product that can be produced per hour. When productivity is increased, the cost per unit has a tendency to fall. This will improve supply conditions, causing prices to fall (as per the supply analysis undertaken earlier in this chapter). As prices fall, the consumer can access more goods and services with a given amount of disposable income. Therefore the market, in promoting technical efficiency and the lowest possible prices, allows the consumer to achieve higher living standards because they can actually buy more goods and services. As you will discover in Chapter 3, a reduction in competition creates a distortion to the price mechanism that can lead to lower levels of efficiency and therefore lower living standards.

With regard to the impact of relative prices and living standards, one question remains: How do the changes in relative prices affect non-material living standards? As indicated in section 2.9, the market system, which relies heavily on price signals, can result in a quite **inequitable distribution of income**. Those whose skills are in short supply and are seen to add value in the economy will usually be rewarded with much higher salaries than those whose services are less scarce. The price signals therefore result in an allocation of resources that could be potentially harmful to non-material living standards. Societies that are associated with a high degree of inequality may be more likely to experience social unrest, increased crime rates and 'status anxiety', resulting in a wide range of mental health problems. Constantly monitoring price signals may mean that owners of businesses are unable to relax, because they are always worried about losing market share. The emphasis in the economy on boosting productivity could also be associated with more stressed workers. Their employers may expect more and more from them and this can also affect mental health and negatively affect the quality of their relationships. Each of these factors may reduce non-material living standards.

The reliance of an economy on markets can also mean that a range of goods and services (that could boost both material and non-material living standards) may not be provided and some products that do not contribute to non-material living standards may be produced in excess quantities. This will be discussed inn Chapter 3, which highlights how markets sometimes fail. When markets fail, this means that material and non-material standards are not maximised. Any discussion of the link between relative prices and living standards should always consider what happens when markets fail.

Activity 2h: Fracking?

In 2007, before the global financial crisis, the price of oil reached a peak of approximately $150 per barrel. The price increase was driven, in part, by the rapid rates of economic growth experienced in China and India. The onset of the GFC led to a rapid and large decrease in the world demand for oil and its price subsequently fell to approximately $30 per barrel. When the world economy recovered, the demand for oil (which would obviously be linked to incomes) returned and it sold for approximately $100 per barrel for nearly 5 years. At the time, some geologists were suggesting that the world had reached 'peak oil' because oil is a non-renewable fossil fuel. Peak oil means that half of an oil well's resources have been extracted, making it more difficult and expensive to extract oil each year.

The increase in the relative price of oil had a significant impact on the allocation of resources in a number of markets. Consider the petrol market. Given that the key resource used to make petrol is refined oil, it is not surprising that the cost of production increased, resulting in a shift to the left of the supply curve for petrol. This led to a higher equilibrium price for petrol (up to $1.65 per litre) and therefore a contraction in demand. As time passed, consumers sought to reduce their consumption of petrol by seeking alternative forms of transport (such as public transport, carpooling and cycling). Therefore, the higher petrol prices affected resource allocation in a number of alternative markets.

The high price of oil was a key motivator for resources companies, who undertook extensive research and exploration to find new ways of extracting oil. One of the key developments in the market was the development of fracking (hydraulic fracturing). This controversial procedure involves drilling deep into the earth before a high pressure mixture of water and other chemicals is directed into the rocks to release gas and oil. Since the introduction of fracking, the U.S has significantly increased its production of oil, moving from a country heavily dependent on oil imports to being almost self-sufficient. The massive increase in supply has contributed to the major fall in world oil prices (below $30 per barrel in 2016).

The higher oil prices therefore altered the behaviour of both the consumers and the producers. The change in the behaviour has also resulted in alterations to living standards. The fall in petrol prices would be the most noticeable change for households. Some Australian commentators suggested that the fall in petrol prices in 2015 was similar to the effect of a 25 basis points decrease in the cash rate, helping to boost discretionary income (and therefore boosting the ability to access more goods and services). The changes in relative prices did, however, lead to some falls in both material and non-material living standards for some people. For example, Russia, a country heavily dependent upon oil exports for national income, experienced a recession in 2015/16. This fall in national income decreased purchasing power and led to an increase in unemployment (also reducing life satisfaction and non-material living standards for some Russians). In addition, the development of fracking has not been without its problems. Those living nearby to fracking projects have noticed alterations in the quality of their drinking water, a reduced ability to grow food and an increased incidence of earthquakes.

Questions

1. **Explain why the price of oil increased to $150 per barrel before the GFC and then fell to around $30 per barrel during the GFC. Use a series of demand and supply diagrams to illustrate the changing demand and supply conditions at that time.**
2. **Explain why the increase in demand prior to the GFC led to a shortage of oil.**
3. **Explain how the change in relative prices in the oil market and other markets during the post-GFC recovery led to a reallocation of resources. In your answer, extend your analysis beyond the market for oil.**
4. **Explain the impact of fracking on the relative price of oil and its associated products.**
5. **Explain why a market system is likely to promote improvements in living standards. Reference should be made to the oil market in your answer.**
6. **Explain how fracking may have resulted in a decrease in living standards for some households.**

Review Questions 2.5

1. Explain how the market will answer the fundamental economic question of 'what to produce'. Make reference to the role of relative prices in your response.
2. Explain how goods and services are likely to be produced in a competitive market. Make reference to the role of relative prices in your response.
3. Explain how the price mechanism will cause a reallocation of labour resources in the event that there is a shortage of engineers.
4. Explain why reliance on the price mechanism will often result in an unequal distribution of the products that are made in a country.
5. With reference to an explicit example, explain how an increase in demand for 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 demand you described.
7. With reference to different markets to the ones used in Questions 5 and 6, explain how an increase in supply 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. With reference to a competitive market, explain how a change in the wages paid to workers might affect how goods and services are produced in a nation.
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. With reference to your answers for questions 11 and 12, explain how price changes in a competitive market might help to boost material living standards.
14. With reference to a specific example, explain why increased reliance on the market mechanism could lead to a deterioration of non-material living standards.

2.11 The meaning and significance of price elasticity of demand

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

When economists introduce the concept of elasticity they are trying to analyse the **responsiveness** of a change in one variable to changes in a factor that affects that variable. For example, in considering the elasticity of demand (or supply), they are asking 'How much does demand change when a factor affecting demand (or supply) changes?'

One key elasticity measure is the **price elasticity of demand**, which measures the responsiveness of changes in the quantity demanded to changes in price (expressed in terms of percentage changes). A small percentage decrease in the price of a product could result in a large percentage increase in the quantity demanded, meaning that the good or service has a high price elasticity of demand. Because price elasticity of demand applies to both price increases and price decreases, a high price elasticity of demand also means that a small percentage increase in the price of a product could result in a large percentage decrease in the quantity demanded.

Price Elasticity of Demand (PED) is measured by the following formula:

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

By making reference to percentage changes, we can compare the degree of responsiveness across different types of goods and services. It also allows for comparisons of PED across different countries (and regions within countries) for the same types of products. It would not make a lot of sense to measure the PED in units because there would not be an explicit point of reference and it would be difficult to gauge as much meaning from the data.

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 instead the magnitude of the change in quantity demanded will be investigated. Therefore the PED value can take on a value between 0 and ∞ (infinity).

High PED (elastic)

The 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. This will mean that if a supplier lowers their price they are likely to attract a bigger percentage increase in demand. If they increase the price however they will lose a much bigger percentage in quantity demanded. A demand curve where the PED is high would be one that is relatively **flat** (See Figure 2.9).

Study tip

When the PED is calculated it will result in a negative value. This negative is generally ignored when examining data related to the PED.

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. This will mean that if the supplier lowers their price they are likely to attract a smaller percentage increase in the quantity demanded. An increase in price however will result in a smaller percentage loss in quantity demanded. A demand curve where the PED is low would be one that is relatively **steep**. [See Figure 2.9.]

Box 2.2 Price Elasticity of Demand and Pricing

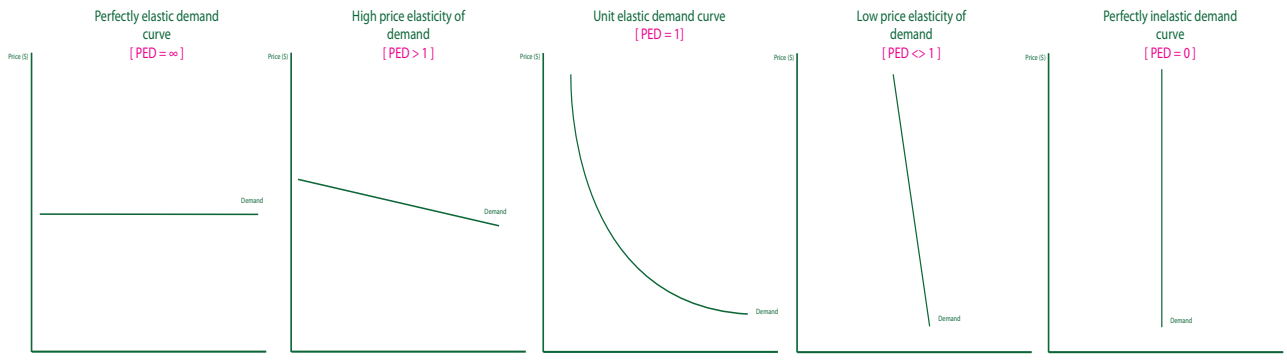
One way of telling whether a product has a high or low price elasticity of demand (PED) is to look at what happens to the total revenue that results from a price change. If a price increase results in an increase in total revenue then the product will have a low PED (that is less than 1). This is because the percentage increase in price will outweigh the percentage that is lost in quantity demanded. A good with a high PED will be one where a decrease in price will result in an increase in revenue. The response of increased demand will outweigh the decreased price, resulting in greater revenue. [That is, overall revenue (P x Q) will increase.] Generally speaking, the greater the degree of competition in markets, the higher the PED, whereas in less competitive markets, such as an oligopolistic market (for example, banking in Australia), the PED is lower. Market structures and competition will be explored more fully in Chapter 3.

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. This is represented by the middle diagram in Figure 2.9

If a product has a low PED it does not generally mean that consumer demand is completely unresponsive to changes in price. A perfectly inelastic demand curve, however, would be vertical, as demand in this situation would be completely unresponsive to changes in price. A perfectly elastic demand curve would be horizontal as the smallest percentage increase in prices would result in a complete loss of sales. [While it might be difficult for students to imagine, but it may be the case in a market where there are very large number of sellers with homogenous goods/services for sale, such that any attempt by one seller to increase the price will result in a complete loss of sales of their product.]

Figure 2.9: Price elasticity of demand



The significance of PED

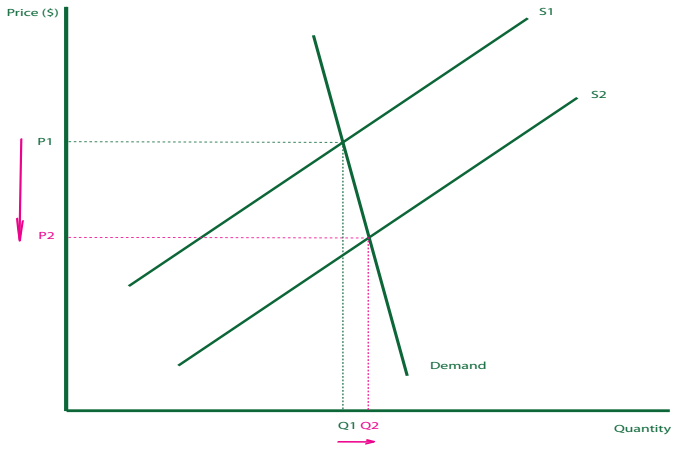
The PED is an important measure for those involved in making **business decisions** and for the government. Business owners would usually prefer to operate in an environment where the goods they sell have a relatively low PED (especially if they have some degree of control over the setting of prices). From their perspective, any percentage increase in price would be associated with a relatively smaller percentage decrease in demand. The overall impact of this is an increase in revenue for the business. Businesses will therefore seek ways to lower the PED on their products. This is discussed in Activity 2j.

The PED of a product also influences the types of goods that may be indirectly taxed and who pays most of the tax (the consumers or the producers). The government knows that if they place an indirect tax on a product (such as cigarettes), this will result in a decrease in supply (shifting the supply curve to the left) and causing an increase in the equilibrium price for cigarettes. While the government appears to be concerned about cigarette smoking, the impact on demand may be minimal because cigarettes have a low PED. The low PED means that they generate the highest possible tax revenue from this activity because the imposition of the tax has a relatively small effect on the quantity sold in the market.

When products with a low PED are taxed the burden of paying the tax will usually fall on the consumer. The business knows that they can get away with passing on the tax to the consumer without too much loss in revenue. If the product had a high PED, it would be much more difficult to charge the tax to the consumer because businesses would suffer a fall in sales as well as a significant decrease in revenue (and therefore profitability from the sale of this product).

In some cases, operating in a market where the product has a low PED can be detrimental. For example, primary producers are often faced with unpredictable weather patterns that can affect the supply of their products. If there was a good amount of rainfall and other favourable weather conditions, then farmers across the country could grow and offer for sale a large volume of produce. This would be represented by a shift of the supply curve to the right as shown in Figure 2.10. This might, however, lead to a decrease in total revenue. In order to sell the extra food, the farmers may have to accept the fall in market prices. The low PED means that if they lower the price, they may not see a significant boost to sales (because there is only so much food that people are willing and able to eat). They may be able to sell their products into world markets but if the whole world has excess supply then their income is likely to fall. Figure 2.10 illustrates the minimal increase in demand caused by a small change in weather conditions (resulting in the shift in supply). Notice how much the price has to fall to clear the market - it clearly falls by a larger percentage than the growth in demand.

Figure 2.10



This can have implications for the whole economy. If an economy exports a large volume of goods and services in the primary sector, for example, then the revenue from export sales can fluctuate significantly. In recent times, the prices of commodities such as iron ore and coal have fallen dramatically. For a company such as BHP Billiton, this fall in the price has had a detrimental impact on their profits. The fall in price has not been offset by a significant increase in demand (because demand for these products has a low PED). In 2016, BHP went from being one of Australia's most profitable companies to being a loss-making company. Given that the Australian economy relies heavily on the sale of primary products for export revenue, fluctuations in price can have significant implications for the growth in real net disposable income. This will be discussed further in Chapter 4.

2.12 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

Goods and services that are deemed to be **necessities** will usually have a low PED, whereas luxury products will have a relatively higher PED. Consumers usually have less choice when it comes to the purchase of a necessity, because, by definition, they require it to survive. 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 unlikely to decrease their consumption of insulin if the price increases. Therefore, both products would have a low PED.

Addiction can also turn a seemingly discretionary item into a good with a low price elasticity of demand. When a person is addicted to a product they may continue to buy and consume it in large quantities even if the price increases. This is one reason why the Federal Government is able to continually increase the excise tax on alcohol and cigarettes. The price for the product increases (due to a decrease in supply) but the decrease in sales is relatively small.

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. It is important when explaining the impact of low PED on quantity demanded, that students don't overstate the effect on demand, such as making claims that 'even if the price increases, people will still buy the same amount' – as this is rarely true.

Luxury goods on the other hand can be foregone more easily because, by definition, they are not necessities. 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 of the reasons that he might have recommended this approach may be due to the high PED for airline travel. When oil prices were high, airline operators had to charge their customers a fuel levy. This essentially 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

The greater the number of **substitutes** that are available for a product, the greater the PED. If substitutes are available, consumers are likely to switch to a close substitute if 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 stall holder increased their prices by a small percentage they may find that they lose a large percentage of sales. Consumers would be able to compare prices easily, and there would be a multitude of suppliers to whom the consumer could turn quickly and easily. This is also a key reason that insulin has a low PED, as there are no viable substitutes. Activity 2h analyses the role of advertising in influencing the viability of substitutes. Effective advertising will decrease the viability of competitors' products and is designed to reduce the price elasticity of demand for products.

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 excluding them from the market, resulting in a larger than 10% drop in the quantity demanded.

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 means that they will not initially notice a price increase. Over time however, consumers may notice the price increase and start to consider and try out alternative products. Consider the market for gas, traditionally used to heat the family home. An increase in the price of gas, which has been predicted for the Australian market, may not result in a significant decline in demand, especially in the short term. The first time the 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. 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.

Activity 2i: 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 greater 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
Fruit and vegetable sellers increase the price of their cherry tomatoes from $2.50 to $3.00 per kilos, and observe that their sales drop from 1000 to 500 kilos per day.	**High (because >1)**	**The relatively high number of substitutes for cherry tomatoes encourages consumers to demand alternatives (such as Roma tomatoes).**	**Decrease**
Coles reduces the price of milk from $2 per litre to $1 per litre, and find its sales increase by 10 per cent.			
Qantas increases its airfares by 15 per cent to account for rising fuel costs, and its ticket sales fall by 30 per cent			
The promoter of a nightclub discounted the price of admission by 10 per cent, which resulted in average attendances rising by 20 per cent.			
The government imposes a 'sugar tax' on soft drinks, resulting in a 15% increase in the average price of soft drinks and a 10% decrease in sales of soft drink.			
The state government introduces a 'taxi support fund' charge on all Uber rides, resulting in a rise in the average Uber fare from $1 per km to $1.50 per km. This results in a decrease in Uber rides of 60%.			
Egg producers restrict supply which results in a 40% increase in price. The demand for eggs fell from 30,000 dozen per week to 27,000 dozen per week.			
Melbourne Airport Parking raises the price of the daily parking rate from $45 to $49.50. This results in a drop in demand for parking places from 3000 spots to 2850 per day.			
Oil prices fall from $120 per barrel to $40 per barrel which caused the demand to increase from 20 million barrels to 24 million barrels per day.			
The repeal of a carbon tax allows electricity prices to fall by approximately 7%. Demand for electricity rises by less than 1%			
There is a glut in the global market for salt which causes salt prices to fall by 50%. The global annual demand for salt rises from 300 million tonnes to 303 million			

Activity 2j: Advertising to boost demand and reduce PED

Firms often spend thousands to millions of dollars per year on advertising and other forms of marketing. In terms of demand analysis, the aim of advertising is multi-faceted. The first aim of advertising is to provide information for the consumer. This might mean that the consumer now realises that a new product has come onto the market. The company will also use persuasive techniques to convince the potential consumer that their life will somehow be enhanced by purchasing and consuming the product. The company may wish to create a new market altogether or capture a slice of an already established market (thereby taking some of the market share away from an established firm). A successful advertising campaign should therefore result in an increase in the demand for the product at each given price level, thereby shifting the demand curve to the right because tastes and preferences have been altered. (Note: it will also cause the cost of production to increase and the firm will require a higher price to cover their costs).

Advertising is also designed to increase brand loyalty. Brand loyalty refers to a situation where a consumer develops positive feelings towards a particular brand and will usually make repeated purchases from the same brand over time and in different categories. Advertising and marketing, if effectively implemented, will establish brand loyalty. Brand loyalty therefore adds to the already mentioned benefits associated with advertising. It helps to create a need for the product (this might be psychological) and also makes the competitors' products a less viable substitute. Therefore a successful advertising campaign can decrease the PED for their product. As a result of a successful marketing campaign, the demand curve therefore not only moves to the right but it also becomes steeper.

A lower PED for a product may allow the company to charge higher prices and gain an increase in revenue. This may help to explain why some brands, such as Apple, are able to sell their products at premium prices.

The first iPhone was released in 2007. In 2016, the iPhone 7 was released and, as with previous releases, this was accompanied by an official launch and met with queues to purchase the phone on its day of release. The upgrade cycle is part of the marketing approach, as people who do not need a new phone (because the old one is still working) still feel some sense that they should purchase a new phone. Despite its relatively high price tag – an entry-level price of $1079 - the iPhone has a relatively low PED. Customer sensitivity to prices is cushioned somewhat by the way phones are consumed in Australia, with most people opting for a plan that spreads the cost of the phone over 12 to 24 months. Apple also has succeeded in convincing a significant proportion of the pubic that their products are 'special' and that there is no viable substitute for an iPhone. Lastly, the effective advertising by Apple may convince many people that they 'need' to upgrade their phone. Apple's profit in the 2015 financial year was $53.4 billion (USD). The approach taken to product development and marketing has played a huge part in their success.

Questions

1. **Explain why successful advertising spending will shift the demand curve to the right.**
2. **Explain why successful advertising spending will shift the supply curve to the left.**
3. **Define 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 brand loyalty is likely to be high.**
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 of the three factors discussed, explain whether the price elasticity of demand for iPhones is likely to be high or low.**
9. **Research what is meant by planned obsolescence. Explain how planned obsolescence might affect the allocation of resources.**
10. **Identify one of Apple's competitors in the mobile phone market. Explain why it might struggle to attract demand even if it were to lower the price of its product.**

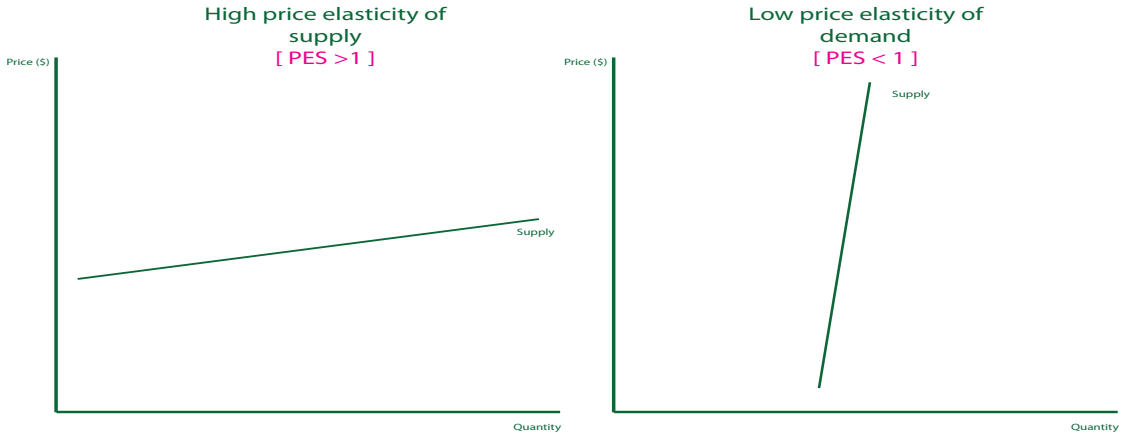
2.13 The meaning and significance of price elasticity of supply

Price elasticity of supply (PES) looks at the how businesses alter their supply in response to changing prices. The PES is the percentage change in the quantity supplied of a good divided by the percentage change in its price.

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

Supply curves with a high price elasticity and a low price elasticity 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

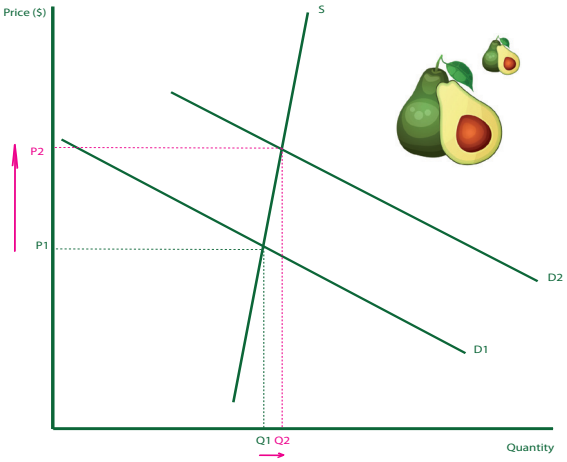


The significance of PES

The price elasticity of supply can affect the economic viability of a business as well as their 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. For example, the first phase of the mining boom provided a huge benefit for mining companies operating in Australia. The price at which they could sell their products (such as coal and iron ore) into the world market increased dramatically, being driven by rapid growth in the Brazil, Russia, India and China. The boost in prices at the time highlighted the challenges faced by mining companies. Given the strength in prices, the companies naturally wanted to increase supply. However, due to the low PES associated with mining products, they were not fully able to take advantage of the opportunities available in the market. The low PES, is, in part, driven by the volatility of prices in this sector. The companies need to wait for a clear price signal before they undertake the investment needed to build the productive capacity necessary to meet the higher demand.

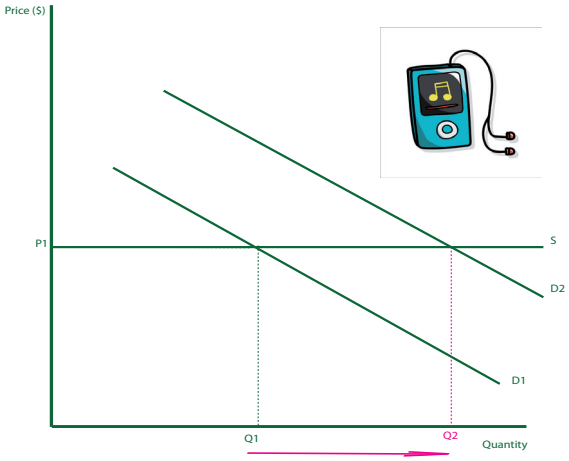
With a **steep supply curve**, any change in demand will result in a significant change in price. For example, the supply curve for many agricultural products is relatively inelastic owing to the fact that the production period is relatively long [See Section 2.14 on the next page.] This adds to the 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 order to clear the market (remove the shortage at the existing price of P1), the suppliers will need to raise the price by a large margin. Note that because producers cannot quickly increase supply to the market, it results in a relatively **large shortage** which then leads to a significant increase in price.

Figure 2.12



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 digital music, sold as MP3s or wave files via the Internet. 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 a digital format (such as books, movies and TV shows via streaming services like Netflix and Stan), the PES will influence the decision of producers to enter the market. If you were a potential producer, would you want to enter a market where supply could be infinite or one where it is difficult to adjust supply if the price increases or decreases? The ability to adjust supply quickly and easily (such as with the streaming services) adds flexibility to decision-making and supply response. (It does, however, leave the company more vulnerable to piracy and therefore lost revenue). The easy ability to increase supply also means that consumers need not worry about the product being out of stock. For example, you might hear an interview on the radio where an author discusses her new book. In the next minute you could have downloaded the book to your Kindle and be reading it straight away.

2.14 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 give signals to suppliers that allocating resources into this area may now be more profitable. Firms may wish to increase their supply, but it will take time to shift resources from the production of other goods and services. If there is an increase in the demand for apricots, the demand curve will shift to the right, resulting in a higher price. The higher price will therefore act as an incentive for more apricots to be grown. Unfortunately they cannot be produced instantly, because they require growing and harvesting. As a result, the PES of apricots will be low in the **short term**. However, it will increase over time as more resources can be shifted into the production of apricots. If, however, the apricots could be stored for long(er) periods, then suppliers would be more responsive to price changes. 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 tiny 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, they cannot meet the increased demand which has caused the relative price to increase. If the price is expected to stay high, then the farmer will look to raise more cattle in the future and he/she will be able to respond more effectively to the higher prices. This is very similar to the situation that faced commodity miners that was discussed earlier.

Spare capacity

If a firm has spare capacity then it will be more able to respond quickly to changing prices. There may be **idle labour** which can work more hours and machinery that can be utilised to increase supply quickly. If the industry is running at capacity and there are **skills shortages**, making it hard to attract labour to expand operations, the PES for a product will tend to be relatively low. Over a period of time, the firm may be able to increase their productive capacity and attract new labour. The government may also assist in this by expanding immigrant numbers and training those who are structurally unemployed.

Therefore the greater the degree of spare capacity, the higher the PES tends to be. The PES can therefore change as the firm gets closer to productive capacity. If there was an increase in the demand for movie tickets due to an excessively hot summer (too hot to go outside), initially firms may face a relatively high PES. This is because cinemas may be able to respond to the higher demand by opening the cinema for longer and filling more of the seats that had been empty in the past. However, eventually the cinema would reach its productive capacity, at which point its PES would drop significantly.

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 **inventory** that has been stored. Many firms face high costs from storage, however, which may limit their ability to respond to more profitable price levels. Food products tend to have a low price elasticity of supply in the short run as they have a limited storage life. Canned products, such as soft drinks and baked beans, however, may be stored for extended periods. Therefore, if there was a sudden increase in demand which resulted in higher prices of, for example, baked beans, the supplier could simply access any inventory that is available and reap the rewards. It is important to note, however, that once all of the stock is sold into the market, the firm then faces the same factors of PES that can make it difficult to supply. The beans would need to be manufactured from scratch again so this could slow down the supply response and reduce the PES.

Activity 2k: Determining elasticities

For each of the following products discuss whether the price elasticity of demand and the price elasticity of supply are high or low:

1. **Toothpaste**
2. **Bananas**
3. **Vinyl records**
4. **Airline travel**
5. **iPhones**
6. **Haircuts**
7. **Coca-Cola**
8. **Yoplait Yoghurt**
9. **Mini Cooper vehicles**
10. **Leather jackets**

Review questions 2.6

1. **Define what is meant by price elasticity of demand.**
2. **Explain three factors that might make the price elasticity of demand increase for a particular brand of chocolate bar.**
3. **Explain how an increase in advertising expenditure may impact on the price elasticity of demand. Refer to the concept of brand loyalty as part of your answer.**
4. **Explain what is likely to happen to the total revenue for a business if the product it sells has a very low price elasticity of demand and it voluntarily restricts supply (or raises price).**
5. **Explain why the government places taxes on certain goods that have a low price elasticity of demand.**
6. **Use a suitably labelled supply and demand diagram to explain why farmers face huge variations in their incomes.**
7. **Define what is meant by price elasticity of supply.**
8. **Outline three factors that would lead to an increase in the price elasticity of supply for newspapers (you may refer to both printed and digital versions).**
9. **Discuss how the price elasticity of supply of fruit and vegetables is likely to be affected by new technology that prolongs the shelf life of all fresh produce.**
10. **Explain why the PES for mining products (i.e. commodities) changed over time, following the rapid rates of economic growth experienced in China and India.**
11. **Evaluate the following statement 'a business would prefer to sell items with a high PED and a low PES'.**

Multiple choice review questions

1. Which of the following statements about the demand curve is incorrect?

(a) The demand curve is generally downward sloping because many products lose their value when they are consumed excessively

(b) The demand curve is generally downward sloping because at higher prices fewer people can afford the good or service

(c) The demand curve is generally downward sloping because at higher prices substitutes become a more viable option

(d) The demand curve is generally downward sloping because at lower prices the opportunity cost of buying the product has increased

2. The demand curve for take away coffee in Melbourne is likely to shift to the right when:

(a) There is an increase in the supply of coffee beans from Brazil

(b) The wages paid to baristas is increased

(c) There is a decrease in the price of coffee

(d) Petrol prices in Australia decrease

3. The demand for new bicycles is likely to increase if:

(a) The government increases the excise tax on petrol

(b) The government introduces a licence fee to ride a bicycle

(c) The RBA raises the cash rate

(d) A new cheaper material is discovered that can halve the cost of producing the bicycle

4. The supply curve for lawn mowing services is likely to shift to the left if:

(a) There is an increase in rainfall

(b) There is an increase in the unemployment rate

(c) There is a shortage of oil in the world economy

(d) The wages paid to lawn mower factory workers decreases

5. Which of the following is a factor that is likely to shift the supply curve for prescription spectacles to the left?

(a) An increase in competition from new suppliers

(b) An increase in the price of oil

(c) The ageing of the Australian population

(d) The introduction of new technology which enables optometrists to make more spectacles per hour

6. There would be an expansion along the demand curve for mobile telephones in Australia if:

(a) the price of mobile phones increases

(b) the Australian dollar depreciates (assuming all phones are imported)

(c) disposable income across the economy increases

(d) the owners of the factories shift their operations from China to Bangladesh where wages are cheaper

7. The government recently announced that they would increase the excise on cigarettes by 12.5% each year for the next four years. This is likely to affect the demand and supply curves for cigarettes in which of the following ways?

(a) The demand curve would not shift and the supply curve would shift right

(b) The demand curve would not shift and the supply curve would not shift

(c) The demand curve would shift left and the supply curve would shift left

(d) The demand curve would not shift and the supply curve would shift left

8. An increase in the price of strawberries in Melbourne could lead to

(a) more resources being allocated to the production of raspberries

(b) an increase in the wages paid to workers on strawberry farms

(c) a decrease in the price of strawberry jam

(d) a reduction in the resources allocated to the production of glass jars

9. An increase in the prices charged by electricians is unlikely to be caused by

(a) An increase in the demand for electricians due to an increase in the number of new houses being built

(b) A decrease in the number of electricians being trained at TAFE colleges

(c) A decrease in the number of electrical faults reported by households

(d) An increase in the price of the tools used by electricians

10. There is an excess supply of actors in the Australian economy. This is likely to have been caused by:
(a) an increased interest in new television programs by Australian consumers
(b) the introduction of Stan and other digital streaming services in Australia creating more demand for content
(c) the minimum wage paid for actors being above the equilibrium
(d) an increase in the number of Hollywood Studios making films in Melbourne

11. All Australian car manufacturers will cease production by 2017. This has not been caused by
(a) the recent depreciation of the Australian dollar
(b) the increase in disposable income generated by government tax cuts
(c) the significant drop in oil prices
(d) All of the above

12. An expansion along the supply curve for holiday travel to Noosa may be caused by
a) a reduction in wages paid to hospitality workers
b) the depreciation of the Australian dollar
c) below average growth in average weekly earnings in Australia
d) more erratic weather patterns experienced around Australia.

13. The government currently restricts the importation of bananas into Australia. A removal of this restriction would result in
(a) an increase in the price for bananas as the demand would increase
(b) an increase in the price for bananas as the supply would increase
(c) a decrease in the price of bananas as the demand would decrease
(d) a decrease in the price of bananas as the supply would increase

14. Which of the following goods is likely to be an inferior good?
(a) a brand new BMW X series car
(b) a blu ray player
(c) clothes from the Salvation Army opportunity shop
(d) the iPhone 7

15. The equilibrium price charged by private schools in Australia may increase if
(a) there is an increase in the number of students attending private schools and wages paid to teachers decrease
(b) robots are invented to teach classes and student retention rates increase
(c) Government subsidies for private schools increase and the cash rate is reduced
(d) Union membership for teachers decline and there is a population explosion in Australia

16. The price elasticity of demand for chocolate is unlikely to be influenced by:

(a) the income of the customers
(b) the number of competitors in the market
(c) the degree of spare capacity in the chocolate factories
(d) the number of addictive ingredients included in the chocolate bars

17. Consider the market for nightclubs. The introduction of a new fee to pay for the music played in the clubs is likely to result in
(a) an increase in the equilibrium price of entry and a reduction in the number of customers
(b) a decrease in the equilibrium price of entry and a reduction in the number of customers
(c) no change in the price or number of customers
(d) an increase in the price of drinks sold at the nightclub and an increase in the number of customers

18. Which of the following products is likely to have the lowest PES?
(a) a digital version of the latest Drake album
(b) an iPhone 8
(c) a packet of Tim Tams
(d) a fresh peach

19. Living standards in Australia are likely to be influenced positively by the operation of the market mechanism because

(a) competition in the market encourages firms to cut corners when producing their goods and services
(b) the equilibrium price will always reflect the true value of the product
(c) the price mechanism provides the incentive for firms to produce those goods and services that are desired by a country's citizens
(d) competition provides the stresses needed so people work as hard as possible

20. Prices paid for primary products tend to be highly volatile because

(a) the PED is low and the PES is low
(b) the PED is low and the PES is high
(c) the PED is high and the PES is high
(d) the PED is high and the PES is low

Chapter 2 Extended economic exercise on the housing market

You live in Australia, you probably pay more to buy or rent a house

While Singapore may be the most expensive city in the world, Australian cities regularly feature in *The Economist* magazine's Intelligence Unit annual 'Worldwide Cost of Living Report'. The report looks at the prices paid for a wide range of goods and services and then ranks each city according to its affordability. In this application exercise we will look at one of the most significant areas which makes Australia an expensive place to live and try to isolate the demand and supply factors that help to explain the relatively-high prices.

Housing

In the last two years, housing prices in Australia have continued to increase, making the purchase of a new or existing dwelling more difficult for those earning the average wage. A recent report by Demographia (a housing affordability think tank) indicated that the median price of a house in Sydney - $1 million - represents 12 times the city's median income. Two years ago the same figure was 9.8, indicating that house prices have risen at a time when income growth has been relatively weak. Melbourne's current house price to median income ratio is 9.7. Demographia rates houses as 'severely unaffordable' if the ratio is above 5.1. This makes housing in Australia's two major cities unobtainable for many.

So what makes Australian housing so unaffordable? The answer to this question is complex and requires an analysis of both demand and supply factors.

The decision to purchase a house is driven by a number of demand-side factors. People obviously need a job and the disposable income to **a)** save a deposit and **b)** service the loan for up to 30 years. While income growth in Australia has been slow in the last two years (at approximately 2% rather than the long term average of 3%), this doesn't seem to have slowed demand for housing.

On the other hand, the Australian public have been handed a couple of 'gifts' that have increased their ability to borrow greater sums of money - which means that when it comes to buying a house they can offer to pay more. The first 'gift' is the record low cash rate that is on offer in the Australian market. Those looking to borrow from a financial institution will be able to obtain a variable rate loan for as low as 3.5% (rates that have not been seen for over 40 years). This lowers the monthly interest bill and enables greater borrowing. At the same time, petrol prices have decreased significantly in the last two years and this has boosted discretionary income. Some commentators have compared the price decrease to the equivalent of one interest rate cut (usually 0.25%). This increases the capacity to pay and may increase the willingness and ability to borrow. These factors have contributed to rising housing prices.

Another reason that house prices continue to grow is due to the relatively high rates of population growth. Australia has one of the highest levels of immigration intake in the industrialised world. The immigrants obviously need to live somewhere and the market has been unable to increase supply to meet the rapid growth in demand.

It has also been argued that Australia's tax system distorts the market for housing. Favourable tax treatment is provided for those who invest in housing (i.e. they purchase the house to rent it to someone else). The investor is able reduce their tax liability by deducting the expenses they incur from owning the home (such as interest, maintenance, rates etc.) from their ordinary income. This is referred to as 'negative gearing' and, in effect, means that the cost of owning the house is passed onto the government (and in reality, to other tax payers). In addition, any capital gains (increases in value of assets such as houses) that may be made from owning the home are taxed at half the income earner's marginal tax rate when they ultimately sell the property.

One additional factor affecting demand could be the psychological effect - which is, not surprisingly, hard to measure. The Australian economy is somewhat unique. It has not experienced a recession since 1991 and house prices over this time have trended up significantly. There will be a generation of workers who have never experienced a recession and this might affect their perception of reality. They may be more willing to take on debt and look at housing as the most stable form of investment. Investment experts always advise their clients that past performance is not an indicator of future performance. However, many people who see others making profits from housing naturally want to jump on board and enjoy the party of seemingly guaranteed capital gains. There may be an element of greed or FOMO (fear of missing out) in this decision making process, but nevertheless it is a factor that drives demand in the housing market in Australia. Alan Greenspan, the former chairman of the Federal Reserve of America, when referring to the Dot-com bubble described this herd-like behaviour as 'irrational exuberance'.

While there are a number of demand side factors driving up prices, those who build and sell Australia's houses would also argue that Australia is an expensive place to do business. Developers, who say they could provide affordable housing to a large section of the population, have pointed the finger at Australia's land use regulations. One study identified 540 conditions that needed to be met before land could be zoned as residential. This makes it both complex and expensive for developers to provide brand new housing for potential buyers. These regulations not only add to the cost of building new homes but they also reduce the ability of supply to respond to changes in demand. If the demand for an iPhone increases, then Apple is able to respond relatively quickly and provide more iPhones. In Australia, the supply of housing is relatively price inelastic and therefore any change in demand is reflected in much higher prices.

Supply is affected by the cost of production. One of the major costs of production associated with building houses is the wages and salaries paid to the builders and associated tradespeople involved in construction. Australia has a relatively generous set of wages and conditions, which increase the cost of production. These wages are driven up by a number of factors. To start with, Australia's minimum wages are well above comparable countries. While the minimum wage in Australia is $17.70 per hour, in the United States the minimum wage is $7.25 (approximately 10 AUD). Australian wages are further driven above the minimum wage by the relatively strong bargaining power of the CFMEU (Construction, Forestry Mining and Energy Union) - the union that represents the majority of workers involved in housing construction. The union is able to achieve wages above those that could be achieved in a freer market, which adds to the final price of a house. Governments have also been blamed for skills shortages in the construction industry as they shut down technical colleges and cut funding to TAFE education in recent years. This exerts upward pressure on the price of skilled builders, plumbers, electricians and a host of other qualified trades people..

In addition to the labour costs, Australian construction businesses face other input costs which make adding to the supply of houses more difficult. For example, electricity prices in Australia have risen by as much as 70 per cent in the last seven years. Given that the construction of housing relies on the use of energy, this also (marginally) adds to the prices paid for housing.

Application questions

1. **Explain why an economist would expect the demand for housing to be inversely related to its own price.**
2. **Explain why an economist would expect that the supply of housing would respond positively to an increase in prices.**
3. **Construct a suitably labelled demand and supply diagram for housing for the suburb in which you live. Use the internet to research the changes in the median house price in your area. Use this information to show the actual median house prices from seven years ago and the current price on your graph.**
4. **On the graph you have drawn, identify two of the demand side factors discussed in the case study above and discuss how they have led to an increase in demand for housing in the area in which you live.**
5. **Explain how the change in demand leads to a change in equilibrium prices (i.e. describe how the market moves from the temporary disequilibrium caused by changing demand factors to a new equilibrium).**
6. **On the graph you have drawn identify two of the supply side factors discussed in the case study above and discuss how they have led to a decrease in supply for the area in which you live.**
7. **Explain how the change in supply leads to a change in equilibrium prices (i.e. describe how the market moves from the temporary disequilibrium caused by changing supply factors to a new equilibrium).**
8. **Explain why the price elasticity of demand for housing may be high.**
9. **Explain why the price elasticity of supply for housing may be low.**
10. **Evaluate how the rapid increase in house prices over the last decade has affected living standards in Australia. (NB – this is a complex task that requires you to look at both the positive and negative effects of price increases on both material and non-material living standards).**
11. **Predict what might happen to house prices in the future. Base your prediction on relevant demand and/or supply factors that you think might change in the future.**

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. A competitive market is one where 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 as set up costs are low and the government does not restrict entrants.
4. Consumers will try to obtain the product at the lowest price possible while the seller will try to extract the highest price possible. 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 price of the product decreases, the quantity demanded will tend to increase.
6. The law of demand is logical because at higher prices a consumer's ability and willingness to purchase tends to decrease and because the consumption of most goods is subject to the law of diminishing marginal utility.
7. The effect on demand of an increase in price is represented by a movement along the demand curve to the left (called a contraction). The effect on demand of a decrease in price 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 that affect the 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 shift of the demand curve to the right for normal goods and a shift to the left for inferior goods.
11. A decrease in interest rates will increase discretionary income for indebted households and businesses and usually result in an increase in demand for most goods and services. Changes in the prices of other essential items such as petrol will also affect the discretionary income of households and may affect the demand for other seemingly unrelated products.
12. If the price of a substitute good or service increases there will be an increase in demand for the alternative product (resulting in a shift to the right 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 mean that the cost of consuming both has increased resulting in a decrease in demand for the complementary good (even if its price has not increased).
14. An increase in population will generally result in an increase in the demand for most goods and services.
15. An improvement in consumer sentiment (confidence), which measures consumers' general expectations about future economic prosperity, will generally lead to an increase in discretionary spending and result in an increase in the demand for a broad range of goods and services.
16. If a product becomes fashionable, this is likely to result in an increase in demand. This is described as a change in tastes and preferences
17. The law of supply states that as the price increases for a good or service there will generally be an increase in the quantity supplied.
18. The law of supply is logical because at higher prices suppliers have more incentive to shift resources into those areas which will generate greater profits.
19. An increase in the price of a product will result in a shift along the supply curve to the right (an expansion). A decrease in the price of a product will result in a shift 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, there will be a greater volume 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 associated with making a product will result in a shift of 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 will tend to shift the supply curve to the right. This is usually due to the boost that technology provides to productivity.
24. Supply for any good or service that depends upon favourable climatic conditions will shift to the left if changes in the climate restrict the production of the raw ingredients used to make these goods and services. Human activity can also cause disruptions to supply (such as wars).
25. The market equilibrium is a situation where the demand for a good or service is equal to the supply of a good or service.
26. A shortage develops when the price is below the equilibrium price and the demand is greater than the 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 seen as the price of any one good or service measured in terms of the price of another good or service.
30. Relative prices send clear signals to producers and consumers and therefore direct 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 determine relative prices of goods and services, which then ultimately determines the way our productive resources (e.g. labour and capital) are allocated in the economy.
33. The price mechanism generally results in an efficient allocation of resources meaning that households' living standards are increased. The right types are provided in the market and these are offered at the lowest possible price.
34. The price mechanism may have a negative impact on living standards if it makes workers and business owners more stressed.
35. Price elasticity of demand refers to the responsiveness of demand to changes in prices and is measured by the percentage change in quantity demanded divided by the percentage change in price.
36. 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 prices.
37. PED is an important economic measure because it helps businesses to analyse the impact of price changes on revenues and allows the government to consider which goods are the most appropriate to impose an indirect tax upon.
38. Price elasticity of demand will tend to increase if there are a number of viable options available for the consumer as small price increases result in a substitution towards these alternative products.
39. Price elasticity of demand will tend to decrease if the good or service is deemed to be a necessity or is highly addictive.
40. Price elasticity of demand will tend to increase if the purchase of the product consumes a large portion of a purchaser's income.
41. 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.
42. Price elasticity of supply measures the responsiveness of quantity supplied to changes in price.
43. 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 supply is more than the percentage change in price.
44. 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.
45. Price elasticity of supply will tend to increase if the product can be stored easily.
46. Price elasticity of supply will tend to increase if firms are operating with some spare capacity and can ramp up production quickly.
47. Price elasticity of supply will tend to be lower in the short term but as resources are re-allocated across the economy to more profitable areas, price elasticity of supply will tend to increase.