

Chapter

2

The Price Mechanism

Introduction

This chapter discusses how the price mechanism within a free market economy works e.g. how demand and supply determines a price and quantity for a good or service produced and sold in a market. The price mechanism helps understand how resources are determined and allocated within a free market economy and how an equilibrium price and quantity is determined (where demand equals supply). When shortages or surpluses temporarily exist within a market, the price mechanism adjusts prices in order to restore balance (equilibrium) between demand and supply. It is important that you understand the difference between a shift (increase or decrease) and an extension or contraction (movement along) for a supply or demand curve, as well as the different factors that can cause supply or demand curves to shift (change).

2.1 A market (a price mechanism)

A market is where buyers and sellers for a good or service, come into contact for the purpose of exchange, normally for money e.g. a supermarket, e-bay, a clothing shop, a street market stall, or even the gold market or the Financial Times Stock Exchange (FTSE), for trading second hand shares. Developments in information technology and communications, mean today that many markets are now electronic e.g. websites, or 'clicks not bricks' the sales medium of providing a market for buyers and sellers to trade, without the need to meet face to face.

Demand

Demand is the potential number of buyers (consumers, customers or households) of a good or service within a market. A demand curve can be used to represent the different quantities that buyers would be willing and able to purchase at different prices. Elementary understanding of demand is that the lower the price the higher the demand by buyers, and vice versa.

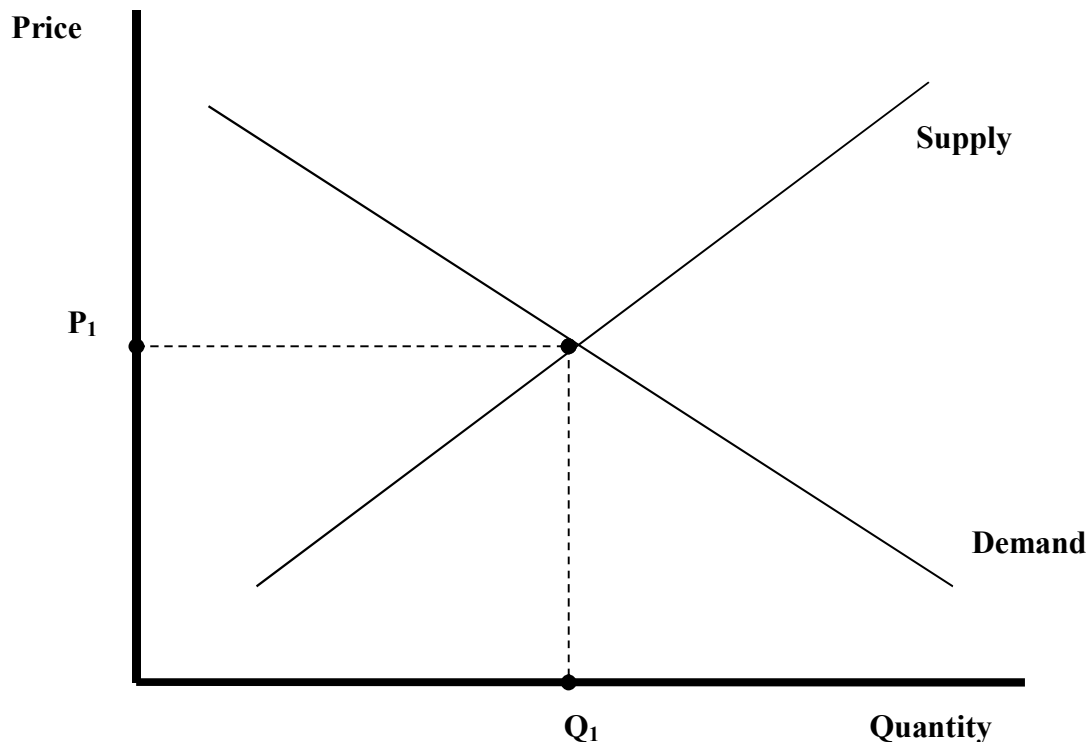
Supply

Supply is the potential number of businesses or firms within a market that are willing and able to supply different quantities of a good or service at different prices. This can be represented by a total supply curve for the industry or market. Normally when the price is low, the supply by firms to a market is low, and vice versa. This is because firms in a free market economy are driven by profit motive.

2.2 The price mechanism (supply and demand)

The price mechanism (a market) is concerned with how buyers and sellers interact together in order to arrive at a market price. Where demand equals supply, this is called the equilibrium price and quantity, and naturally works within a perfectly competitive market, to find this balance between supply and demand. The price mechanism can be used to explain how a free market economy or the private sector, allocates resources and determines a market price within an industry.

Diagram to show the behaviour of demand and supply



The equilibrium price and quantity P_1 and Q_1 is represented by the diagram above. There is no shortage or surplus of good or service within this market because demand equals supply. The market is in equilibrium (balance) with no upward or downward pressure for prices to rise or fall within this industry. Only when there is a shift (movement) in demand and/or supply, will there be an upward or downward pressure on prices to rise or fall.

2.3 Demand

The demand curve (or demand schedule) represents the total quantity purchased by all buyers (in total or aggregate) within a market at different represented prices. The law of demand states that as price falls, the quantity demanded will rise, and vice versa.

The law or theory of demand states that consumers within a market derive satisfaction or utility as a result of consuming a good or service. Utility (satisfaction) varies from consumer to consumer; you may have no utility at all for a certain good or service, in which case you would not be a potential buyer on a demand curve.

Marginal utility is the extra (additional) utility gained each time by a buyer as they consume one more unit of the good or service each time. Economic theory suggests that total utility (satisfaction) will rise each time a buyer consumes more of a good or service, however the marginal utility derived each time one more unit is consumed diminishes (falls). You may like chocolate or you may not, but in theory you could place a monetary value on eating each bar of chocolate if you did like it. If you really like chocolate then you could say the first consumed was worth £2, the second bar £1.50, the third bar £1, each is the marginal utility, the total utility at this point £4.50. Bar of chocolate number ten, would you feel sick? In which case fine negative marginal utility occurs!

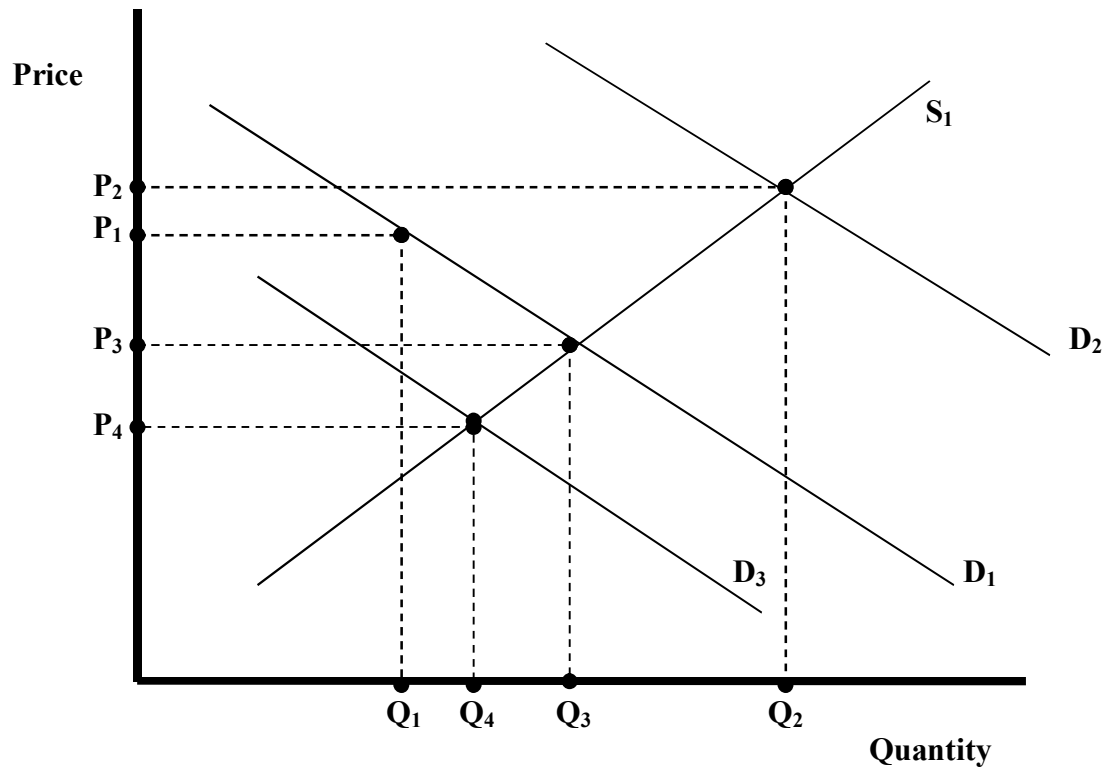
The theory states that we consume based on our willingness to pay and the value (utility) we derive from the consumption of a good or service. In the above example if the price of every bar of chocolate was £1.20. You would in theory buy only two bars because the first two bars gave marginal utility which was at least equal or higher than the price of £1.20. You would in theory not consume the third bar given the £1 of marginal utility derived from consuming would be less than the price you have to pay. Unless the price dropped to £1 only for a bar of chocolate, in which case you would buy the third bar although indifferent, given its marginal utility of also £1.00.

As price falls existing consumers tend to consume more within a market, mainly because the good or service is now cheaper. A price fall indicates better value for money, encouraging more consumption, and vice versa. Buyers will normally consume a quantity up to the point where the price is equal to their marginal utility, beyond this point the price is normally not worth paying.

The first two bars of chocolate consumed would have also created a consumer surplus, as the marginal utility derived each time was higher than the price paid. Consumers will only buy one more unit if the marginal utility derived exceeds the price or is at least equal to it.

A demand curve is normally downward sloping and in theory is the total of all marginal utility curves for all buyers within a market, aggregated together.

Increases or Decreases (or 'Shifts') in the demand curve



Start at demand curve D_1

- When price falls from P_1 to P_3 there would be an **'extension'** of the demand curve, the quantity demanded extending along D_1 from Q_1 to Q_3 because of the fall in price.
- When price rises from P_3 to P_1 there would be a **'contraction'** of the demand curve, the quantity demanded contracting along D_1 from Q_3 to Q_1 because of the rise in price.

Assuming the market is in equilibrium at P_3 Q_3 where D_1 equals S_1

- An **increase (shift to the right)** of the demand curve from D_1 to D_2 (a shift in demand at the same market price P_3), would eventually create a higher price and quantity demanded, settling at P_2 Q_2 a new equilibrium. The effect of an increase in demand (shift to the right) was to create a shortage within the market, supply unchanged, this put pressure on prices to rise.
- A **decrease (shift to the left)** of the demand curve from D_1 to D_3 (a shift in demand at the same market price P_3) would eventually create a lower price and quantity demanded, settling at P_4 Q_4 a new equilibrium. The effect of a decrease in demand (shift to the left) was to create a surplus within the market, supply unchanged, this put pressure on prices to fall.

Factors that can cause a shift in the demand curve

As price rises or falls the demand curve would 'contract' or 'extend' along itself, as consumers buy more or less of the good or service, all explained through the marginal utility effect. An extension or contraction is not the same as a shift in a demand curve, a shift in demand results in the creation of an entirely new demand curve altogether, indicating that more or less of the good or service is being demanded, but at the same market price.

The following factors will cause a shift in the demand curve for a market.

- **Advertising and promotion** e.g. more advertising or marketing encourages more consumption of a good at the same market price, therefore demand shifts to the right (an increase in demand).
- **Population of an economy (country)** e.g. as population increases so does the number of consumers buying a good or service at the same market price, therefore demand shifts to the right (an increase in demand).
- **Expectations of buyers and sellers** e.g. if consumers expect there will be a shortage of petrol or a price rise in future, they may consume more of a good temporarily in order to stockpile, therefore demand shifts to the right (an increase in demand).
- **Price of substitute goods or services** e.g. if the price of electric shavers increased (discouraging consumption), consumers will buy more razors and shaving cream instead. For both razors and shaving cream, demand would shift to the right, if the price of electric shavers were to increase.
- **Price of complimentary goods or services** e.g. if the price of razors increased (discouraging consumption), consumers will buy less shaving cream as well. The demand for shaving cream would shift to the left (decrease in demand) given an increase in the price of razors.
- **Income of households** e.g. as incomes rise consumers have more money to spend on goods and services, therefore demand shifts to the right (an increase in demand).
- **Tastes and fashions change over time** e.g. demand will rise or fall over time e.g. clothing styles, or other goods maybe replaced in time due to changes in new technology e.g. i-phone and MP3 replacing CD players. As product life cycles reach saturation and eventual decline, there would be a shift to the left (decrease in demand) through time.

Types of good according to economic theory

Normal goods

Most goods (or services) display the characteristics of a normal good. As incomes of consumers (households) rise, the quantity demanded for the good would increase e.g. the demand curve would shift to the right, as household income rises.

With a normal good we expect that demand increases when incomes rise.

Inferior goods

The opposite to a normal good. As incomes of consumers (households) rise the quantity demanded for an inferior good would fall e.g. the demand curve would shift to the left, as household income rises. Inferior goods are perceived by the consumer as lower quality –relative to other more expensive and higher quality substitutes. With examples such as potatoes, cheap bread, margarine, or cheap cars, households tend to switch their purchases to more expensive foods and other products when incomes rise. This is mainly due to households affording a better standard of living.

With an inferior good we expect that demand decreases when incomes rise.

Giffen goods

The law of demand states that as price falls then demand rises, and vice versa. A giffen good, is the rare explanation of an upward sloping rather than downward sloping demand curve. As price increases consumers buy more of the good or service as opposed to less of it.

Sir Robert Giffen in the nineteenth century observed that for potatoes, as prices increased, demand also increased. He believed the reason was that potatoes were so inferior and so heavily consumed during these times of at low incomes and poverty, that those on low incomes could no longer afford to supplement their diet with better foods e.g. meat, therefore consumed more potatoes, their staple food instead.

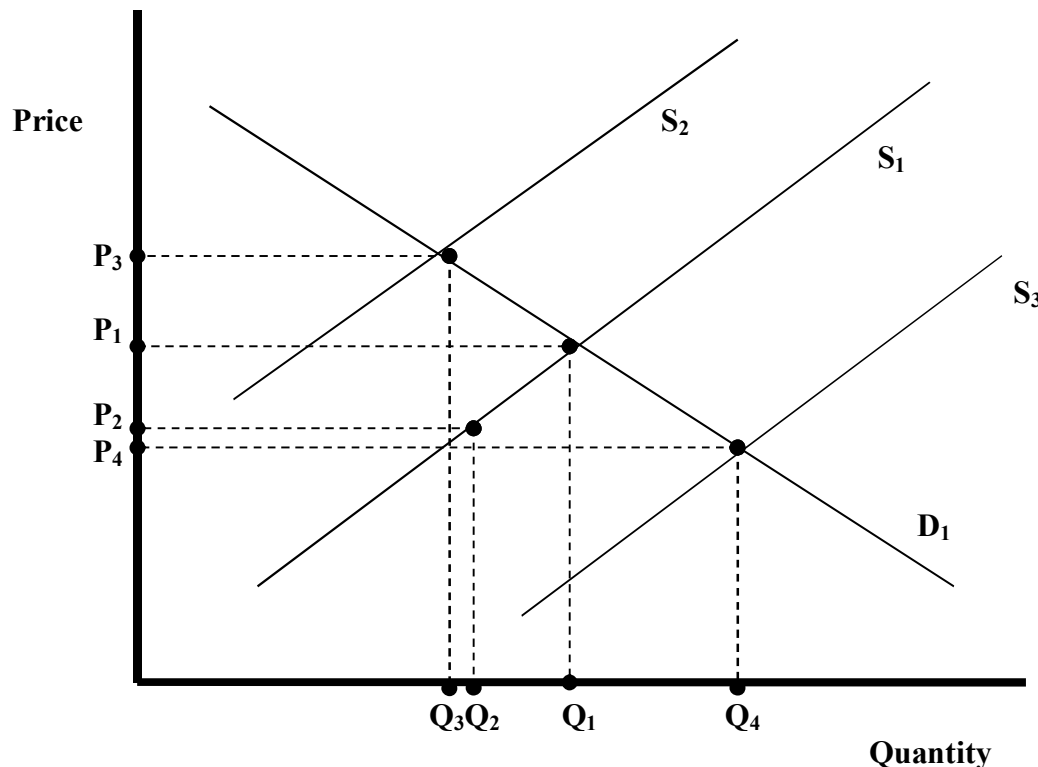
Veblen goods

With a veblen good, demand can behave in the same way as for a Giffen Good, but for a different reason. Veblen goods are purchased often to show off wealth e.g. luxury or high performance cars. If the price decreases, and more people can afford them they become less effective as an indicator of wealth or status within society, so demand also decreases. Just like a Giffen good the demand curve is upward sloping indicating that –snob appeal would increase demand further if the price was to rise. This is exactly what happened with Porsche in the 1980s; big price increases generated bigger surges in demand.

Summary: Giffen or Veblen goods have an upward sloping demand curve e.g. demand increases when prices rises, and vice versa.

2.4 Supply

The supply curve (or supply schedule) represents the total quantity of a good or service supplied (in total or in aggregate), by all sellers or firms within a market, represented at different price levels. The law of supply states that as prices fall the quantity supplied by firms will fall and vice versa. The theory of supply states that sellers want to maximise profit, therefore an increase in market price would encourage existing suppliers to expand production in order to earn more profit.



Terminology

Start at supply curve S_1

- If price fell from P_1 to P_2 there would be a contraction of the supply curve, the quantity supplied contracting along S_1 from Q_1 to Q_2
- If price rises from P_2 to P_1 there would be an extension of the supply curve the quantity supplied extending along S_1 from Q_2 to Q_1

If the market in equilibrium P_1 Q_1 where demand D_1 equals supply S_1

- An increase or shift to the right of the supply curve from S_1 to S_3 (a greater quantity supplied at the same market price P_1) would create a surplus and depress the market price, a lower price and quantity supplied (P_4 Q_4) would be the final outcome, a new equilibrium price and quantity. The effect of an increase in supply (shift to the right) is to create a surplus within the market, demand unchanged, this puts pressure on prices to fall.
- A decrease or shift to the left of the supply curve from S_1 to S_2 (a lower quantity supplied at the same market price P_1) would create a shortage and put

pressure on market prices to increase, a higher price and quantity supplied (P_3 Q_3) would be the final outcome, a new equilibrium price and quantity. The effect of a decrease in supply (shift to the left) is to create a shortage within the market, demand unchanged, this puts pressure on prices to rise.

Factors that cause a shift (increase or decrease) for a supply curve

As price rises or falls the supply curve would 'contract' or 'extend' this is not the same as a shift (decrease or increase) for a supply curve, the creation of an entirely new supply curve, indicating more or less is being supplied by firms at the same market price.

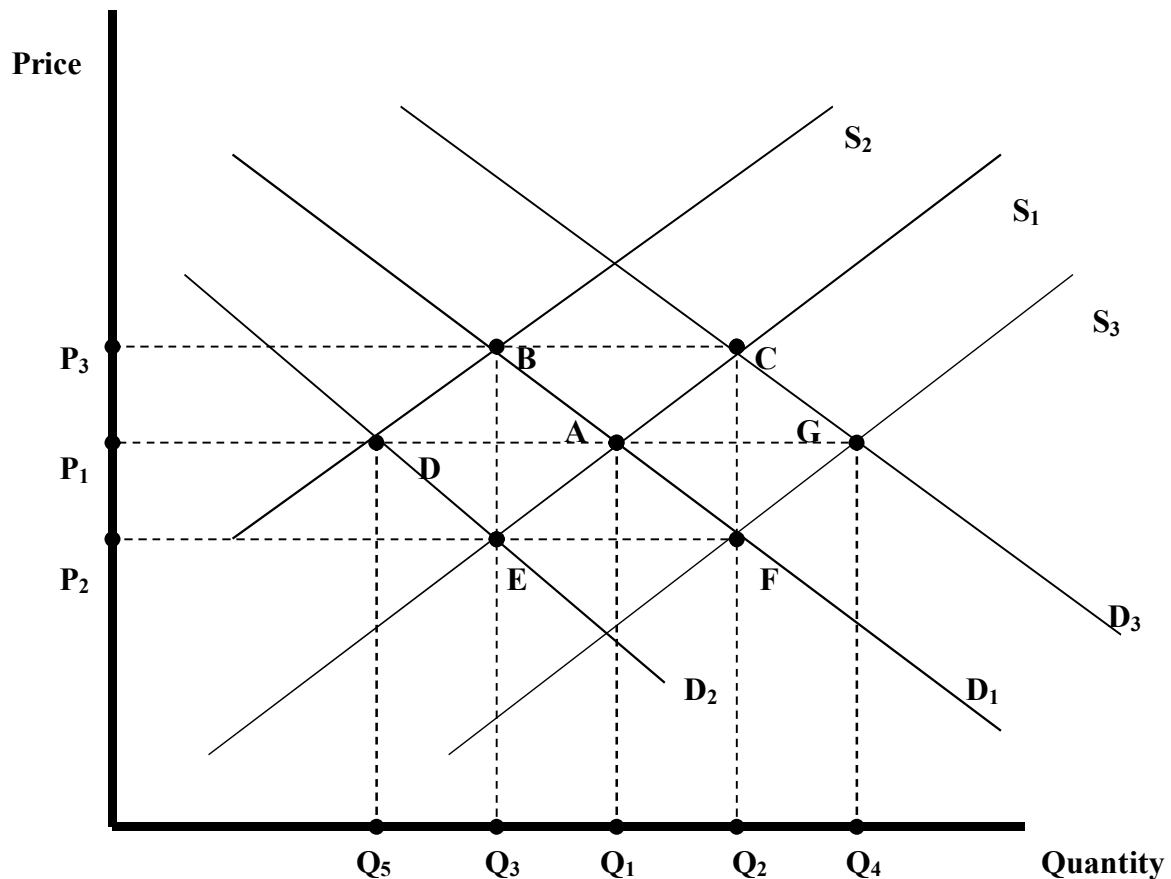
The following factors will cause a shift (increase or decrease) for a supply curve

- **Climate** e.g. due to weather, many commodity markets e.g. wheat, oranges or coffee, can have good or bad harvests, indicating more or less of the good supplied at the same market price. The world wide price of commodities is volatile due to seasonal and climatic risks which affect the ultimate supply of different commodities by the world farming industry.
- **Price of factors of production** e.g. the cost of obtaining material, labour, machinery and other inputs by a firm to produce their output will ultimately determine their cost of production and the profitability of supply. When costs of production rise within an industry, supply will decrease (it shifts to the left), due to lower profit (higher cost to supply each unit), some firms may leave the industry altogether, others may also cut back production levels.
- **Resource availability** e.g. production (output) or supply is determined by availability of inputs (factors of production) such as land, capital and labour. Any restriction in the availability of inputs can decrease the supply of goods or services within an industry e.g. UK trade unions until the 1980s were able to restrict the supply of membership (workforce supply) within industries such as steel, car manufacturing, utilities and coal mining. Restricting worker supply within such industries forced up wages and the costs of production for firms within these industries.
- **Indirect taxes** e.g. unit taxes applied by the UK government such as value added tax (VAT) or excise duty on petrol, cigarettes or alcohol, affect the cost of production per unit for a firm to make and supply it. Any increase in indirect taxes imposed by government on firms would have the same effect as raising the costs of production similar to an increase in wages or material cost. When a tax per unit is increased or applied to a good or service, supply will decrease (it shifts to the left), due to lower profit (higher cost to supply each unit), some firms may leave the industry altogether, others may also cut back production levels.
- **Subsidies** have the opposite effect to an indirect tax. The government by subsidising each unit made by a firm has the effect of lowering the cost of production per unit for a firm to make it. Increasing subsidies therefore increases supply (supply shifts to the right), due to a greater profit for each unit supplied. More firms enter the industry and existing firms also expand production levels. The UK government today or in the past has subsidised industries such as farming, electric cars and cavity wall insulation.
- **Goods in joint supply** e.g. a rise in the price of leather clothing may encourage more production of leather clothing by manufacturers. If more cows

are to be sent to abattoir to achieve this, it will also automatically increase the supply of beef within the meat industry, a shift to the right of the supply curve for beef will occur.

- **Expectations of sellers** e.g. if sellers expect a price increase, due to a rise in profit expected, they may increase output to stockpile and be ready to supply more in future.
- **Technology** has impact on productivity and/or efficiency and hence the cost of supply by a firm. Technology normally has the impact of lowering the cost of production for a firm and therefore causing supply to shift to the right as firms expand production.

2.5 How the price mechanism works



The above diagram assumes initially the market is in equilibrium, where demand D_1 equals supply S_1 at point A (P_1 Q_1). The following would happen if there is an increase or decrease in demand (or supply), **ceteris paribus** (all other things remaining equal).

An increase in demand from D_1 to D_3 with supply unchanged at S_1 would create a shortage in the market equivalent to Q_4 minus Q_1 (or the difference between point A and G). Suppliers knowing about the shortage and driven by profit motive will increase prices, buyers knowing there is a shortage would be prepared to pay more for the good or service therefore putting pressure on prices to rise. The new demand curve D_3 will contract and the existing supply curve S_1 will extend as prices rise, until a new equilibrium price and quantity is found by the market at point C (P_3 Q_2).

A decrease in demand from D_1 to D_2 with supply unchanged at S_1 would create a surplus in the market equivalent to Q_1 minus Q_5 (or the difference between point A and D). Suppliers knowing about the surplus and driven by profit motive will decrease prices in order to avoid rising stock levels, buyers knowing there is a surplus would be prepared to pay less for the good or service therefore putting pressure on prices to fall by negotiation. The new demand curve D_2 will extend and the existing supply curve S_1 will contract as prices fall, until a new equilibrium price and quantity is found by the market at point E (P_2 Q_3).

An increase in supply from S_1 to S_3 with demand unchanged at D_1 would create a surplus in the market equivalent to Q_4 minus Q_1 (or the difference between point A and G). Suppliers knowing about the surplus and driven by profit motive will decrease prices in order to avoid rising stock levels, buyers knowing there is a surplus would be prepared to pay less for the good or service therefore putting pressure on prices to fall by negotiation. The new supply curve S_3 will contract and the existing demand curve D_1 will extend as prices fall, until a new equilibrium price and quantity is found by the market at point F (P_2 Q_2).

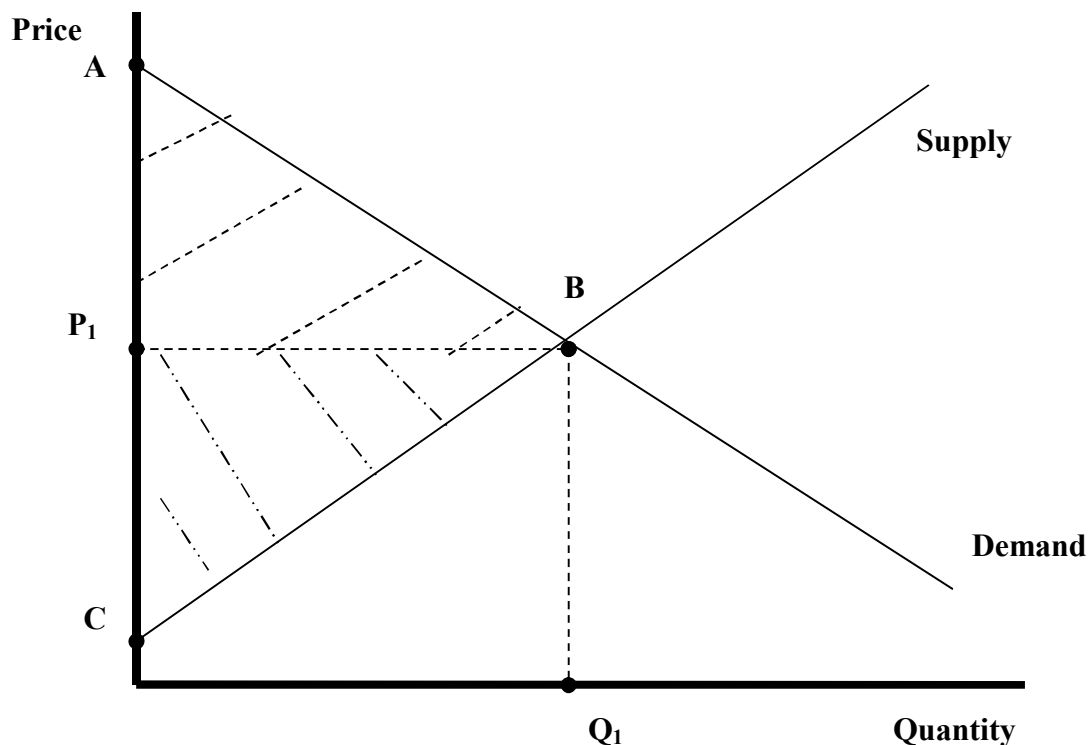
A decrease in supply from S_1 to S_2 with demand unchanged at D_1 would create a shortage in the market equivalent to Q_1 minus Q_5 (or the difference between point A and D). Suppliers knowing about the shortage and driven by profit motive will increase prices, buyers knowing there is a shortage would be prepared to pay more for the good or service therefore putting pressure on prices to rise. The new supply curve S_2 will extend and the existing demand curve D_1 will contract as prices rise, until a new equilibrium price and quantity is found by the market at point B (P_3 Q_3).

Example 2.1

Put a tick against the appropriate column to which you think would be the most likely outcome to the following statements?

	Increase in demand	Decrease in demand	Increase in supply	Decrease in supply
Second hand car market 1. Increase in the use of public transport 2. Fall in price for new cars 3. Increase in the price of petrol 4. Government putting a tax on each car manufacturers produce because of car pollution Beef market 1. Increase in the supply of leather 2. Bad press coverage about the health scare of eating beef House market 1. Reduction in interest rates 2. Government giving tax incentives to construction companies to build more houses Farming market 1. Severe weather damaging crops 2. Increase in EU subsidies to farmers				

2.6 Consumer and producer surplus



At equilibrium P_1 Q_1 (point B where demand equals supply)

Consumer surplus is equal to area P_1AB this represents the difference between the amount buyers were willing to pay for the good or service compared to what they actually did pay (P_1), in effect the utility the buyer received but did not pay for. If you like chocolate we can assume the first bar consumed was worth £2, the second bar £1.50, the third bar £1, each in marginal utility, if the market price of every bar of chocolate was £1.20, then the consumer surplus would be the utility received but not paid for by the consumer e.g. bar one (£2.00-£1.20 = £0.80), bar two (£1.50-£1.20 = £0.30), total consumer surplus £1.10.

Producer surplus is equal to area P_1BC this represents the difference between the price firms would have accepted for the good or service supplied compared to what they actually did receive (P_1). In effect producer surplus represents profit to a firm, the market price received by the firm compared to its marginal cost of production, marginal cost being the cost of supplying one more unit each time for the firm.

Key summary of chapter

The price mechanism helps understand how resources are determined and allocated within a free market economy and how an equilibrium price and quantity is determined (where demand equals supply). When shortages or surpluses temporarily exist within a market, the price mechanism will adjust price in order to restore balance (equilibrium) between demand and supply.

A market (a price mechanism)

A market is where buyers and sellers for a good or service, come into contact for the purpose of exchange, normally for money e.g. a supermarket, e-bay, a clothing shop, a street market stall, or even the gold market or the Financial Times Stock Exchange (FTSE), for trading second hand shares.

Demand

Demand is the potential number of buyers (consumers, customers or households) of a good or service within a market. The demand curve (or demand schedule) represents the total quantity purchased by all buyers (in total or aggregate) within a market at different represented prices. The law of demand states that as price falls, the quantity demanded will rise, and vice versa.

The law or theory of demand states that consumers within a market derive satisfaction or utility as a result of consuming a good or service. Utility (satisfaction) varies from consumer to consumer; you may have no utility at all for a certain good or service, in which case you would not be a potential buyer on a demand curve

Factors that can cause a shift in the demand curve

- Advertising and promotion
- Population of an economy (country)
- Expectations of buyers and sellers
- Price of substitute goods or services
- Price of complimentary goods or services
- Income of households
- Tastes and fashions change over time

Types of good

Normal goods

With a normal good we expect that demand increases when incomes rise.

Inferior goods

With an inferior good we expect that demand decreases when incomes rise.

Giffen or Veblen goods

Giffen or Veblen goods have an upward sloping demand curve e.g. demand increases when prices rises, and vice versa.

Supply

Supply is the potential number of businesses or firms within a market that are willing and able to supply different quantities of a good or service at different prices.

The supply curve (or supply schedule) represents the total quantity of a good or service supplied (in total or in aggregate), by all sellers or firms within a market, represented at different price levels. The law of supply states that as prices fall the quantity supplied by firms will fall and vice versa. The theory of supply states that sellers want to maximise profit, therefore an increase in market price would encourage existing suppliers to expand production in order to earn more profit.

Factors that cause a shift (increase or decrease) for a supply curve

- Climate
- Price of factors of production
- Resource availability
- Indirect taxes
- Subsidies
- Goods in joint supply
- Expectations of sellers
- Technology

Consumer surplus

This represents the total difference between the amount buyers were willing to pay for a good or service, compared to what they actually did pay.

Producer surplus

This represents the total difference between the prices firms would have accepted for a good or service supplied, compared to what they actually did receive.

Solutions to lecture examples

Example 2.1

Put a tick against the appropriate column to which you think would be the most likely outcome to the following statements?

	Increase in demand	Decrease in demand	Increase in supply	Decrease in supply
Second hand car market 1. Increase in the use of public transport 2. Fall in price for new cars 3. Increase in the price of petrol 4. Government putting a tax on each car manufacturers produce because of car pollution		✓ ✓ ✓		✓
Beef market 1. Increase in the supply of leather 2. Bad press coverage about the health scare of eating beef		✓	✓	

Example 2.1 -continued

Put a tick against the appropriate column to which you think would be the most likely outcome to the following statements?

	Increase in demand	Decrease in demand	Increase in supply	Decrease in supply
House market 1. Reduction in interest rates 2. Government giving tax incentives to construction companies to build more houses	✓		✓	
Farming market 1. Severe weather damaging crops 2. Increase in EU subsidies to farmers			✓	✓