

Edexcel Economics (A) A-level

Theme 1: Introduction to Markets and Market Failure

1.2 How Markets Work

Detailed Notes

1.2.1 Rational decision making

The underlying assumptions of rational economic decision making:

- **Consumers aim to maximise utility:** Utility is the satisfaction gained from consuming a product. The rational consumer is called Homo Economicus, who makes decisions by calculating the utility gained from each decision and chooses the one which will give them the most satisfaction.
- **Firms aim to maximise profit:** Economic theory assumes that firms are run for their owners and shareholders and so aim to maximise profit in order to keep the shareholders happy.
- **Governments aim to maximise social welfare:** Governments are voted in by the public and work for the public, so should aim to maximise their satisfaction by taking decisions which increase social welfare.

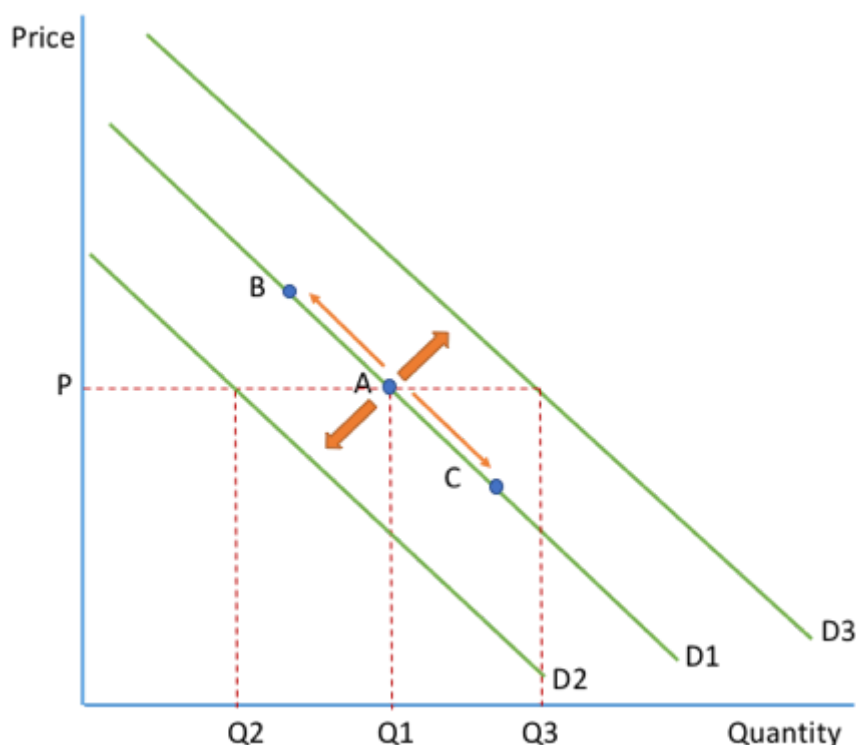
This is the basis for economic thinking, but it is currently being questioned by behavioral economists. Economic agents do not always have the information necessary to act rationally and consumers do not always make calculated decisions.

1.2.2 Demand

Demand is the ability and willingness to buy a particular good at a given price and at a given moment in time.

Movements and shifts of the demand curve:

- A movement along the demand curve, for example from A to B, is caused by a **change in the price** of the good. A shift of the demand curve, for example D1 to D2, is caused by a **change in any of the factors** which affect demand, the conditions of demand.
- A movement from A to B is a **contraction** in demand, the quantity demanded falls because of an increase in price. A movement from A to C is an **extension** in demand, the quantity demanded rises due to a decrease in price. Movements along the curve are not called increases or decreases- this only occurs when the curve shifts.
- A shift from D1 to D2 is a **decrease** in demand, because fewer goods are demanded at each and every price. For example, at price P only Q2 goods are demanded rather than Q1 goods. A shift from D1 to D3 is an **increase** in demand, as more goods are demanded at each and every price. Now, Q3 goods are demanded at price P.



The conditions of demand:

The conditions of demand are the factors which cause the demand curve to shift. A shift to the right is an increase in demand and a shift to the left is a decrease in demand. One way to remember this is the mnemonic PIRATES.

- **Population:** If population rises, we would expect demand for all products to increase and so the demand curve will shift to the right. This is because the more people there are in the country, the more people who will want a good.
- **Income:** For most goods, if income increases, demand increases because a person can afford to buy more of the product. If there is a fall in income then the demand would decrease and shift to the left. However, for some goods an increase in income can lead to a fall in demand and vice versa, this is a concept called income elasticity of demand.
- **Related goods:** If goods are complements or substitutes of each other then a change in the price of another good can cause a shift in the demand curve. Substitutes are where you either buy one good or the other, for example you either buy a pair of Nike trainers or a pair of Adidas trainers. An increase in the price of Nike trainers would lead to a contraction in demand for Nike trainers and an increase in demand of Adidas trainers, as we would expect people to buy them instead. Complements are goods such as DVDs and DVD players where if you have one, you need the other to go with it. If the price of DVD players drops, demand for DVD players would extend and we would expect the demand curve for DVDs to increase. This is linked to the concept of cross elasticity of demand.

- **Advertising:** If a firm carries out a successful advertising campaign, demand is likely to increase. If a competitor firm carries out a successful advertising campaign, demand for the first firm will fall. A successful advertising campaign by Tesco will increase demand for Tesco but reduce demand for Asda.
- **Taste/fashion:** If something becomes more fashionable, we expect demand to increase and if it becomes less fashionable, then demand will fall.
- **Expectations:** Expectations of what might happen in the future can have a big impact on the level of demand for some goods. If people expect a shortage of something, or that price will rise in the future, then demand for that product will increase. If people expect that price will fall in the future, demand will decrease.
- **Seasons:** Some products will find their demand affected by the weather. For example, hot summers cause an increase in demand for sun cream whilst wet summers cause a decrease in demand for umbrellas.
- Government **legislation** can also have an effect on the demand for goods. Demand for car seats increased after the government made it a legal requirement that young children have to sit in them.

Diminishing marginal utility:

- The demand curve slopes downward, showing the **inverse relationship between price and quantity**. This can be explained by the law of diminishing marginal utility.
- In order to explain or predict how people will spend their money, we have to assume that they are going to **behave rationally**, expecting them to spend it according to what gives them the **greatest level of satisfaction** or welfare.
- **Total utility** represents the satisfaction gained by a customer as a result of their overall consumption of a good e.g. the satisfaction of eating the whole bar of chocolate, whilst **marginal utility** represents the change in satisfaction resulting from the consumption of the next unit of a good e.g. the increased satisfaction by eating another bite of chocolate.
- The Law of Diminishing Marginal Utility states that **the satisfaction derived from the consumption of an additional unit of a good will decrease as more of a good is consumed**, assuming the consumption of all other goods remains constant.
- This explains why the **demand curve slopes downwards**: if more of a good is consumed, there is less satisfaction derived from the good. This means that consumers are **less willing to pay high prices at high quantities** since they are gaining less satisfaction.

Another reason the demand curve is downward sloping is because, in order to maximise their satisfaction with their income, consumers need to spend their money so that the level of satisfaction gained per penny is as great as possible. As a result, they should spend their income so that the marginal utility gained from a good divided by the price is the same for each good i.e. $MU_A/P_A = MU_B/P_B = MU_C/P_C$. Therefore, the curve is downward sloping because if prices rise, the marginal utility per penny falls and so consumers will buy less of that good.

1.2.3 Price, income and cross elasticities of demand

Elasticity of demand is an attempt to measure the responsiveness of quantity demanded to changes in other variables: its own price, the price of other goods and real income. If a good is elastic, it is relatively responsive and if it is inelastic, it is relatively unresponsive

Price elasticity of demand (PED):

This is the **responsiveness of demand to a change in the price of the good**.

$$\frac{\% \text{change in quantity demanded}}{\% \text{change in price}}$$

e.g. If the original price was £5 and 100 were sold and the new price is £3 and 120 are sold, what is the PED?

%change in quantity demanded: $(20/100) \times 100 = 20\%$

%change in price: $(-2/5) \times 100 = -40\%$

PED = $20\% / -40\% = -\frac{1}{2}$

Numerical values:

Most values of PED are negative, since a rise in price leads to a fall in output. Therefore, we look at the integer alone, disregarding the negative sign.

- **Unitary elastic PED** is where **PED=1**: quantity demanded changes by exactly the same percentage as price. This would be shown as a reciprocal curve.
- **Relatively elastic PED** is where **PED>1**: quantity demanded changes by a larger percentage than price so demand is relatively responsive to price. The curve will be more sloping.
- **Relatively inelastic PED** is where **PED<1**: quantity demanded changes by a smaller percentage than price so demand is relatively unresponsive to price. The curve will be steep.
- **Perfectly elastic PED** is where **PED=infinity**: a change in price means that quantity falls to 0 and demand is very responsive to price. This would be shown by a horizontal line
- **Perfectly inelastic PED** is where **PED=0**: a change in price has no effect on output so demand is completely unresponsive to price. This would be shown by a vertical line.

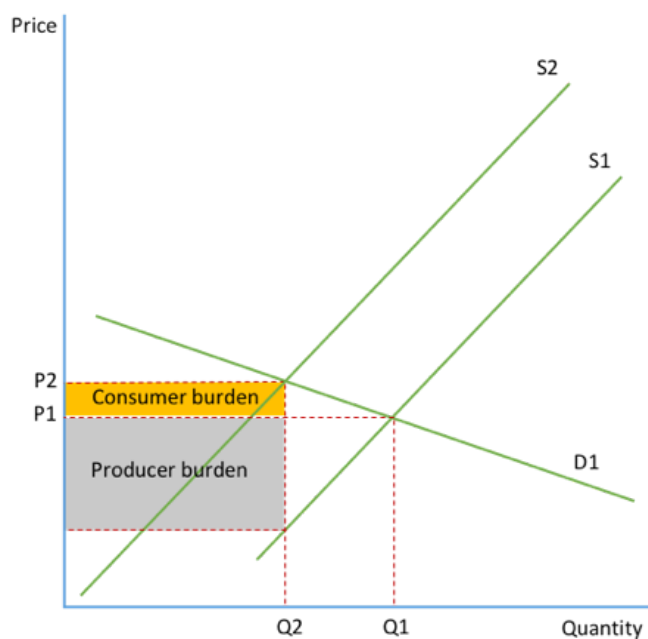
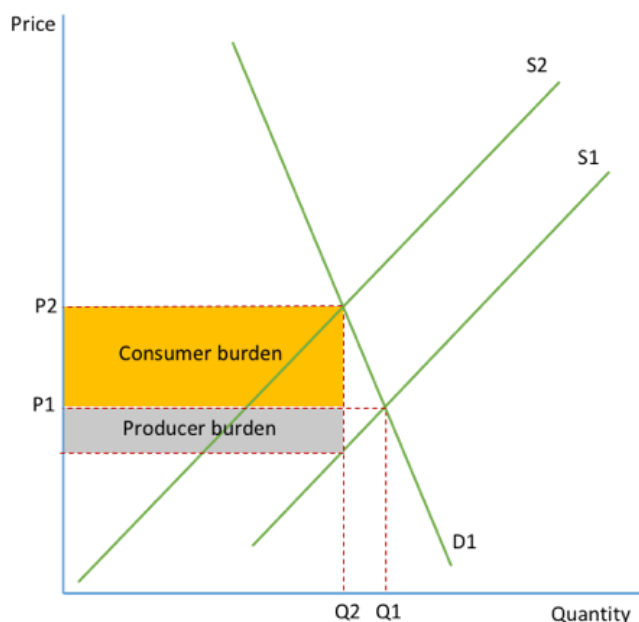
Factors influencing PED:

- **Availability of substitutes:** If a product has lots of substitutes (for example instead of buying Coke you could buy Pepsi), people will switch to other products when prices go up. Therefore, PED will be elastic. If there are no substitutes, then the demand curve will be inelastic since even if prices go up, people will have to buy that good if they want it as there are no alternatives.
- **Time:** The longer the time, the easier it will be for a person to find an alternative product/supplier of the product so the more elastic the good is. In the short term, many goods are inelastic as people may not even notice the price difference.
- **Necessity:** If you need something, the demand curve will be inelastic because even if the price goes up, you still need to buy it.
- **How large of a % of total expenditure:** If a good/service represents a very small percentage of a person's expenditure, a significant increase in price will have a relatively small impact on how much they buy of that product so it will be inelastic e.g. matches.
- **Addictive:** If a product is addictive, then the demand curve will be inelastic. No matter how high prices are, people will still buy the good to fulfill their addiction.

Significance of PED:

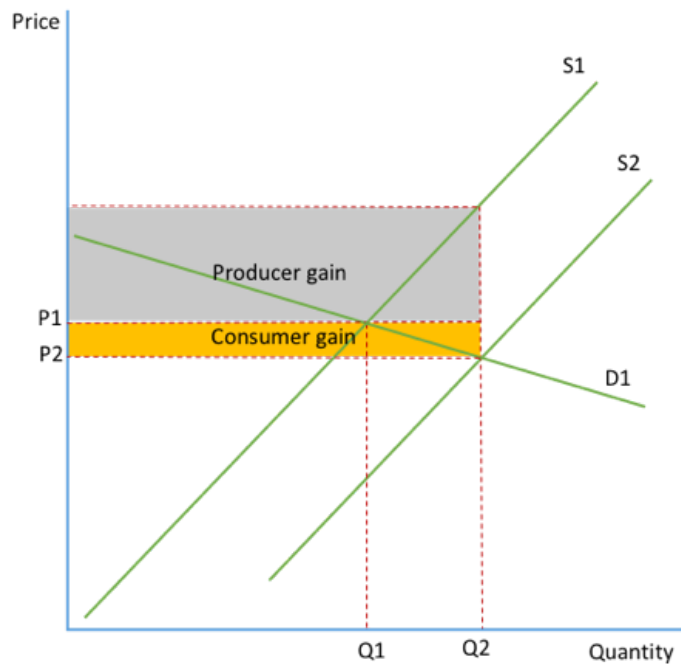
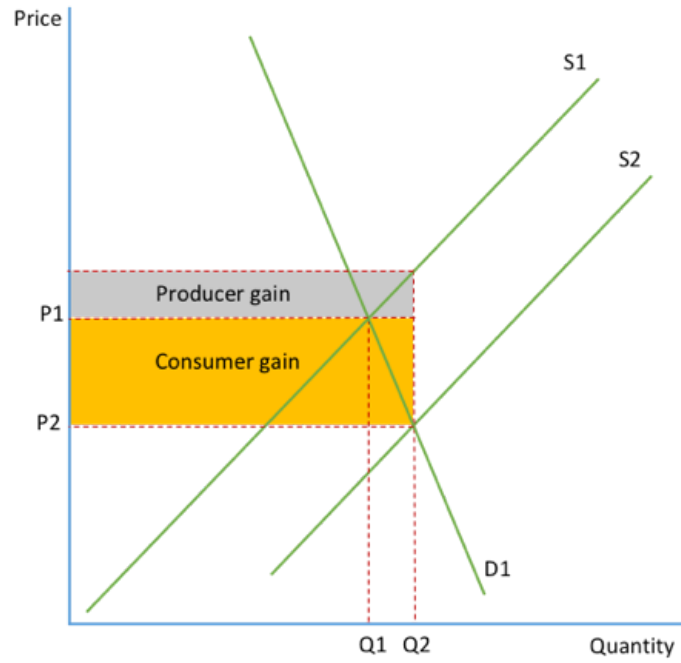
- The price elasticity of demand, along with the price elasticity of supply, determine the **effects of the imposition of indirect taxes and subsidies**.
- The more elastic the demand curve, the lower the **incidence of tax** on the consumer. This means that when PED is elastic, a tax will only lead to a small increase in price and the supplier will have to cover the majority of the cost of the tax.
- When demand is inelastic, the tax will be mainly passed onto the consumer. Since consumers are relatively unresponsive to the price of this good, quantity demanded will not fall by a large amount. This means that the tax will be **ineffective at reducing output**. However, it also means that there is **higher tax revenue for the government**. The more inelastic the demand curve, the higher the tax revenue for the government.

These effects can be seen on the diagrams: the first diagram shows inelastic demand, as the demand curve is steep. The tax leads to a small fall in output but a large increase in price, with a large consumer burden. The second diagram shows elastic demand, as the demand curve is sloping. Output falls significantly and the producer burden is high. These diagrams also show that revenue generated is higher when demand is inelastic.



- With a subsidy, elastic demand means that the consumer sees a small fall in price whilst the producer gains a lot in extra revenue. The more inelastic demand, the **more the price falls**. Elastic demand also means there is a large change in output following a subsidy, whilst inelastic demand means that there is little change in output. Therefore, subsidies on goods with inelastic demand are **ineffective at increasing output**. They are **cheaper for the government to impose** since output increases by less and so the government have to pay the subsidy on less goods.

These effects can also be seen on the diagram. In the first diagram, demand is inelastic and there is a small rise in output but a large fall in price, with little producer gain. In the second diagram, demand is elastic and there is a large rise in output but a small fall in price. They show that the government has to spend more for subsidies on elastic goods.



The shift from S_1 to S_2 on tax diagrams is a result of the imposition of an indirect tax: this raises the cost of production and shifts supply to the left. The opposite occurs with a subsidy. Diagrammatic analysis of indirect taxation and subsidies is looked at in more detail at the end of this unit.

PED and revenue:

- For an **elastic demand curve**: A decrease in price leads to an increase in revenue and an increase in price leads to a decrease in revenue.
- For an **inelastic demand curve**: A decrease in price leads to a decrease in revenue and an increase in price leads to an increase in revenue.
- For a **unitary elastic curve**, a change in price does not affect total revenue.

e.g. PED= -0.5. The firm currently sells 10,000 at a price of £5. What will happen to total revenue if the price falls to £4?

Original total revenue: $10,000 \times £5 = £50,000$

%change in price: $(-1/5) \times 100 = -20\%$

Change in output: $-0.5 = Q / -20\%$

$-0.5 \times 20\% = Q = 10\%$ (by rearranging the PED formula)

New output: 10% of 10,000 = 1000 $10,000 + 1000 = 11,000$ (using the fact that output increases by 10%)

New total revenue: $11,000 \times 4 = 44,000$

Difference in revenue: $44,000 - 50,000 = -6,000$.

Revenue will fall by £6,000

Income elasticity of demand (YED):

This is the **responsiveness of demand to a change in income**.

%change in quantity demanded

%change in income.

Numerical values:

- An **inferior good** is when **YED < 0**: a rise in income will lead to a fall in demand for the good. For example, Tesco Value goods are inferior goods.
- A **normal good** is when **YED > 0**: a rise in income will lead to a rise in demand for the good.
- A **luxury good** is a type of normal good, when **YED > 1**.
- Goods can also be as **elastic or inelastic in income**. If the integer is bigger than one, the good is elastic. If the integer is smaller than one, the good is inelastic and this tends to be necessities.

Significance of YED:

- It is important for businesses to know how their **sales will be affected by changes in the income of the population**. If the economy is improving and people's incomes are rising it is vital that a business knows whether this is likely to increase their sales or not.

- It may have an **impact on the type of goods that a firm produces**. During times of prosperity, firms might produce more luxury goods and less inferior goods.

Cross elasticity of demand (XED):

This is the responsiveness of demand for one product (A) to the change in price of another product (B).

$$\frac{\% \text{change in quantity demanded of A}}{\% \text{change in price of B}}$$

Numerical values:

- **Substitutes** are where $XED > 0$: an increase in the price of good B will increase demand for good A. For example, Coca Cola and Pepsi are substitutes.
- **Complementary goods** are where $XED < 0$: an increase in the price of good B will decrease demand for good A. One example is DVDs and DVD players.
- **Unrelated goods** are where $XED = 0$: a change in the price of good B has no impact on good A.
- The size of the integer represents the strength of the relationship: the larger the number, the stronger the relationship between the two.

Significance of XED:

- Firms need to be aware of their competition and those producing complementary goods. They need to know how **price changes by other firms will impact them** so they can take appropriate action.

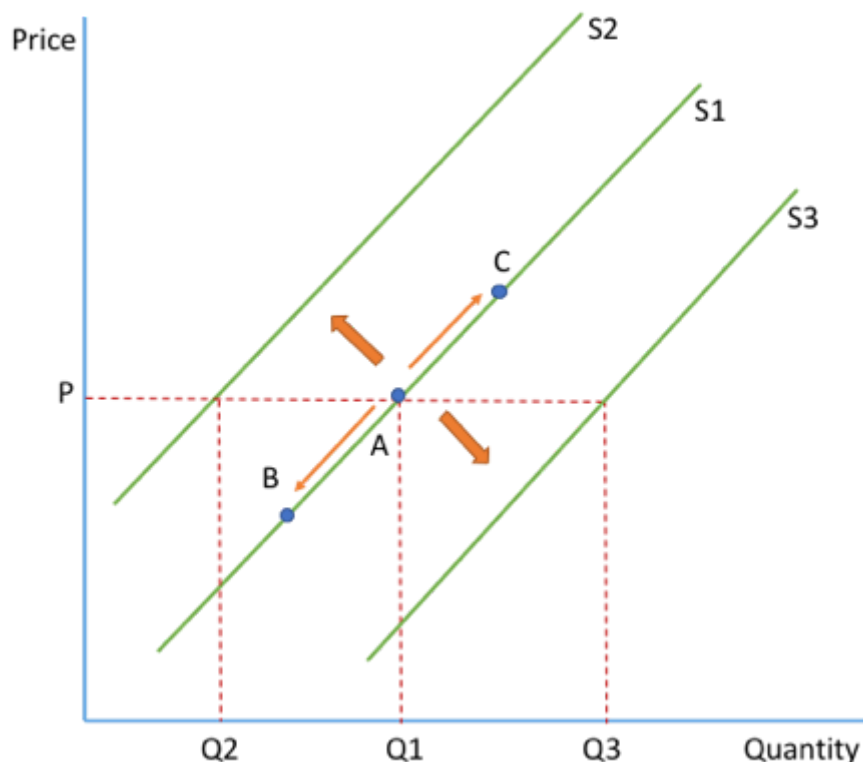
1.2.4 Supply

Supply is the ability and the willingness to provide a good or service at a particular price at a given moment in time.

Movements and shifts of the supply curve:

- A movement along the supply curve, for example from A to B, is caused by a **change in the price** of the good. A shift of the supply curve, for example S1 to S2, is caused by a **change in any of the factors** which affect supply, the conditions of supply.
- A movement from A to B is a **contraction** in supply, the quantity supplied falls because of a decrease in price. A movement from A to C is an **extension** in supply, the quantity supplied rises due to an increase in price. Movements along the curve are not called increases or decreases- this only occurs when the curve shifts.
- A shift from S1 to S2 is a **decrease** in supply, because fewer goods are supplied at each and every price. For example, at price P only Q2 goods are supplied rather than

Q1 goods. A shift from S1 to S3 is an **increase** in supply, as more goods are supplied at each and every price. Now, Q3 goods are supplied at price P.



The conditions of supply:

- **Costs of production:** If a business has an increase in their costs but their selling price stays the same, they will make less money on what they sell. They will put up their prices in order to avoid making a loss and so less is supplied at each price, meaning the supply curve will shift to the left. If they have a decrease in their costs, then it will shift to the right.
- **Price of other goods:** Joint supply is where the production of one good automatically causes the production of another good e.g. the production of beef automatically produces leather. Therefore, if the price of beef rises, farmers will slaughter their cows and so will get more leather, causing a shift to the right and an increase in supply. Competitive supply is where the production of one good prevents the supply of another e.g. if the farmer kills his cows, he can no longer produce the milk. Therefore, the rise in the price of beef may cause a decrease in the supply of milk and a shift to the left.
- **Weather:** For some goods, particularly agricultural goods, the supply is dependent on weather e.g. if the weather is good, more wheat will be produced so the curve will shift to the right. If the weather is bad, the producers won't be able to supply as much wheat and so it will shift to the left.

- **Technology:** If new technology is introduced then it will lead to a fall in production costs as there is higher productive efficiency. This will encourage firms to lower prices or produce more goods for the same price and so the curve will shift to the right. During war or natural disasters, companies may have to use less efficient technology so the supply curve will shift to the left as they produce less at each price.
- **Goals of the supplier:** If a supplier is motivated by helping society and providing a service, they may increase supply even when that doesn't provide extra profit.
- **Government legislation:** If the government passes laws that mean more cars have to have catalytic converters, supply of cars with catalytic converters will increase. High levels of regulation may increase costs and so decrease supply.
- **Taxes and subsidies:** A tax decreases supply and a subsidy increases supply by affecting the costs of production.
- **Producer cartels:** Some firms or countries come together in order to decrease supply and therefore increase the price of their good to increase profit.

The supply curve is **upwards sloping** in most cases because:

- If prices are higher, firms will increase production to take advantage of the high profits they can make. If prices are lower, firms will cut back on any unprofitable production and so supply will decrease.
- Higher prices will encourage new firms to enter, because it seems more profitable, and so output will increase
- To increase production, you will need to use up more resources which will cost more and the only way that you will want to do this is if you are going to receive more money. This assumes that the cost of producing a unit increases as output increases (rising marginal cost).

1.2.4 Elasticity of supply

Price elasticity of supply (PES):

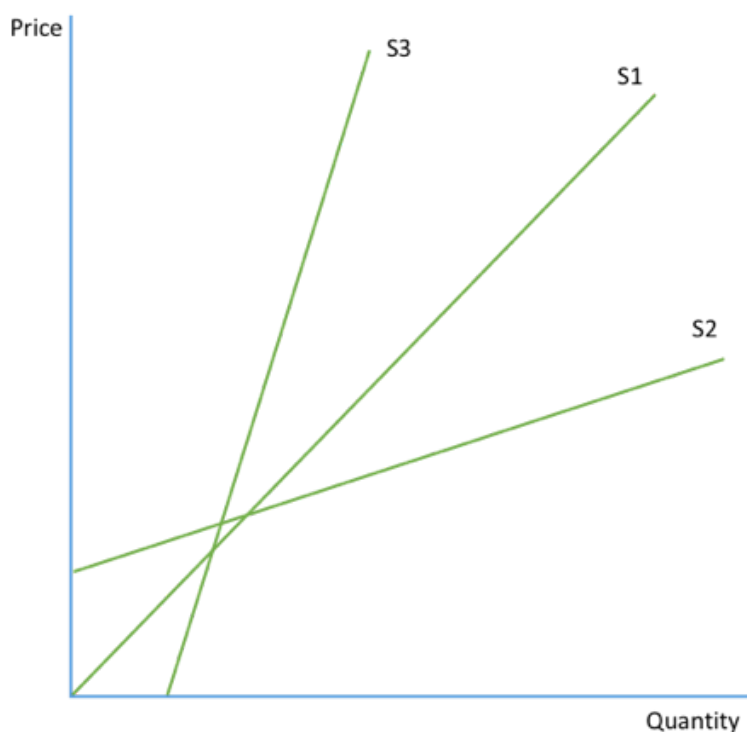
This is the **responsiveness of supply to a change in price of the good.**

$$\frac{\% \text{change in quantity supplied}}{\% \text{change in price}}$$

Numerical values:

- **Unitary elastic PES** is where **PES=1**: quantity supplied changes by exactly the same percentage as price. This would be shown as a curve which starts in the origin, is steeper than an elastic curve but more sloping than an inelastic curve.
- **Relatively elastic PES** is where **PES>1**: quantity supplied changes by a larger percentage than price so supply is relatively responsive to price. The curve will be more sloping, starting on the price axis.
- **Relatively inelastic PES** is where **PES<1**: quantity supplied changes by a smaller percentage than price so supply is relatively unresponsive to price. The curve will be steep, starting on the quantity line axis.
- **Perfectly elastic PES** is where **PES=infinity**: a change in prices means that quantity supplied falls to 0 and supply is very responsive to price. This would be shown by a horizontal line.
- **Perfectly inelastic PES** is where **PES=0**: a change in price has no effect on output so demand is completely unresponsive to price. This would be shown by a vertical line.

The diagram shows the curves with different elasticities. S1 shows a unitary elastic supply curve, S2 shows a relatively elastic supply curve and S3 shows a relatively inelastic supply curve.



Factors affecting PES:

- **Time:** This will have an impact on the amount of a good that can be supplied at any price. In the immediate term, no matter how high the price is, a supplier can only sell the amount of product they have so supply is perfectly inelastic. In economics, the **short term** is the **period of time when at least one factor of production is fixed**

and the **long term** is **when all factors of production are variable**. In the short term, they could sell more products but will still be restricted by the factors of production, meaning it will still be relatively inelastic. In the long term, they can increase production and all factors are variable and therefore the supply curve will be elastic. The longer the period of time the supplier has to make a change and increase production, the more elastic the curve will be.

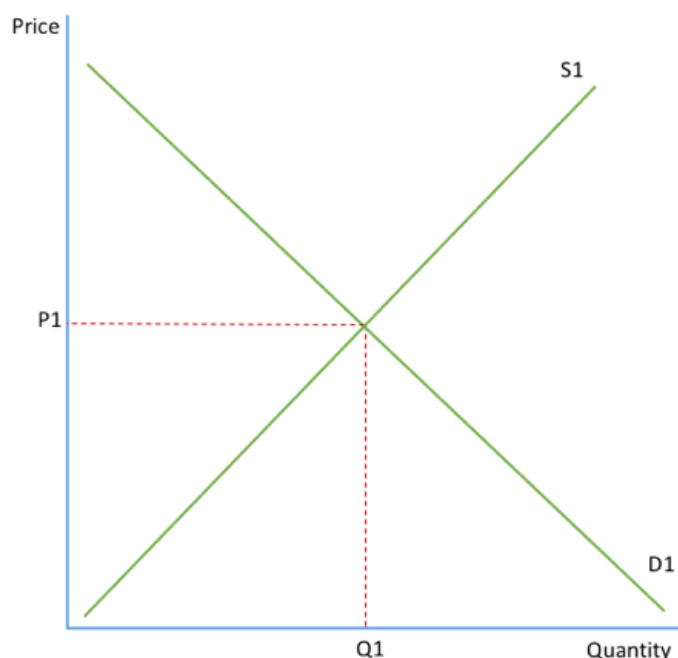
- **Stocks:** If a business has a stockpile of goods, when the price goes up, they will simply decide to use up some or all of their stockpiles and therefore supply will be more elastic.
- **Working below full capacity:** If a business is working below full capacity (e.g. they are producing 50 goods but could produce 100) and there is an increase in price, they can easily respond by producing to their full capacity so the supply curve will be more elastic.
- **Availability of factors of production:** For example, labour may need particular skills or training so cannot be instantly increased. If wages of a doctor rise by a large amount, it would still take years before there would be an increase in the number of doctors so it is inelastic.
- **Ease of entry into the market:** Large costs of start-up equipment could make it difficult to increase supply, which makes it inelastic. Trade unions or professional associations can restrict entry.
- **Availability of substitutes:** If a good has a lot of producer substitutes, it will have high elasticity. One model of car is a substitute for another model of car as producers can easily switch between the two meaning suppliers can alter the pattern of production if price rises or falls so supply will change.

1.2.6 Price determination

Price determination:

The equilibrium point refers to the point at which **there are no more forces bringing about change**. Price equilibrium is where **supply is equal to demand**, so where the demand and supply curves cross. This price is also known as the **market clearing** price because all products supplied to the market are cleared (bought), but no buyers are unable to buy the good. If the price was higher, there would be unsold goods and if the price was lower, there would be consumers who would want to buy the good but would be unable to do so.

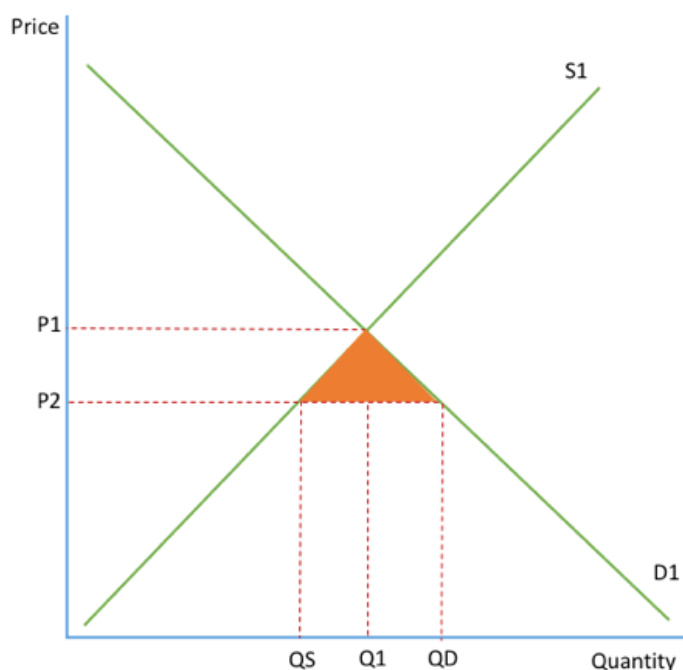
In this example, the market clearing price is P_1 with a quantity of Q_1 .



Excess demand:

If price is set below equilibrium, then there is excess demand. At the price P_2 , suppliers are willing to supply Q_S but consumers demand Q_D , meaning there is excess demand of the orange shaded area.

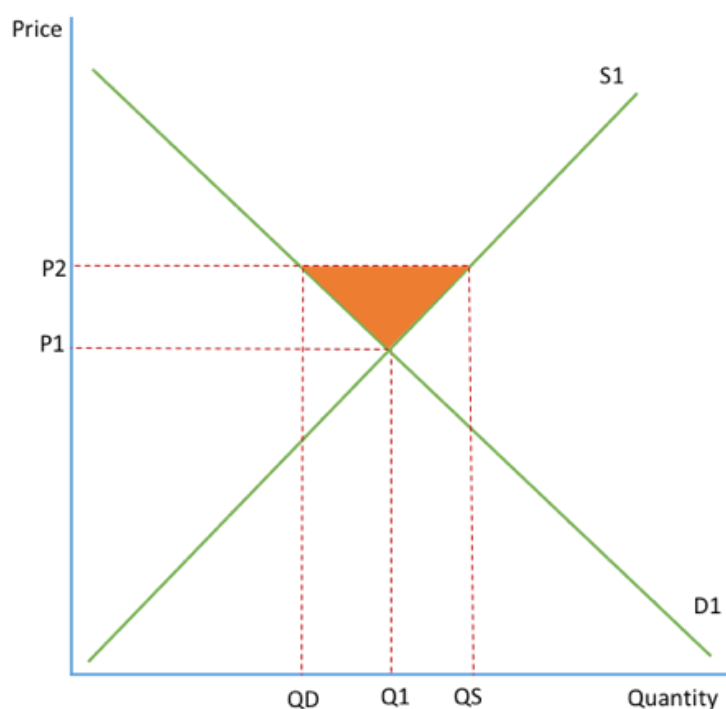
- As a result, there is a shortage in the market. Firms know they can charge higher prices and still sell their goods, so this will cause an extension in supply and they will now charge P_1 for quantity Q_1 . This higher price will lead to a contraction in demand. The prices are now in equilibrium.



Excess supply:

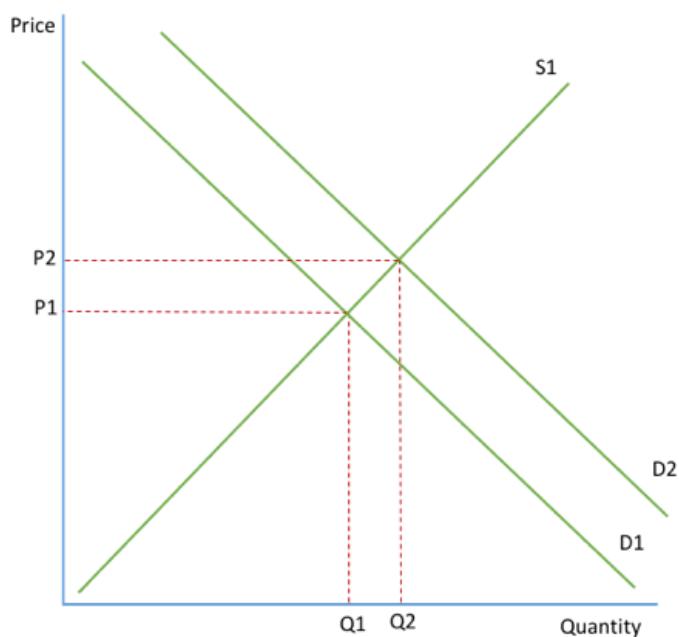
If the price is set higher than the equilibrium, then there is excess supply. At price P_2 , suppliers are willing to supply Q_S but consumers only demand Q_D , meaning there is excess supply of the orange shaded area. Prices would have to fall.

- As a result, firms have unsold goods. This will encourage them to put on sales to sell the excess goods, causing prices to fall and supply to contract to P_1 . As a result, demand will extend to P_1 . The market will now be in equilibrium.

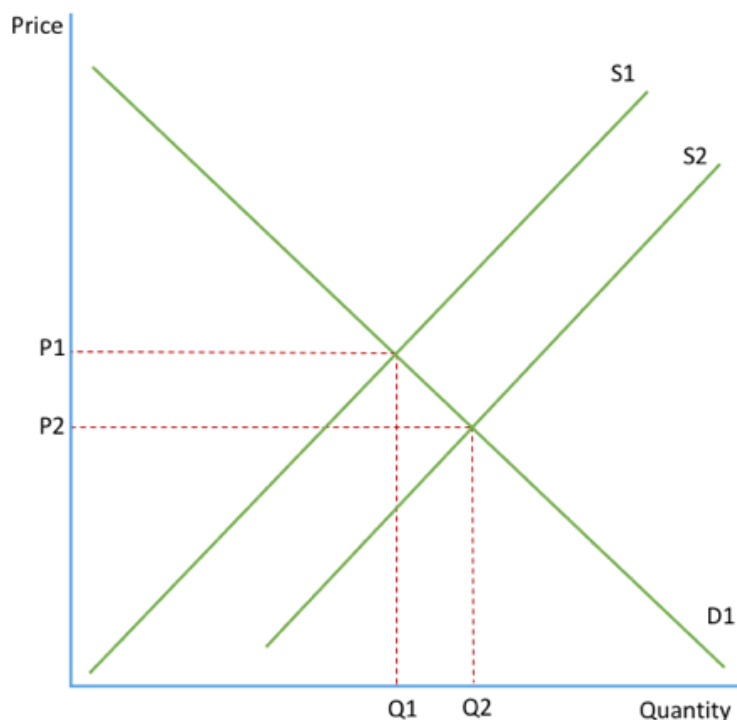


Shifts in demand and supply:

An increase in demand from D_1 to D_2 will lead to an increase in price from P_1 to P_2 and an increase in output from Q_1 to Q_2 . A decrease in demand would decrease price and output



An increase in supply from S1 to S2 will increase output from Q1 to Q2 and decrease price from P1 to P2. A decrease in supply would increase price and decrease output.



1.2.7 Price mechanism

In a free market economy, the price mechanism allocates resources. Price is determined by the interactions of demand and supply, which also determines how much is bought and sold and by whom. Prices rise when buyers want to purchase more than suppliers want to sell, encouraging suppliers to sell more as they will be able to make a higher profit. Adam Smith described the 'invisible hand' of the market, how the price mechanism is able to set price.

- **The rationing function:** The price system is a way of rationing goods because when price increases, some people will no longer be able to afford to buy the product and others may no longer have the desire to buy the good. The limited resources can be rationed and allocated to the people who are able to afford them and those who value them most highly.
- **The signalling function:** The price mechanism acts as a signal where resources should be used. When prices rise, producers move resources into the manufacture of that product. The change in price indicates to suppliers and consumers that market conditions have changed so they should change the quantity bought and sold- when price equilibrium moves, output equilibrium moves with it.
- **The incentive function:** It acts as an incentive for people to work hard. Buyers realise that the more money they have, they are able to buy more products. Suppliers

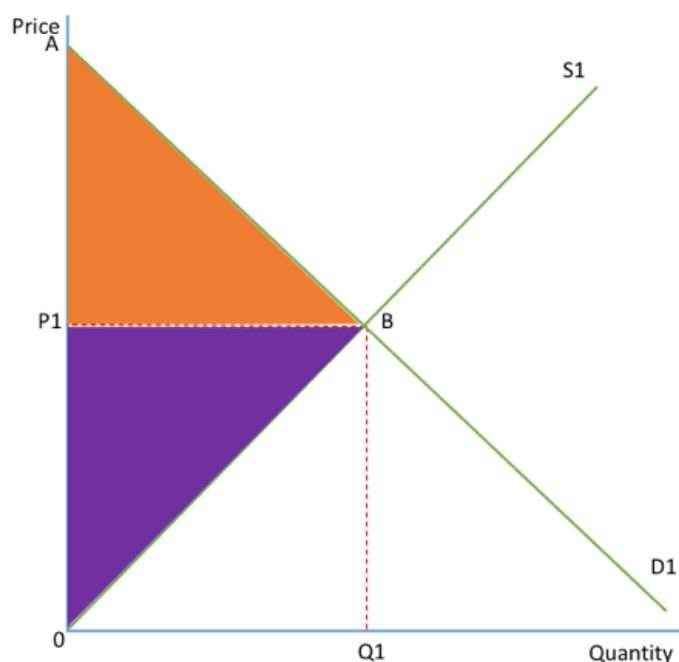
realise that if they produce more of the goods, they will make more money. Also, low prices act as an incentive for consumers to buy more of a good and high prices act as an incentive to suppliers to sell more of a good. The price mechanism encourages people to behave a certain way.

1.2.8 Consumer and producer surplus

Consumer and producer surplus:

Consumer surplus is the difference between the price the consumer is willing to pay and the price they actually pay, set by the price mechanism. This is illustrated by the orange triangle in the diagram, ABP1. The demand curve shows the price consumers are willing to pay, and so the difference between the demand curve and the price shows the consumer surplus.

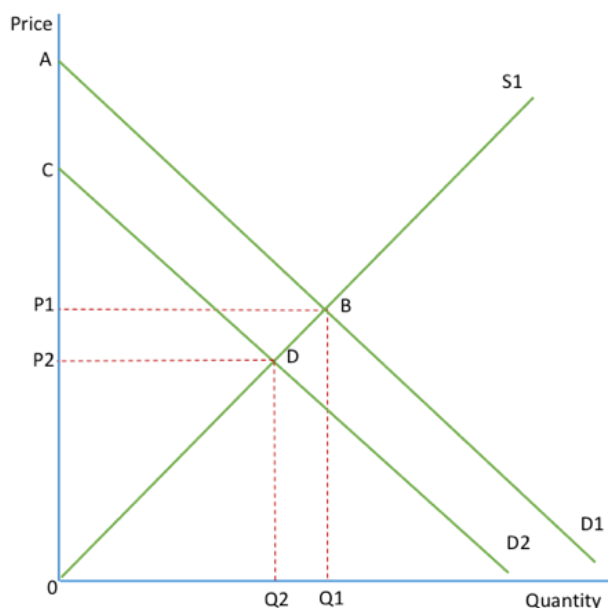
Producer surplus is the difference between the price the supplier is willing to produce their product at and the price they actually produce at, set by the price mechanism. This is illustrated by the purple triangle in the diagram, P1B0. The supply curve shows the price suppliers are willing to sell the good for, and so the difference between the supply curve and the price shows the consumer surplus.



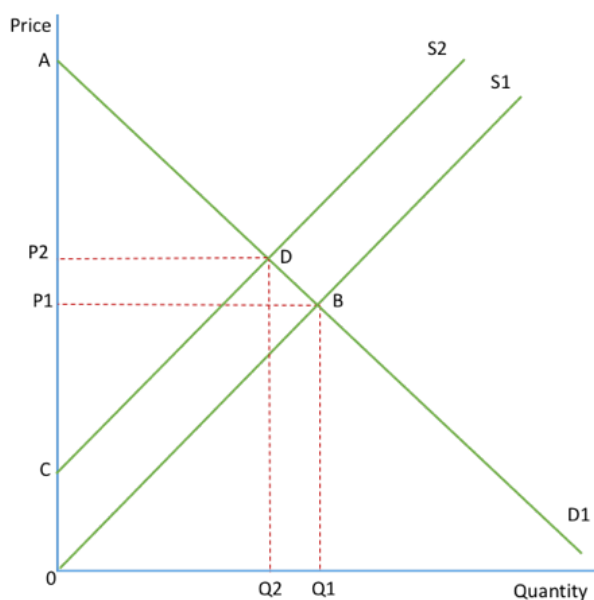
Consumer and producer surpluses show the economic gain from the buying and selling of the good. Consumer surplus shows the welfare gained by consumers for buying the good. The total satisfaction consumers receive from buying the good is the total area under the demand curve: ABQ10. They spend P1BQ10 to gain this satisfaction. Therefore, their net gain is ABP1, the consumer surplus. Similarly, producer surplus shows the economic gain for producers by selling the good.

Perfectly elastic demand will mean that there is no consumer surplus, whilst perfectly inelastic demand will mean that consumer surplus is infinite. The more inelastic demand, the higher consumer surplus is likely to be. When supply is perfectly elastic, producer surplus is 0 and when it is perfectly inelastic, producer surplus is infinite. The more inelastic supply, the higher producer surplus is likely to be.

Shifts of demand and supply:



A **decrease in demand** from D1 to D2 will lead to a **fall in consumer and producer surplus**, as both price and output decrease. Consumer surplus falls from ABP1 to CDP2 and producer surplus falls from P1B0 to P2D0. An **increase in demand** would have the opposite effect and **increase consumer and producer surplus**.



A **decrease in supply** from S1 to S2 will lead to a **fall in consumer and producer surplus**. Consumer surplus falls from ABP1 to CDP2 and producer surplus falls from P1B0 and P2D0. An **increase in supply** would have the opposite effect and **increase consumer and producer surplus**.

Community surplus:

The total welfare to society is the community surplus: consumer surplus plus producer surplus. The price mechanism can be shown to efficiently allocate resources as increasing the welfare of one group will decrease the welfare of another, so community welfare is maximised. Any other price/output combination will have the same community surplus. As a result, the price mechanism fulfills pareto criterion.

Synoptic point:

Macroeconomic policies can be assessed by considering their effect on producer and consumer surplus. For example the use of tariffs leads to a loss of consumer surplus.

1.2.9 Indirect taxes and subsidies

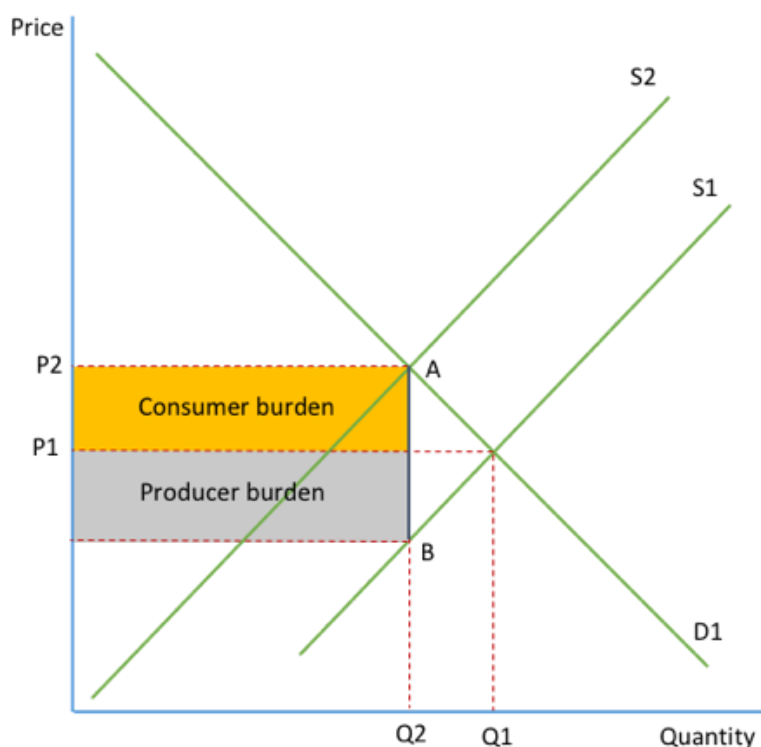
Indirect taxes:

An indirect tax is a **tax on expenditure** where the person who is ultimately charged the tax is not the person responsible for paying the sum to the government. The business is required to pay the tax but the customer is charged instead. There are two types of indirect tax:

- Ad valorem tax is where the tax payable increases in proportion to the value of the good. The tax is a percentage of the cost of the good, for example VAT.
- Specific tax is where an amount is added to the price. The tax increases with the amount bought rather than the value of goods. For example, excise duties on alcohol, tobacco and petrol are a specific amount (e.g. 10p a litre).

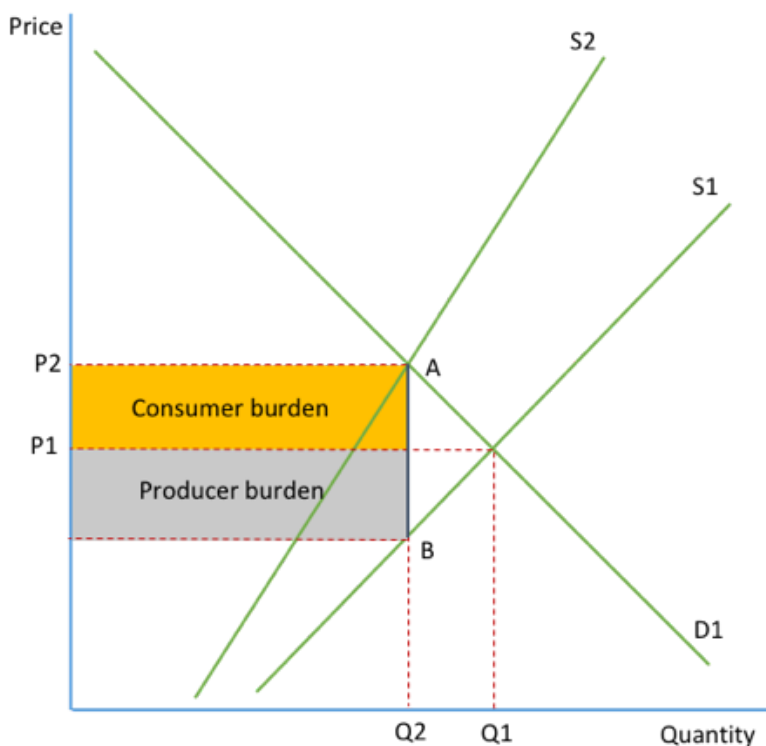
Impacts of a tax:

The diagram shows a specific tax. The introduction of the tax causes supply to shift from S1 to S2 because it leads to an increase in the cost of production. This leads to a rise in price from P1 to P2 and a fall in output from Q1 to Q2. The consumer sees higher prices and suffers from a tax burden of the orange area. The producer sees a rise in costs and a fall in output, suffering from the tax burden of the grey area. The government gains tax revenue of the shaded areas. The size of the tax is the vertical distance between S1 and S2, shown by the line AB. The revenue the government raises will be equal to $AB \times Q2$.



This diagram shows an ad valorem tax. The effects are the same but the supply curve shifts and tilts, so that the gap between S1 and S2 grows. This is because the tax is a percentage

of the value. When the price is small, the tax will only be a small amount but when the price is high, the tax will be a large amount. The vertical distance between the curve represents the size of the tax, and so the distance grows since the tax grows.



Price (£)	Quantity demanded	Quantity supplied	Quantity supplied after tax
10	100	1100	900
9	200	1000	800
8	300	900	700
7	400	800	600
6	500	700	500
5	600	600	400
4	700	500	300
3	800	400	200
2	900	300	100

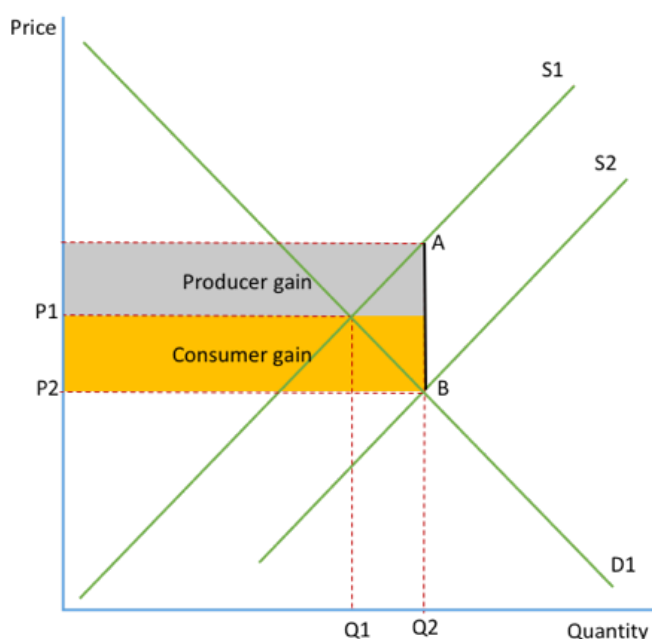
This table shows the effect of a £2 tax being imposed. The initial equilibrium price was £5. With the new tax, when the business charges £5 for their product they only get £3 as £2 is passed onto the government. As a result, if they are charging £5 with the tax, they are only willing to supply the same amount they were willing to if the price was £3 without the tax. Quantity supplied moves up two boxes in the table, and the equilibrium price is now £6 where quantity demanded is equal to quantity supplied after tax. This means that the incidence on the consumer is only £1 of the tax and the supplier is also only paying £1.

The incidence of tax:

- The incidence of tax is the **tax burden on the taxpayer**.
- If the demand curve (PED) is perfectly elastic, or the supply curve (PES) is perfectly inelastic, the **supplier will pay all the tax**. If the demand curve is perfectly inelastic, or the supply curve is perfectly elastic, **all the tax will be passed on to the consumer**.
- In general, the more elastic the demand curve, or the more inelastic the supply curve, the **lower the incidence of tax on the consumer**, meaning the supplier has to pay more.
- This means that, all other things being equal, the more inelastic the demand curve, the higher the revenue of tax for the government because quantity demanded falls less and the more goods that are bought, the **higher the tax revenue**.

Subsidies:

A subsidy is a **grant given by the government** and is the opposite of a tax, an extra payment to encourage production/consumption of a good or service. They could be given to necessities e.g. bread, companies employing disadvantaged workers or those manufacturing in the UK to keep them competitive with imported goods.



The diagram shows an increase in supply from S1 to S2, since the producer sees a fall in production costs due to the subsidy. As a result, there is a rise in output from Q1 to Q2 and a fall in price from P1 to P2. The consumer subsidy is the orange box and the producer subsidy is the grey box. The total shaded area represents government spending: this is equal to the size of the subsidy (AB) times the new output (Q2).

Synoptic point:

Taxes and subsidies can have macroeconomic effects. For example, subsidies can be used to encourage exports or protect domestic industries whilst indirect taxes can be regressive. Both will have implications on the government budget.

1.2.10 Alternative views of consumer behaviour

The underlying assumptions for all rational decision making is that customers aim to maximise utility, companies aim to maximise profit and governments aim to maximise welfare of citizens. However, people do not always behave rationally and this occurs for three main reasons:

- **Influences of other people:** Rationality assumes people act individually to maximise their own benefits but sometimes individuals are influenced by social norms, known as a bias. For example, someone may buy something to 'fit-in' or because everyone else has it, and so they are expected to too. Consumers become unwilling to change the bias, even if doing so will benefit them, if it goes against the norms of society. 'Herding behaviour' occurs when an individual copies the actions of a large group. One example is the stock market, and this causes huge market bubbles.
- **Influence of habitual behaviour:** Most people have habits and these habits reduce the amount of time it takes to do something, because consumers no longer have to consciously think about their actions. Habits create a barrier to decision making since they limit or prevent consumers considering an alternative. Habitual behaviour includes addictions and so this influences people's decisions, for example consumers will buy more drugs/alcohol even though they know they should give up. Another habit many consumers have is buying their products at eye level so supermarkets tend to keep higher priced products near the top and lower priced products lower.
- **Consumer weakness at computation:** Many consumers aren't willing or able to make comparisons between prices and so they will buy more expensive goods than needed, for example many customers buy multipack goods because they assume they are cheaper but this is not always the case. Also, consumers are sometimes poor at self-control and so do things they know they shouldn't. Similarly, consumers will make decisions without looking at the long term effects, and so make irrational decisions. One example of this is consumers saving up for their pensions: many put off doing this because they fail to look long term.