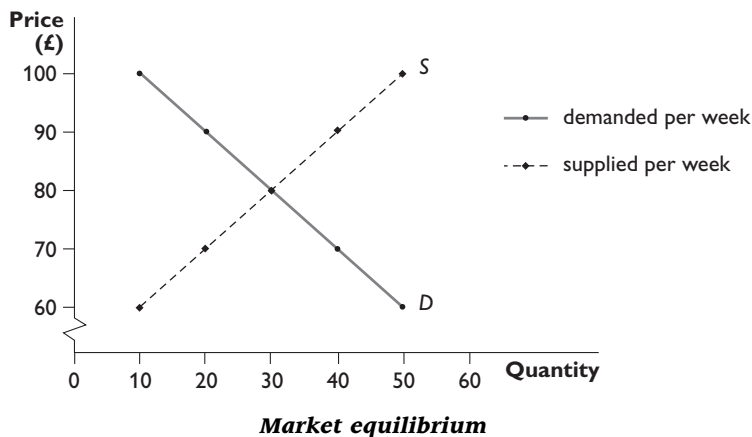


What determines the price of a good or service in a market?

Equilibrium in a market

Equilibrium means there is a balance in the market, with no tendency for price or output to change. The equilibrium price and quantity of a good are obtained from the point of intersection between the demand and supply curves. In the table and figure below, the equilibrium price is £80 per unit and the quantity is 30 units per week.

Price	Quantity demanded per week	Quantity supplied per week
£100	10	50
£90	20	40
£80	30	30
£70	40	20
£60	50	10



Excess supply and excess demand

In a free market, price cannot remain above or below the equilibrium position for long. For example, at a price of £100 there is an **excess supply** of 40 units. In order to sell the surplus, producers tend to reduce price and this encourages consumers to buy more. Demand extends and supply contracts until the equilibrium price of £80 is reached.

At a price of £60 there is an **excess demand** of 40 units. Consumers tend to bid up the price in order to obtain the good and this encourages producers to supply more. Supply extends and demand contracts until the equilibrium price of £80 is reached. Thus, the price mechanism automatically eliminates surpluses and shortages of a good, something that Adam Smith referred to as the 'invisible hand' of the market.

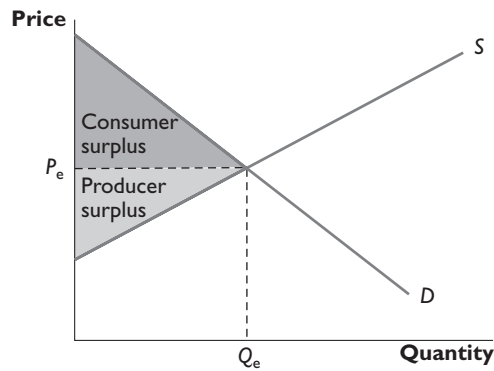
Consumer and producer surplus

Consumer surplus is the extra amount of money consumers are prepared to pay for a good or service above what they actually pay. It is the utility or satisfaction gained from a good or service in excess of that paid for it.

Producer surplus is the extra amount of money paid to producers above what they are willing to accept to supply a good or service. It is the extra earnings obtained by a producer above the minimum required to supply the good or service.

The areas of consumer and producer surplus are shown in the diagram. Consumer surplus is the area above the equilibrium price but below the demand curve; producer surplus is the area below the equilibrium price and above the supply curve.

Note that a shift in the demand or supply curve, leading to a new market price, will cause the amount of both consumer and producer surplus to change.



Consumer surplus and producer surplus

Functions of the price mechanism

Price is the exchange value of a good or service. The **price mechanism** refers to the way price responds to changes in demand or supply for a product or factor input, so that a new equilibrium position is reached in a market. It is the principal method of allocating resources in a market economy. The price mechanism has several functions:

- **A rationing device.** Resources are scarce, which means that the goods and services produced from them are limited in supply. The price mechanism allocates these goods and services to those who are prepared to pay the most for them. In effect, price will rise or fall until equilibrium is reached between the quantity demanded and quantity supplied.



- **An incentive device.** Rising prices tend to act as an incentive to firms to produce more of a good or service, since higher profits can be earned. Rising prices also mean firms are able to cover the extra costs involved with increasing output.
- **A signalling device.** The price mechanism indicates changes in the conditions of demand or supply. For example, an increase in demand for a good or service raises its price and encourages firms to expand their supply, while a decrease in demand lowers the price and causes firms to contract their supply. Consequently, more or fewer resources are allocated to the production of a particular good or service.

How might a change in the price of a good or service be explained?

Any of the factors which may shift demand or supply curves will lead to a change in price of a good or service. The role of indirect taxes and subsidies in influencing price is now considered in more detail.

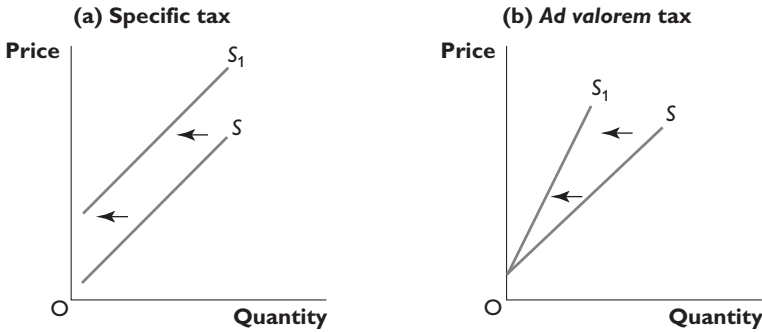
Indirect taxes

A tax is a compulsory charge made by the government, on goods, services, incomes or capital. The purpose is to raise funds to pay for government spending programmes. There are two types of tax: direct and indirect.

A **direct tax** is levied directly on an individual or organisation. Direct taxes are generally paid on incomes: for example, personal income tax and corporation tax (on company profits).

An **indirect tax** is usually levied on the purchase of goods and services. It represents a tax on expenditure. There are two types of indirect tax: specific and *ad valorem* taxes. A specific tax is charged as a fixed amount per unit of a good, such as a litre of wine or a packet of cigarettes. An excise tax is a good example. An *ad valorem* tax is charged as a percentage of the price of a good: for example, VAT of 17.5% is added on to restaurant meals.

The imposition of an indirect tax raises the price of a good or service. The tax is added to the supply price, effectively causing the supply curve to shift vertically upwards and to the left (a decrease in supply). A **specific tax** causes a parallel shift of the supply curve to the left, as shown in part (a) of the following diagram. An ***ad valorem* tax** causes a pivotal rotation of the supply curve to the left, as shown in part (b).



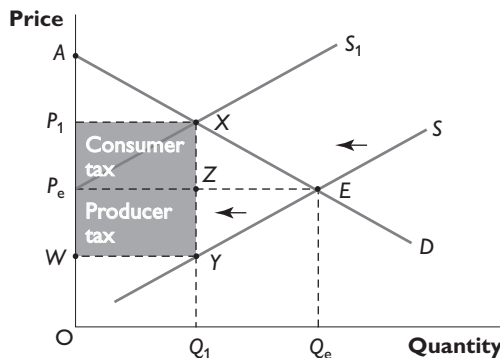
The incidence of an indirect tax

The tax incidence usually falls partly on consumers and partly on producers, depending on the relative price elasticities of demand and supply for the good or service. A combination of price inelastic demand and price elastic supply tends to place most of the tax burden on consumers; addictive goods such as tobacco and alcohol tend to be price inelastic in demand. This means that firms are able to pass most of the burden of tax on to consumers via higher prices.

However, a combination of price elastic demand and price inelastic supply tends to place most of the tax burden on the producers. It may also lead to a significant reduction in output and employment. Consequently, a government may be reluctant to place high indirect taxes on these types of goods or services.

The figure below shows the effects of a specific tax on a good that is price inelastic in demand. Before the tax, equilibrium price is P_e and quantity Q_e . After the tax is imposed, the supply curve shifts to S_1 and the equilibrium price rises to P_1 while quantity falls to Q_1 . The total tax area is $XYWP_1$.

The incidence of tax paid by consumers is shown by the actual rise in market price from P_e to P_1 . Consumers pay the amount of tax shown by the area XZP_eP_1 . The tax paid by producers is the remaining area $ZYWP_e$.



The incidence of taxation



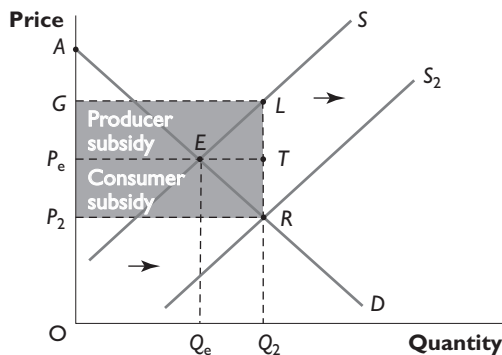
Subsidies

A **subsidy** is a grant, usually provided by the government, to encourage suppliers to increase production of a good or service, leading to a fall in its price. Bus and train companies are often given subsidies in order to increase the number of bus and train services, which benefits both the firms and consumers.

A subsidy is often paid directly to producers, but as they respond by increasing output, the market price falls and this indirectly passes on some of the gain to consumers. If demand is price inelastic, then the market price falls by a relatively large amount, increasing the benefits to consumers. If demand is price elastic, then market price falls by a relatively small amount and so there is less gain for consumers. The diagram below shows the imposition of a government subsidy for a good.

Before the subsidy, equilibrium price is P_e and Q_e . After the subsidy is imposed, the supply curve shifts to S_2 and equilibrium price falls to P_2 while the quantity rises to Q_2 . The total subsidy area is $RLGP_2$.

The amount of subsidy that consumers gain is shown by the actual fall in market price from P_e to P_2 . They gain by paying a lower price for the good. The consumer subsidy area is RTP_eP_2 . The remaining subsidy area of $TLGP_e$ represents the gain made by producers.



A government subsidy to producers

What determines the wage rate in a labour market?

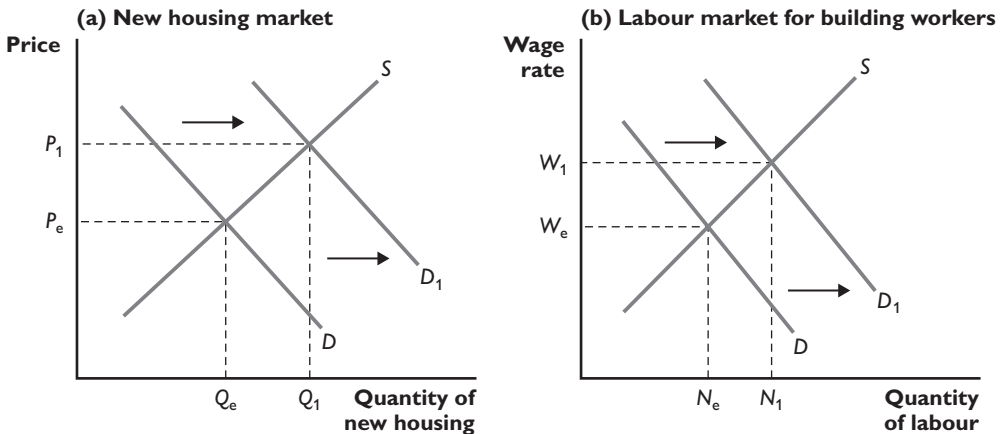
In a competitive labour market the wage rate is determined by the interaction of demand and supply. The demand for labour is undertaken by firms, which require workers to help produce goods and services. The supply of labour comes from the general population and, in particular, the workforce of an economy.

In practice there are many different types of labour market: for example, shop assistants, kitchen chefs and lawyers. Labour markets also include public sector workers where the government is a major employer of labour: for example, teachers, nurses and police officers.

The demand for labour

The demand for labour is a **derived demand**. It is derived from the demand for the goods and services it makes. For example, the demand for building workers is derived from the demand for new housing.

The figure below shows how an increase in demand for new housing will cause an increase in demand for building workers, such as bricklayers and carpenters. The effect is to increase the wage rate from W_e to W_1 and the quantity employed from N_e to N_1 .



An increase in demand for new housing and building workers

There are several key determinants of the demand for labour:

- **Demand for the final product.** An increase in demand for a good or service is likely to cause an increase in demand for the labour involved in making it. Firms have a profit incentive, if demand and prices increase, to supply more of a good or service.
- **The wage rate.** A fall in the wage rate means that labour becomes more affordable and so firms are likely to demand more labour.
- **Other labour costs.** For example, a fall in employers' national insurance contributions on behalf of their staff is likely to raise the quantity demanded.
- **Price of other factor inputs.** An increase in the price of capital might encourage firms to employ more labour and cut back on the use of machinery and equipment where possible. This is because labour and capital may be substitutes in the production process.
- **Productivity of labour.** An increase in output per worker may lead to higher revenue and profits, encouraging firms to employ more people.



- **Government employment regulations.** The fewer the number of regulations, the greater the demand for labour is likely to be. For example, if it becomes easy to hire and fire staff or to change working conditions, then the increased labour flexibility may encourage firms to employ more people. However, a national minimum wage (NMW) set above the free-market wage may cause a decrease in the quantity of labour demanded.

The supply of labour

This refers to the quantity and quality of labour hours offered for work over a given time period. There are various factors which determine the supply of labour, namely:

- **The wage rate.** An increase in the wage rate will encourage more people to offer their services for work. A higher wage rate means the opportunity cost of leisure time increases, encouraging people to work longer hours.
- **Other net advantages of work.** Improvements in working conditions will also tend to increase the supply of labour: for example, a good pension, paid holidays, job security and promotion prospects.
- **Net migration.** Over recent years the UK has experienced a significant increase in immigration from central and eastern Europe, helping to boost the economy.
- **Income tax.** A reduction in income tax will increase disposable incomes and so offer a greater incentive for people to work. Many people will substitute work for leisure time, increasing the supply of labour.
- **Benefit reform.** A reduction in benefits (e.g. incapacity benefit, housing benefit and the jobseeker's allowance) may provide a greater incentive for people to look for work and so increase the supply of labour.
- **Trade unions.** Trade unions act to increase wage rates and improve other working conditions through collective bargaining with employers. This may encourage an increase in the supply of labour.
- **Government regulations.** An increase in employment protection or the introduction of a national minimum wage will tend to improve working conditions and so increase the supply of labour. However, it is also possible that government regulations reduce the supply of labour (for example, the EU Work Time Directive limits the maximum hours of work per week to 48 for most employees).
- **Social trends.** There has been a significant increase in the number of women in the workforce over the past 40 years. This reflects an improvement in equal opportunities, childcare facilities and social attitudes.

Examination skills and concepts

- Drawing a demand and supply diagram to show equilibrium price and quantity.
- Explaining the meaning of excess demand and excess supply.
- Distinguishing between movement along and shifts in demand and supply curves.
- Drawing a diagram to show increases and decreases in demand.
- Drawing a diagram to show increases and decreases in supply.
- Drawing a diagram to show the areas of consumer surplus and producer surplus.

- Applying the factors that can cause shifts in demand and supply curves to various markets.
- Drawing a diagram to show the effects of an indirect tax and to identify the areas of consumer and producer tax.
- Drawing a diagram to show the effects of a subsidy and to identify the areas of consumer and producer subsidy.
- Being able to calculate the total tax area and subsidy area by use of tabular data, rather than diagrams.
- Drawing a diagram to show the effects of a national minimum wage.

Common examination errors

- Confusion between excess demand and excess supply.
- Failing to label a demand and supply diagram properly or to integrate it into the text.
- Incomplete definitions of consumer surplus and producer surplus.
- Incorrect drawing of the tax area following the imposition of an indirect tax on a good.
- Confusion of consumer tax area and producer tax area.
- Incorrect drawing of the subsidy area following the imposition of a subsidy on a good.
- Confusion of consumer subsidy area and producer subsidy area.

Links with other topics

The price mechanism permeates the whole specification and you can expect to apply the model to any of the units. There are strong links with the following topics:

- Elasticity (Unit 1).
- External costs and benefits (Unit 1).
- Aggregate demand and aggregate supply curves, supply-side and demand-side policies (Unit 2).
- Foreign currency markets (Unit 4).

Why do some markets fail?

Market failure occurs when the price mechanism causes an inefficient allocation of resources; the forces of demand and supply lead to a net welfare loss in society. Consequently, resources are not allocated to their best or optimum use.

There are various types of market failure and you may come across different classifications in your textbooks. However, the Edexcel Unit 1 specification focuses on the following: externalities, public goods, imperfect market information, labour immobility and unstable commodity markets.

Externalities

Externalities are those costs or benefits which are external to an exchange. They are third party effects ignored by the price mechanism.

Externalities are also known as *indirect costs* and *benefits*, or as *spillovers from production* or *consumption* of a good or service. In effect, external costs are *negative externalities* and external benefits are *positive externalities*.

External costs

External costs may occur in the production and the consumption of a good or service. An example of an external cost in production is a chemical firm polluting a river with its waste. This causes an external cost to the fishing and water supply industries. Fish catches may be reduced and it may become very expensive to purify water to meet the European Commission's safety standards.

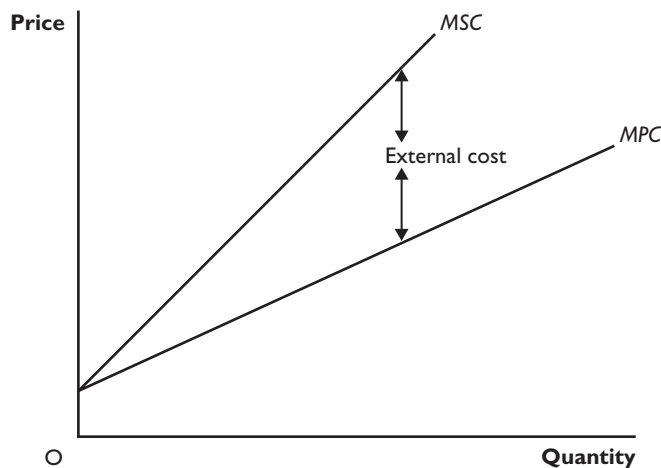
An example of an external cost in consumption is a person smoking tobacco, polluting the air for others. The effect is to cause passive smoking, where non-smokers may suffer the same illnesses as smokers.

Private costs

In a free market, producers are only concerned with the private costs of production. These are costs internal to the firm, which it directly pays for. These costs include wages for workers, rent of buildings, payment for raw materials, machinery costs, electricity and gas costs, insurance, packaging and transport costs from running lorries. Private costs may also refer to the market price that a consumer pays for a good or service.

Social costs

By adding private costs to external costs we obtain social costs. This means that external costs are the difference between private costs and social costs. The marginal private cost and marginal social cost curves often diverge, indicating that external costs increase disproportionately with output. However, it is possible that external costs per unit of output remain constant, in which case the marginal private cost and marginal social cost curves are drawn parallel to each other. The relationship between private cost, external cost and social cost is shown below.



The relationship between private cost, external cost and social cost in the production of a good

Note that the Edexcel specification focuses on diagrammatic analysis of external costs in production.

External benefits

External benefits may occur in the production and consumption of a good or service. An example of an external benefit in production is the recycling of waste materials such as newspapers, glass and tins. It has the benefit of reducing the amount of waste disposal for landfill sites as well as re-using materials for production. It helps to promote sustainable economic growth.

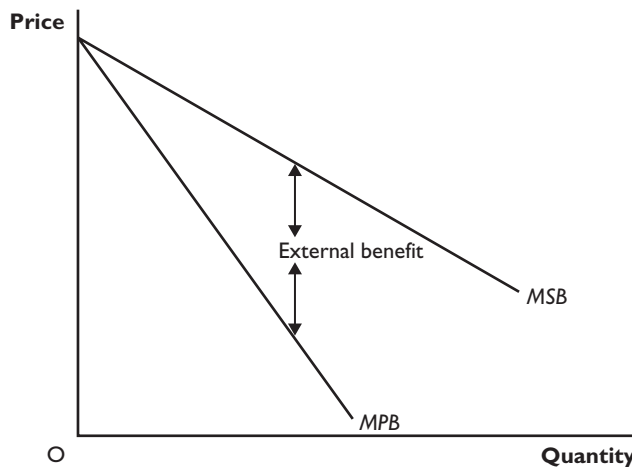
An external benefit in consumption is the vaccination of an individual against various diseases. It reduces the possibility of other people catching a disease who come into contact with the vaccinated individual.

Private benefits

In a free market, consumers are only concerned with the private benefits or utility from consuming a good or service. Economists assume this can be measured by the price that consumers are prepared to pay for a good or service. Private benefits may also refer to the revenue that a firm obtains from selling a good or service.

Social benefits

By adding private benefits to external benefits we obtain social benefits. This means external benefits are the difference between private benefits and social benefits. The marginal private benefit and marginal social benefit curves often diverge, indicating that external benefits increase disproportionately with output consumed, as shown in the diagram. However, it is possible that external benefit per unit consumed will remain constant, in which case the marginal private benefit and marginal social benefit curves are drawn parallel to each other.



The private benefits, external benefits and social benefits from the consumption of a good

Note that the Edexcel specification focuses on diagrammatic analysis of external benefits in consumption of goods and services.