

### 2.11. Government policies to address market failure

These include:

Microeconomic policy measures:

1. Maximum price below equilibrium
2. Minimum price above equilibrium
3. Indirect taxation
4. Subsidies
5. Regulations
6. Privatisation
7. Nationalisation
8. Direct provision of goods
9. Provision of information

We will now explain each in turn:

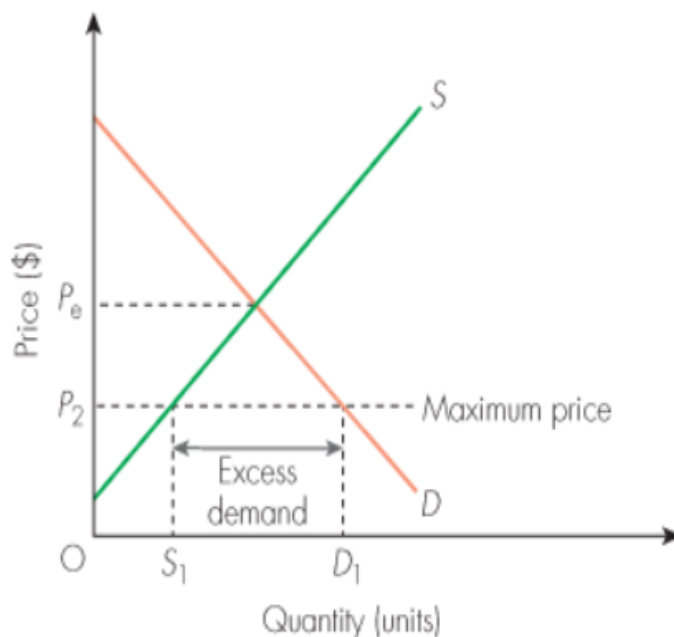
#### 1. Maximum price below equilibrium

Maximum price is a price set **by the government** below equilibrium above which a good or service may not be sold.

A maximum price below equilibrium is set for the following reasons:

- to promote the consumption of a **merit good** by holding down its price (rented housing or agricultural goods)
- to protect consumers from exploitation by aggressive firms.

A diagram showing the impact of a maximum price.



Price decrease from  $P_e$  to  $P_2$

Quantity supplied **contracts** from  $Q$  to  $S_1$  (at the lower price less is supplied)

Quantity demanded **extends** from  $Q$  to  $D_1$  (at the lower price more is demanded)

Excess demand from  $S_1$  to  $D_1$

Benefit of a maximum price:

- some consumers will benefit as they will be able to purchase the good/service at the lower (maximum price) price
- a maximum price on a country's exchange rates can improve international price competitiveness (a depreciated exchange rate)

Drawbacks

- some consumers will be worse off as they will not be able to obtain the good as there is less supplied at the lower price
- market failure as the optimal amount is not produced by the market
- there may be queues outside shops as shortages are present (excess demand)
- seller may decide on other criteria than price (usually unfair) as a means of allocating the good

Video – Friends

In Dublin, there are rent controls on apartments. Draw a diagram to illustrate this and discuss the benefits of such a scheme.

Advantages:

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Disadvantages:

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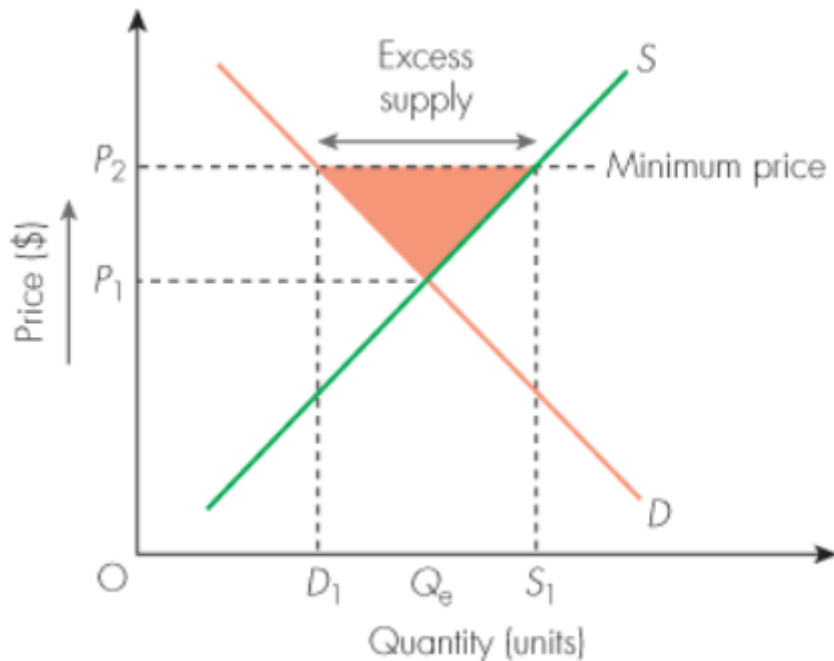
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## 2. Minimum price above equilibrium

### Definition:

Minimum price is a price set **by the government** above equilibrium below which a good or service may not be sold.



Price increase from  $P_1$  to  $P_2$

Quantity supplied extends from  $Q_e$  to  $S_1$  (more is supplied at the higher price)

Quantity demanded contracts from  $Q_e$  to  $D_1$  (less is demanded at the higher price)

Excess supply from  $D_1$  to  $S_1$

A minimum price above equilibrium is set for the following reasons:

### In **agricultural markets**:

- Increasing the output of (**merit**) goods that are under produced, therefore remedying market failure
- To reduce price fluctuations for farmers.

In **labour markets** (in labour markets minimum price is a **minimum wage**):

### Advantages

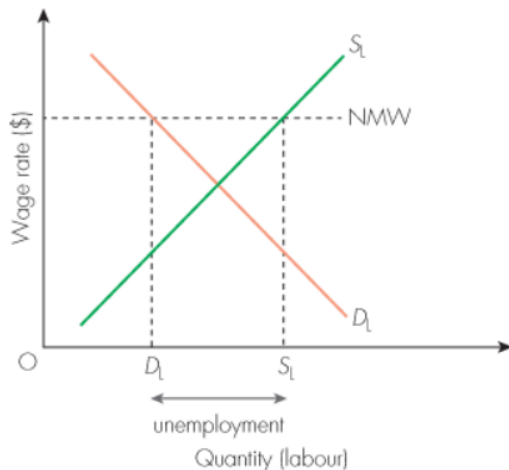
- to increase the amount of people that want to work and therefore decrease market failure
- reduces poverty by raising the living standard of the lowest paid workers
- prevents exploitation of workers who have poor bargaining strength in the labour market i.e. no access to trade unions

- a minimum wage raises the income of the poorest who spend all their income on goods and services. This increases demand in the economy and therefore decreases unemployment

### Drawbacks

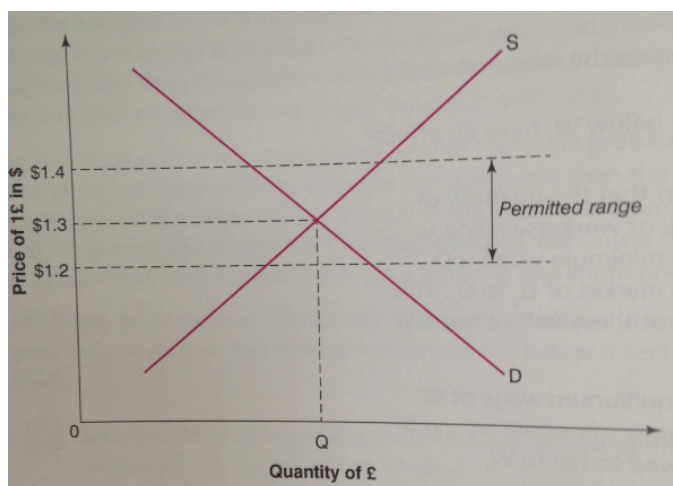
- may cause unemployment

The increase in wage may lead to a contraction in demand for labour and therefore unemployment as shown below (therefore increasing market failure):



### Exchange rates:

Maximum and minimum prices combined together have been used to influence exchange rates. A government can set a band for a currency – a minimum price which it does not want the currency to fall below and a maximum price which it does not want the currency to go above. This is a fixed exchange rate system and reduces the fluctuations of an exchange rate, making import and export prices more stable for businesses.



Above, the maximum price the pound can go to is \$1.4 and the minimum price is \$1.2. The government would intervene if the price went outside this band.

### 3. Indirect Taxation

Video – Indirect taxation

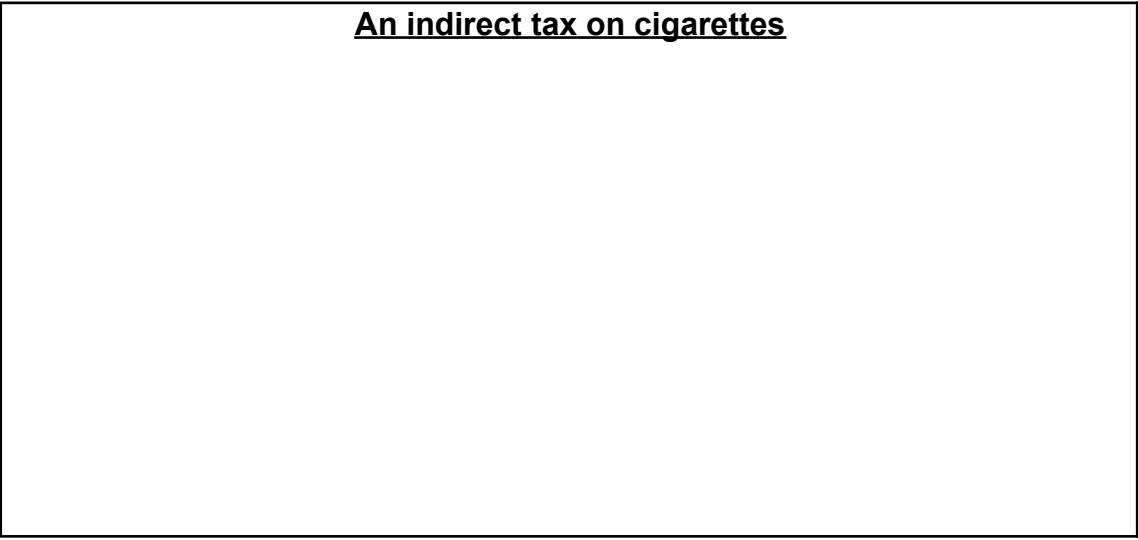
#### Definition

An indirect tax is a tax on expenditure. It increases the cost of production and therefore causes a leftwards shift in the supply curve, increasing price and decreasing demand.

Example – tax on cigarettes

Indirect taxes, which are paid by the firm, are usually passed onto the consumer in the form of higher prices (i.e. good cost \$100 to produce, indirect tax 15%, therefore good will usually be sold for \$115).

#### An indirect tax on cigarettes



The effect of a tax is usually shown on a full demand and supply diagram. From this diagram it is possible to identify:

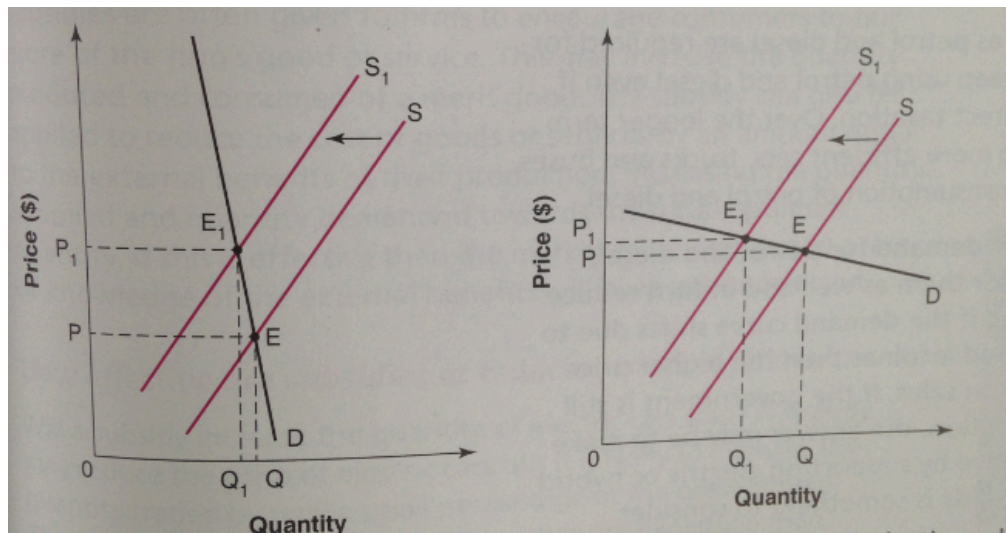
- The government revenue from the taxation
- How much taxation the producer pays
- How much taxation the consumer pays
- What happens to the price the consumer pays
- What happens to the quantity demanded
- What happens to producer revenue

## Advantages of indirect taxation

- Provides an incentive for consumers to decrease their consumption, reducing the consumption of demerit goods.
- A taxation on pollution provides an incentive for firms to decrease their external costs
- Provides revenue for the government which can then be used to treat the negative externalities of the consumption of the good (cancer wards in hospitals from cigarette tax!)

## Disadvantage of indirect taxation

- May not decrease demand for demerit goods by much as they are usually highly inelastic in demand.
- Difficult to put a monetary value on negative externalities and therefore difficult to find the right level of tax



Would an elastic or inelastic PED have the greatest effect on reducing sales if a tax is imposed on a good or service?

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## Price Elasticity and the Government

Governments often raise revenue by imposing indirect taxes such as VAT and excise duties on products. It is important for governments to select products which have inelastic demand. This is because consumers will avoid heavily taxed products if demand for them is elastic. Therefore, governments target goods which are either necessities or have few substitutes. However, most governments do not target goods such as food and water, which are essential to human survival.

Explain why a government might wish to tax cigarettes and alcohol:

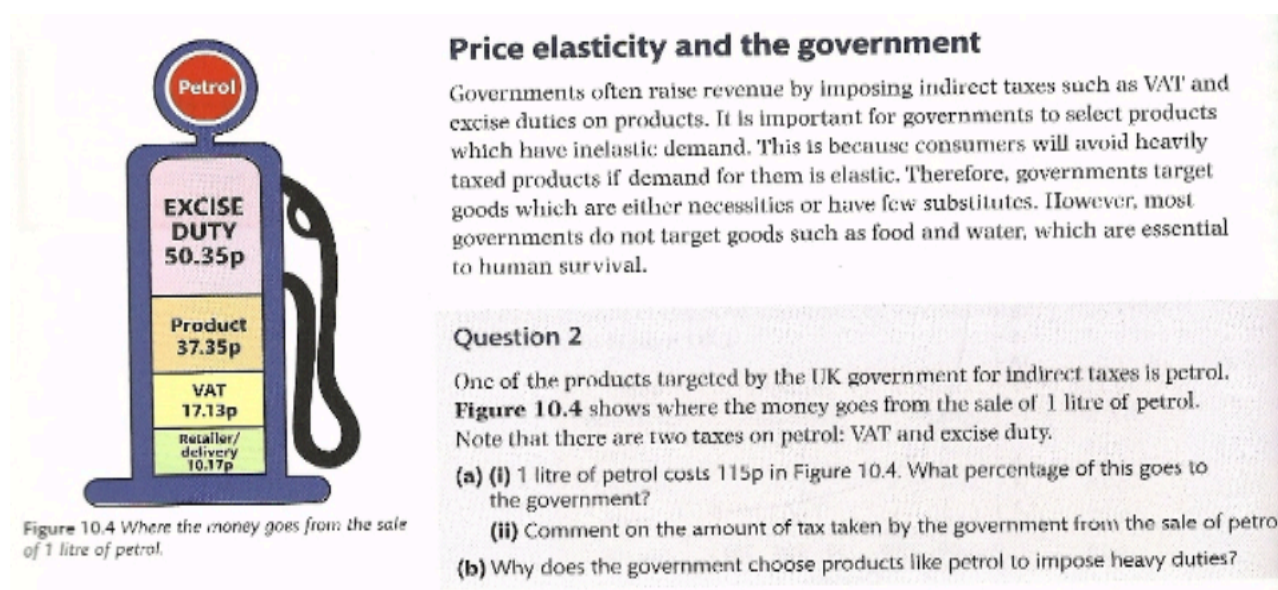
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Is there anything else a government might be concerned with when setting a tax on cigarettes and alcohol?

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How effective is indirect taxation at reducing market failure?

It depends upon:

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Explanation:

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**4. Subsidy****Definition:**

A subsidy is a sum of money paid by government to a firm per unit of output to lower their cost of production and encourage output.

Goods that receive a subsidy:

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- \*
- \*

**Identifying the impact from a subsidy:**

- The cost to the government from providing the subsidy
- How much subsidy the producer gets
- How much subsidy the consumer gets
- What happens to the price the consumer pays
- What happens to the quantity demanded
- What happens to producer revenue



Advantages of using subsidies:

- To guarantee an increase in the supply of products that the government deem as desirable (**merit goods**)
- To lower the price of essential goods, such as milk, to consumers.
- To enable domestic producers to compete with foreign competition, therefore decreasing imports and protecting domestic employment

Disadvantages of using subsidies:

- Opportunity cost – could the money have been used to build a hospital

Draw the appropriate diagram and explain the following:

A subsidy given to farmers for beef production

An indirect tax put on petrol

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**5. Regulations**

Definition:

The imposition of government rules backed by penalties that are intended to modify the behaviour of individuals or firms.

**Examples of regulations set out to discourage the overconsumption/over production of de-merit goods and goods with external costs?**

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**Examples of regulations to encourage the consumption/production of merit goods and external benefits**

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Put the following points into the correct boxes below:

1. Banning a good needs the support of the public or else it won't work i.e. prohibition in America
2. Easy for governments to pass regulations
3. Consumption of merit goods can be increased (education)
4. Easy to pass, but it needs to be enforced
5. May lead to a black market and smuggling from which the government will receive no revenue (if something is banned)
6. Consumption of demerit goods can be reduced (cigarettes/alcohol)

Advantages of legislation/regulations:	Disadvantages of legislation/regulations:

## 6. Privatisation

Definition:

The transfer of state owned assets (electric company etc) to the private sector.  
If a state owned monopoly is split up and privatised then it can solve the problem of abuse of monopoly power.

Put the following points into the correct boxes below:

1. Public sector firms are more socially minded and do not just consider their private benefits. Therefore, they are less likely to pollute etc.
2. Can create competition (if public sector monopoly is broken up), therefore decreasing monopoly power
3. Private sector organisations are thought to be more efficient in the delivery of some services
4. If a public sector monopoly is transferred to the private sector without breaking it up, then a private sector monopoly is created. This will lead to a greater abuse of monopoly power.
5. Provides a one off cash windfall for the government

Advantages of privatisation:	Disadvantages of privatisation::

## 7. Nationalisation

Definition:

Government transfer of private sector organisations into the public sector.

Some goods are considered too important to be in the private sector and therefore the government transfers them into the public sector by nationalising them.

A government can overcome the abuse of monopoly power in say the electricity industry by nationalising it.

## 8. Direct provision

Governments may decide to simply provide a service itself. This is particularly the case with public goods and merit goods.

Advantages of direct provision:

- Guarantees provision
- Economies of scale are attainable

Disadvantages of direct provision:

- Expensive

### 9. Information provision

The over consumption of **de-merit** goods such as cigarettes and alcohol occurs partly due to the lack of information by consumers of the harmful effects. This can be overcome by government information campaigns to make consumers aware and therefore decrease the amount of overconsumption – reducing market failure.

Drawback:

De-merit goods such as cigarettes and alcohol are highly addictive, so information alone may not have much effect on reducing demand.

The under consumption of **merit** goods such as healthcare (vaccinations) and healthy foods can be overcome by government information campaigns as to the positive effects – reducing market failure.

### Summary

Type of market failure	It remedies
How the government can decrease the overconsumption of demerit goods	<ul style="list-style-type: none"> <li>- Taxation</li> <li>- Government regulations</li> <li>- Information provision</li> </ul>
How the government can increase the consumption of merit goods	<ul style="list-style-type: none"> <li>- Subsidies</li> <li>- Direct provision</li> <li>- Information provision</li> <li>- Government regulation</li> <li>- Maximum price below equilibrium</li> </ul>
How the government can decrease the production of goods with external costs	<ul style="list-style-type: none"> <li>- Taxation</li> <li>- Regulations</li> </ul>
How the government can increase the production of goods with external benefits	<ul style="list-style-type: none"> <li>- Subsidies</li> <li>- Direct provision</li> </ul>
How the government can increase the production of public goods	<ul style="list-style-type: none"> <li>- Direct provision</li> <li>- Subsidies</li> </ul>
How government can tackle abuse of monopoly power	<ul style="list-style-type: none"> <li>- Regulations (anti-competitive)</li> <li>- Privatisation</li> <li>- Nationalisation</li> </ul>
Factor immobility	<ul style="list-style-type: none"> <li>- Subsidies</li> </ul>

Complete all questions.

### Not painting a pretty picture

The Non-drip paint company is considering whether or not to locate a new factory near the town of Greenville. The company estimates that the new plant will cost \$5 million a year to run, but should add \$6 million to revenue from the sale of the paint it produces.

The people of Greenville are worried that the new factory will release smoke, containing harmful chemicals, into the air. These chemicals will pollute the air and even get into the soil and water supplies as rain will bring the chemicals down from the air.

The local health authority estimates that over many years this smoke will damage people's health and increase the need for medical care at an estimated cost of \$4 million a year.

The local authority believes that the smoke will blacken the walls of historic buildings in the area, and cause their eventual erosion. Regular cleaning will therefore be needed at an estimated cost of \$2 million each year.

On a more positive note, it estimates that the paint factory will encourage other firms to locate in the area as suppliers of materials, providers of transport, etc., and that this will reduce local unemployment and help other local businesses. These external benefits are valued at \$3 million.

- 1 What does the Non-drip paint company take into account when deciding whether or not to produce paint with its resources?
- 2 From society's point of view should the firm take other factors into consideration?
- 3 Which of the following statements do you think are correct?
  - a From the point of view of the paint company resources are being used in the best way if:
    - i Private benefits are greater than private costs.
    - ii Private benefits equal private costs.
    - iii Private benefits are less than private costs.
    - iv External benefits are greater than external costs.
  - b From the point of view of society scarce resources are in their best use when:
    - i Social benefits exceed social costs.
    - ii Social benefits equal social costs.
    - iii Social benefits are less than social costs.
    - iv Private benefits are greater than private costs.
- 4 Using the figures presented in the case study calculate:
  - a The paint company's estimated yearly profit.
  - b Whether or not paint production at the factory is worthwhile for society.
- 5 A conflict of interest between the paint company and the local community has arisen. How does this illustrate the central economic problem?

**Public expenditure vs private expenditure**

Generally speaking, goods and services produced by the government will be more rigorous in reducing external costs and be more concerned with producing goods and services with external benefits in the correct amount.

Discuss whether a mine operated by the government would be more likely to benefit an economy than one operated by a foreign multinational company [10]

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**Should transport (buses, trams etc) in a country should be provided by the public sector or by the private sector. (8 marks)**

A public sector firm will be more interested in providing a good service than making a profit as the government is more likely to base its decisions on social costs and benefits rather than just private costs and benefits.

Public sector funds may be more available than private sector funds to provide a quality service.

A public sector firm can be prevented from going bankrupt so there is continuity of service.

Public sector will be more inclined to keep prices low, benefiting the poor.

A private sector firm has to make a profit to survive / profit motive and so the efficiency and quality of the service is likely to be good.

The potential threat of bankruptcy will force it to provide a good service to stay in business.

Private sector firms may be in competition with each other, leading to greater response to consumer demand, pressure to keep costs low, and prices competitive.

**MULTIPLE CHOICE**

- 1 An external cost is:
  - A A cost that a group of people pay for.
  - B A cost created by a firm which it pays for.
  - C A cost created by a group of people, or a firm, that others pay for.
  - D A cost created by society, that private firms pay for.
  - E A cost paid for by government.
- 2 In building an airport, the external costs might include:
  - 1 The price paid for the land.
  - 2 The loss of farming land.
  - 3 The noise caused by construction.
  - A 1 and 2
  - B 1 and 3
  - C 2 and 3
  - D 1 only
  - E 2 only
- 3 Which of the following are external costs resulting from the consumption of cigarettes?
  - 1 The cost of cigarette advertising.
  - 2 The irritation caused to people who don't like smoking.
  - 3 The medical care given to people who have smoke-related health problems.
  - A 1 and 2
  - B 2 and 3
  - C 1 only
  - D 3 only
  - E None of them
- 4 A particular use of resources is said to be economic if:
  - A Social costs = Private costs.
  - B Social benefits are greater than private benefits.
  - C Social costs are greater than social benefits.
  - D Private costs are less than private benefits.
  - E Social costs are less than social benefits.
- 5 If the production of a good or service results in high external benefits, but low private benefits, then:
  - A Private firms will produce more than society wants.
  - B Private firms will produce just enough to satisfy the wants of society.
  - C Private firms will produce less than society wants.
  - D Private firms will use resources to produce something else.
  - E The Government will produce the product.
- 6 Which of the following represents an external benefit?
  - A A firm that obtains a discount for buying materials in bulk
  - B A historic building blackened by traffic pollution
  - C An oil slick washed on to beaches
  - D An increase in a firm's revenue resulting from the success of its advertising
  - E A bigger supply of honey than usual for a bee-keeper thanks to his neighbour's garden flower display

Which government policy would best protect the environment?

- A encouraging economic growth
- B exploiting natural resources
- C increasing tax on gasoline (petrol)
- D removing controls on industry



External benefits are

- A private benefits minus private costs.
- B private benefits plus social benefits.
- C social benefits minus private benefits.
- D social benefits plus social costs.

What is an external cost of the use of private cars?

- A the cost of creating an efficient public transport system
- B the cost of the fuel purchased by car owners
- C the damage caused by car exhaust fumes
- D the increase in convenience to car owners

As a result of an oil leak which polluted the environment, an American oil company operating the Alaskan oil pipeline introduced regular inspections. Further oil leaks were prevented.

What happened to private and external costs as a result of these inspections?

	private costs	external costs
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

A government's aim is to reduce the amount of air pollution caused by producing electricity from coal-fired power stations.

Which policy would conflict with this aim?

- A building nuclear power stations
- B putting maximum limits on pollution levels
- C subsidising coal prices
- D taxing electricity produced by coal

## Compost success fertilises botanic garden

There is one place in Britain where the Government's green tax is working as it should do – providing a huge increase in recycling along with investment in worthwhile environmental projects. That place is the Isle of Wight. Desperately short of land to create waste dumps, and needing to dispose of 138 000 tonnes a year of rubbish, the island's county council has been forced to take drastic action.

It has a £40 m deal under which 41% of domestic rubbish is being recycled – compared to an average 7.8% in the rest of Britain.

Island Waste, a subsidiary of Biffa, the waste company arm of Severn Trent Water, has re-equipped the council's dustcarts to separate kitchen waste, and is rebuilding an 'energy from waste' power station so it can be fuelled by waste pellets processed at a refuse collection plant next door, one that also removes and recycles aluminium cans.

The most striking investment is £2.2 m to build the UK's largest composting plant, a Canadian made machine that turns waste into compost within 14 days and can process 15 000 tonnes a year – more than can be used on the island at the moment.

The plant is responsible for a boom in organic farming. This year one of the island's biggest tomato growers intends

to use the compost to grow his entire crop. The council also sells compost to gardeners and puts the rest on its parks and gardens.

This month the council closed one of its landfill sites, and within 15 to 20 years landfill will stop altogether. Any material that cannot be recycled will then have to be shipped to the mainland – making it very expensive.

Bruce Gilmore, general manager of Island Waste, is predicting that by next year more than 50% of rubbish will be recycled. 'We shall be expanding our doorstep collection, which already covers newspapers, to include three types of glass and possibly textiles,' he promised. The company is also trying to change attitudes to recycling by talking to schools and by targeting pensioners, the group most resistant to change.

Unlike some other schemes, distribution of landfill tax credits is given to a national body, the Royal Society for Nature Conservation, that has no connection with the waste industry. The main beneficiary on the Isle of Wight will be Ventnor botanic garden, which will get a visitors centre paid for by £600 000 from landfill tax and £830 000 from the Millennium Commission.

Another beneficiary will be the red squirrel, which will get new tree corridors.

*The Guardian, 5.4.2001*

- 1 Explain which economic concept is involved in a decision to use land for waste dumps instead of farming, housing or other uses. (2 marks)
- 2 In economics, what is the difference between a 'private cost' and a 'social cost'? (2 marks)
- 3 Explain the social costs of dumping waste in landfill sites. (4 marks)
- 4 From the article, what are the social benefits to the Isle of Wight of recycling waste? (8 marks)
- 5 Discuss the economic benefits to firms, such as farms, power stations and water supply companies, of changing their production and purchasing decisions to help reduce harm to the natural environment. (8 marks)
- 6 What policies might a government adopt to control external costs such as pollution? (4 marks)

### Exam practice: London Congestion Charge

In 2003, a £5 toll was introduced for people driving throughout an 8-square-mile zone of central London. The charge was introduced because London's roads were clogged with slow-moving traffic and congestion was costing business £2 million a week. Twelve months later it was claimed that traffic had been cut by 18% and delays were down 30%. The Mayor of London also said that the city's bus system had 'improved dramatically' with 29,000 more people using the service. However, retailers in central London said their businesses had suffered with a drop in sales.

Great Britain		Billion passenger kilometres				
	1971	1981	1991	2001	2006	
Road <sup>1</sup>						
Car and van <sup>2</sup>	313	394	582	654	686	
Bus and coach	60	48	44	47	50	
Bicycle	4	5	5	4	5	
Motorcycle	4	10	6	5	6	
All road	381	458	637	710	747	
Rail <sup>3</sup>	35	34	39	47	55	
Air <sup>4</sup>	2	3	5	8	10	
All modes	419	495	681	765	812	

Figure 21.2 Passenger transport: by mode.

Source: Department for Transport

- 1 Road transport data from 1993 onwards are not directly comparable with earlier years.
- 2 Includes taxis.
- 3 Data for rail relate to financial years.
- 4 Data for air are domestic flights only and include Northern Ireland, Channel Islands and Isle of Man.

It had been expected the charge would raise £180 million for public transport, but it is well short of that estimate. Instead officials expect to get £68 million this year and between £80 million and £90 million next year. Some of the money raised was

to be used to improve public transport systems in London. The scheme has also led to a modest increase in the life expectancy of Londoners, according to a joint study by King's College, London, and the London School of Hygiene and Tropical Medicine.

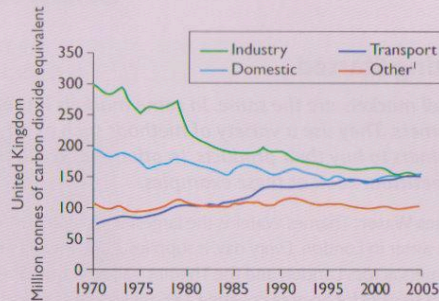


Figure 21.3 Carbon dioxide emissions: by end user.

Source: AEA Energy and Environment

- (a) Using examples from the case, explain what is meant by negative externalities. (2 marks)
- (b) Cars have often been blamed for pollution and global warming. What evidence is there in Figures 21.2 and 21.3 to support this view? (2 marks)
- (c) Which of the following represents social cost? (1 mark)
  - A Private cost + Private benefit
  - B Private benefit + External benefits
  - C Private cost + External costs
  - D Private cost – Private benefits
- (d) Do you think the London Congestion Charge has been a success? (4 marks)
- (e) To what extent do you think measures taken by the government account for the pattern of industry emissions shown in Figure 21.3. (6 marks)



[illegible]

<b>Key terms associated with market failure</b>	<b>Cause of the market failure</b>	<b>Consequence of the market failure</b>	<b>Examples</b>
<b><u>Demerit good</u></b>	A lack of information on how bad the product is when consumed	It is overconsumed relative to the social optimum level of consumption	Cigarettes, alcohol, junk food
<b><u>Merit good</u></b>	A lack of information on how beneficial the product is when consumed	It is underconsumed relative to the social optimum level of consumption	Healthcare, education, fruit and vegetables that promote good health
<b><u>External costs</u></b>	Third parties have to pay a cost for the production and consumption of a good	Because the producing firm does not pay all their costs (pollution) they can charge a lower price which leads to greater demand – overproduction and consumption.	Air pollution, noise pollution, congestion, global warming, oil spills at sea, loss of rain forest
<b><u>External benefits</u></b>	Benefits to a third party from the consumption (or production) of a good or service	Underproduced and therefore underconsumed as the full benefit of the good does not go to the producer or consumer	Training, education, healthcare
<b><u>Public good</u></b>	Non excludable- cannot exclude those who have not paid from consuming the service	These goods will not be provided in a market economy by firms as no revenue can be made - underproduction. Government therefore have to supply them	Street lights, military defence, lighthouses
<b><u>Abuse of monopoly power</u></b>	Higher price set by monopolist leading to decreased demand	Under consumption	Markets with a single seller – Vietnamese electricity
<b><u>Factor immobility</u></b>	FoPs unable to move into the industry in which they are needed	Underproduction in that industry	Geographical and occupational immobility

**Examples of regulations set out to discourage the overconsumption/over production of de-merit goods and goods with external costs?**

- Laws on the minimum age to purchase cigarettes/alcohol
- Laws about the amount of pollution a firm can cause
- Laws that make it illegal for firms to abuse their monopoly power
- Laws that make it illegal for people to talk on their phones whilst driving

**and encourage merit goods and external benefits**

- Laws requiring children to attend school to a certain age
- Laws requiring children to be vaccinated

**Advantages of legislation/regulations:**

- Easy for governments to pass regulations
- Consumption of demerit goods can be reduced (cigarettes/alcohol)
- Consumption of merit goods can be increased (education)

**Disadvantages of legislation/regulations:**

- Easy to pass, but it needs to be enforced
- May lead to a black market and smuggling from which the government will receive no revenue (if something is banned)
- Banning a good needs the support of the public or else it won't work i.e. prohibition in America

**Advantages of privatisation**

- Can create competition (if public sector monopoly is broken up), therefore decreasing monopoly power
- Provides a one off cash windfall for the government
- Private sector organisations are thought to be more efficient in the delivery of some services

**Disadvantages of privatisation:**

- If a public sector monopoly is transferred to the private sector without breaking it up, then a private sector monopoly is created. This will lead to a greater abuse of monopoly power.
- Public sector firms are more socially minded and do not just consider their private benefits. Therefore, they are less likely to pollute etc.