



Oxford Cambridge and RSA

Monday 12 May 2025 – Morning

A Level Economics

H460/01 Microeconomics

Time allowed: 2 hours



You can use:

- a scientific or graphical calculator



Please write clearly in black ink. **Do not write in the barcodes.**

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

First name(s)

Last name

StemUp Model Solution

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions in Section A, **one** question in Section B and **one** question in Section C.

INFORMATION

- The total mark for this paper is **80**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **20** pages.

ADVICE

- Read each question carefully before you start your answer.

Section A

Read the stimulus material and answer **all** the parts of Question 1.

Bottled water in the UK

Opinions often differ as to which is better, bottled or tap water? Bottled water has seen a huge increase in its popularity in the last 50 years. Bottled water consumption in the UK has increased from just one 300ml bottle per head in the mid-1970s to 37 litres a head in 2021, according to Retail Economics' chief executive.

It was often assumed that the biggest reason for the rise in sales of bottled water was its convenience but studies have shown that over half of the plastic bottles were consumed in the home. The consumption of plastic bottles creates external costs. Their production creates CO₂ emissions and this environmental impact continues from their transportation right through to when they are discarded. Some plastic bottles take over 500 years to decompose in landfill sites. They are one of the most common items found in the stomachs of sea life such as dolphins and whales. 5
10

With the UK having some of the cleanest tap water in the world, it is understandable why environmental groups campaign against the use of plastic bottles for water. This would appear to be an example of information failure in the consumption of water.

Branded water has been the driving force behind the growth in sales with Britons spending £1bn out of a total market spend of £1.6bn on brands such as Evian and Volvic. 3.5 billion plastic water bottles are consumed each year and 2.5 billion of these are from branded water bottles. Some economists predict that with the trend in increased advertising by these water brands, this could rise to 2.8bn bottles in 2028. 15

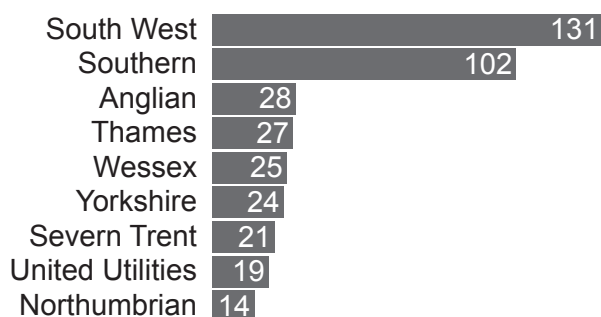
The UK Water industry

Both the market power and the environmental impact of the water industry have been a topic of much debate in the UK recently. Water companies are permitted by the regulator to release untreated sewage into the UK's network of rivers and the sea when there are high levels of rainfall. United Utilities recently paid out over £300m in dividends to its shareholders, yet, according to data from the Environment agency it is one of England's most polluting water companies. 20

Fig. 1

Pollution incidents by water companies 2020

Incidents per 10,000 km (6,214 miles) of sewers in 2020



Over 200 000 people work in the industry itself, or in related employment. The industry has been striving to achieve a net zero carbon emission target by 2030 with initiatives such as increased renewable energy generation, planting trees to restore original woodland habitats and encouraging consumers to reduce water consumption.

25

The English and Welsh water industry was privatised in 1989. Most water and sewage companies act as regional monopolies. Each has their own dedicated set of pipes providing water into their area.

30

Fig. 2
Overflowing with cash

Company	Revenue (£)	Operating profit (£)
Anglian Water	1.4bn	392m
Northumbrian Water	758m	195m
Severn Trent Water	1.7bn	458m
Southern Water	820m	139m
South West Water	544m	198m
Thames Water	2.1bn	489m
United Utilities	1.8bn	602m
Wessex Water	517m	160m
Yorkshire Water	1.1bn	241m
Total	10.7bn	2.8bn

Regulation of the water industry

The industry is regulated by the office of the water regulator (OFWAT) which is responsible for ensuring that the industry delivers good value for consumers and the environment. Where appropriate they will also promote competition in the market. Critics of privatisation have long argued that an industry such as water, where the need for infrastructure makes competition almost impossible, should have remained under government control.

35

Recently OFWAT has been accused of having too close a relationship with the biggest water companies. Two thirds of water companies employ former OFWAT employees in senior executive roles within their companies. One of the biggest water companies, Thames Water, is on the brink of collapse with around £14bn of debts.

40

The regulator has allowed the water companies to raise prices since privatisation. The average water bill has risen in real terms since 1989 but has remained stable since 2010. Water companies argue that price rises are needed to fund investment into infrastructure and to improve the quality of drinking water.

1

(a) Refer to lines 7–11.

(i) Using information from the stimulus material, explain the term **external costs**.

External costs are costs imposed on third parties who are not involved in the transaction and are not compensated for them. For example, the CO₂ emissions from producing and transporting plastic bottles, and sea life such as dolphins and whales harmed by swallowing discarded bottles. [2]

(ii) Using information from the stimulus material, explain the term **information failure**.

Information failure is a type of market failure where consumers or producers lack full information about an economic decision, or one party has more information than the other. Here, consumers are unaware of the high quality of UK tap water, some of the cleanest in the world, so they buy too much bottled water. [2]

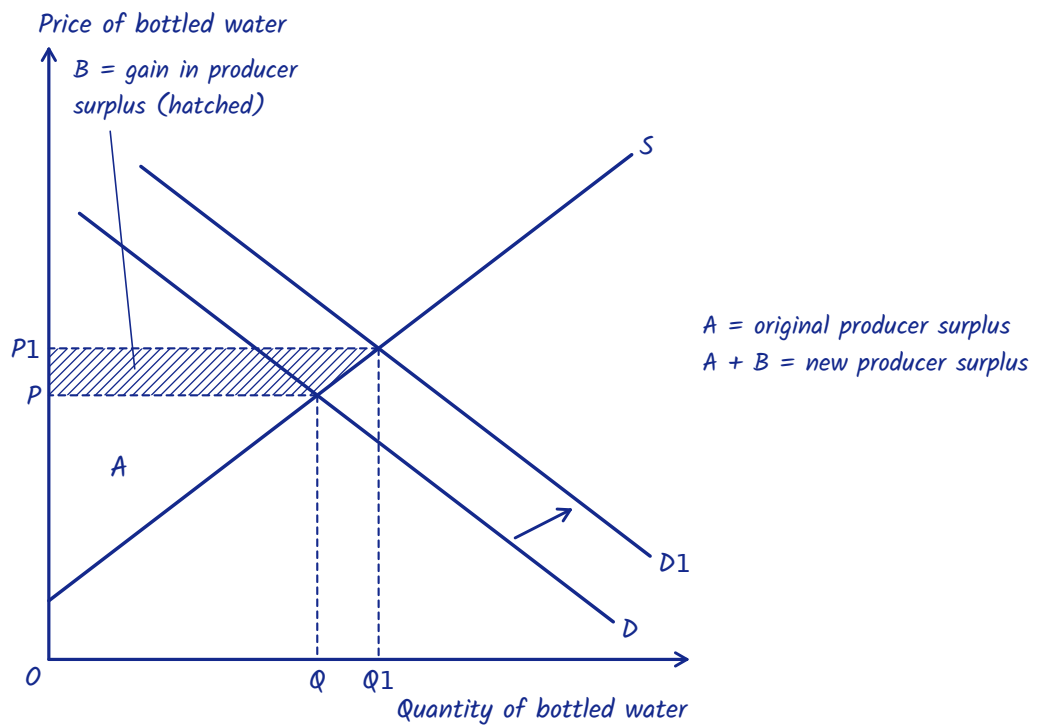
(b) Refer to lines 15–19.

Calculate the percentage change in branded water bottle consumption predicted by 2028.

Change = 2.8bn – 2.5bn = 0.3bn bottles
 % change = $(0.3bn \div 2.5bn) \times 100$
 = +12% (a 12% increase)
 [2]

- (c) 'Bottled water has seen a huge increase in its popularity in the last 50 years.' **Lines 1–2.**

Explain, using an appropriate diagram, the impact on the level of producer surplus of an increase in demand for bottled water.



The rise in demand shifts D to D_1 , so price rises from P to P_1 and quantity from Q to Q_1 . Producer surplus (area above S and below price) increases from A to $A + B$ (B hatched), as firms get a higher price on existing sales and sell more units.

[4]

BLANK PAGE

DO NOT WRITE ON THIS PAGE

- (d) 'Both the market power and the environmental impact of the water industry have been a topic of much debate in the UK recently.' **Lines 20–21.**

Evaluate, using evidence from the stimulus material, whether there is market failure in the water industry.

Market failure occurs when the free market leads to an inefficient allocation of scarce resources, so social welfare is not maximised.

Firstly, there are negative externalities. Water companies are permitted to release untreated sewage into rivers and the sea after heavy rainfall, imposing external costs on third parties such as polluted seawater and harm to wildlife. As firms do not pay for this damage, MSC exceeds MPC, so output is above the social optimum and there is a welfare loss. United Utilities is one of England's most polluting companies, yet paid over £300m in dividends.

Secondly, the companies are regional monopolies, each with its own pipes, so consumers cannot switch. A monopolist can restrict supply to raise price above MC, which is allocatively inefficient. Fig. 2 shows operating profit of £2.8bn on £10.7bn revenue (26%) and £602m on £1.8bn for United Utilities, suggesting supernormal profit.

However, water is a natural monopoly: huge fixed infrastructure costs mean one firm supplies at the lowest average cost, so competition would wastefully duplicate pipes. High profits may also fund investment, giving dynamic efficiency. Firms also create positive externalities, such as tree planting and renewable energy towards net zero by 2030, and OFWAT regulation limits market power. MSC is also hard to measure.

Overall there is market failure, mainly from sewage externalities, as the pollution in Fig. 1 (131 incidents per 10,000 km for South West) outweighs small positive externalities. The extent depends on firms' objectives and how strictly the regulator acts, as the threat of regulation may prevent some failure.

[8]

- (e)* Two-thirds of England's biggest water companies employ key executives who previously worked at the water regulator OFWAT. **Lines 38–39.**

Evaluate, using evidence from the stimulus material, whether regulation of the water industry is beneficial to consumers. [12]

Regulation is government intervention that places legal rules, limits or quotas on firms. OFWAT regulates the privatised water industry to ensure it delivers good value for consumers and the environment. Regulation can benefit consumers because each water company is a regional monopoly and demand for water is price inelastic, as there are no substitutes. Unregulated, firms could raise prices far above MC, eroding consumer surplus and lowering consumers' standard of living. By limiting price rises, for example with an RPI – X price cap, OFWAT protects consumer surplus: the average bill has been stable in real terms since 2010. OFWAT can also set quality standards for drinking water. Where appropriate OFWAT also promotes competition. Competition gives firms an incentive to reduce their average costs, which can be passed on as lower prices, and to innovate, which could improve customer service and water quality for consumers. However, there is a risk of regulatory capture. Two-thirds of water companies employ former OFWAT staff as senior executives, and OFWAT is accused of being too close to the biggest firms, so it may act in the firms' interests rather than consumers'. This is supported by bills rising in real terms since 1989, by OFWAT permitting releases of untreated sewage, and by large dividends such as United Utilities' £300m while Thames Water has around £14bn of debts. This is government failure. Moreover, the regulator lacks perfect information about firms' costs, so caps may be set too high, allowing supernormal profit (£2.8bn total operating profit), or too low. Restricting price rises too much may lead firms to cut customer service or investment, and innovation may be stifled without a profit motive. Regulation also creates compliance costs which, as PED is inelastic, firms can pass on to consumers in higher bills. On balance, regulation is beneficial to consumers compared with unregulated private

monopolies, as price caps have kept bills stable since 2010. However, regulatory capture limits the benefit. The extent depends on the severity of the price limits, how quickly OFWAT investigates firms' behaviour, whether consumers value price or water quality more, and the information OFWAT has. A more independent regulator would make regulation much more beneficial.

Section B starts on the next page

Section B

Answer Question 2 or Question 3.

- 2* The term 'Pepsi price power' has been used to describe how the soft drink giant has been able to increase their revenue by raising price even against the backdrop of cost pressures caused by recent economic shocks worldwide.

Evaluate, using an appropriate diagram(s), the extent to which the principal agent problem is the main factor influencing the choice of objective for a firm. [25]

OR

- 3* The price of oil rose to \$79.90 per barrel in July 2023. Over the same period, food price inflation reached 13.4% in the UK.

Evaluate, using an appropriate diagram(s), the extent to which a rise in the price of oil will always lead to a rise in the price of goods and services sold in UK supermarkets. [25]

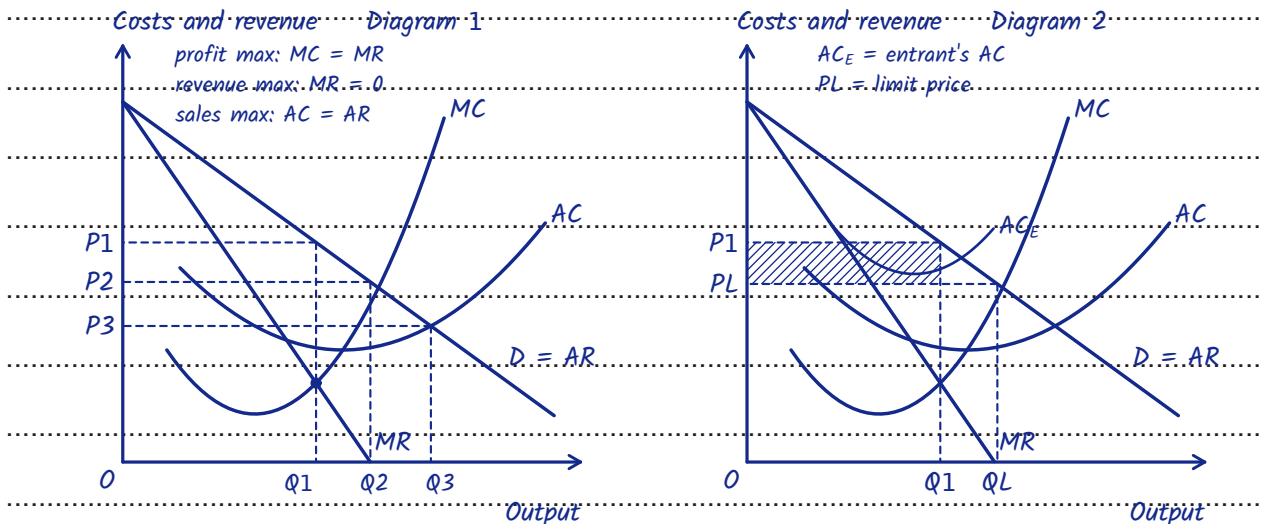
Question No. 2.....

A firm's objective is the goal it aims to achieve. Maximising objectives include profit maximisation ($MC = MR$), sales revenue maximisation ($MR = 0$), sales volume maximisation ($AC = AR$), growth and utility maximisation, while non-maximising objectives include profit satisficing, social welfare and corporate social responsibility (CSR). The principal agent problem arises when agents (managers), who make decisions on behalf of principals (shareholders), pursue their own objectives rather than those of the owners.

In public limited companies such as PepsiCo there is a divorce of ownership and control. Shareholders delegate day-to-day decision making to managers and, because of asymmetric information, cannot fully monitor them. Shareholders are assumed to want profit maximisation, at output Q_1 and price P_1 in Diagram 1 where $MC = MR$, as this maximises their dividends. However, managers may aim to maximise their own utility instead.

If managers' appraisals and bonuses are based on revenue targets, they will aim for sales revenue maximisation where $MR = 0$, at Q_2 and P_2 . Output is higher and price lower than at the profit maximising point, so profit is sacrificed. Alternatively,

managers may pursue sales volume maximisation, where $AC = AR$ at Q_3 and P_3 , the highest output possible without making a loss, as a larger market share brings prestige, job security and promotion prospects.



Managers with low accountability may also allow costs to rise through perks and poor cost control, causing X-inefficiency, so AC is above its lowest possible level and profit falls. Others may set an objective of profit satisficing, making just enough profit to keep shareholders content and reduce conflict while enjoying an easier life. In all these cases the principal agent problem directly determines the firm's objective and moves it away from profit maximisation.

However, the significance of the principal agent problem depends on the ownership of the business and the degree to which owners can hold managers accountable. In a sole trader or small private firm the owner is the manager, so there is no divorce of ownership and control. Even in large plc's, shareholders vote at the AGM and can replace directors, while share options and profit-related bonuses align managers' interests with profit maximisation, since managers then gain from higher dividends and share prices. 'Pepsi price power', raising prices and revenue despite cost pressures, is consistent with using market power to protect profit, which is exactly what shareholders want.

Market structure is also important. Small firms in monopolistic competition make only

normal profit in the long run, so they must profit maximise to survive and sufficiently reward their factors of production, whatever their managers might prefer.

The level of contestability may be a more important factor. If barriers to entry are low, the supernormal profit earned at P_1 attracts new entrants. The incumbent may therefore abandon profit maximisation and set a limit price, PL in Diagram 2, just below the minimum average cost of a potential entrant. New entrants producing on a smaller scale with higher AC could not make a profit at this price, so they are deterred; the incumbent raises strategic barriers to entry. The hatched area shows the supernormal profit sacrificed in the short run to protect market share and long-run profit. A lower price may also force some rivals to leave the market, increasing the remaining firms' market share. In the soft drinks market, where PepsiCo competes with Coca-Cola, interdependence means objectives are also shaped by rivals' actions. Other factors also matter. Firms may aim to improve their image and brand loyalty, and so their market share, through CSR, for example by reducing plastic packaging. Some organisations, such as Oxfam, are not for profit and pursue social welfare. Regulation, or the threat of investigation by the competition authority, may also stop firms charging the profit maximising price.

In conclusion, the principal agent problem is an important influence in large plcs like PepsiCo where ownership and control are separated and managers are weakly accountable. However, it is not usually the main factor. Its significance depends on how well owners can hold managers to account through share options and performance-related pay, and many firms are owner-managed. Contestability and market structure are often more important, as firms facing the threat of entry must limit price whatever the owners or managers want. Firms also vary their objectives as market conditions change, sacrificing profit in the short run to secure larger profits in the long run. Therefore the market environment, rather than the principal agent problem, is usually the main influence on a firm's choice of objective.

Section C

Answer Question 4 or Question 5.

- 4* Supporters of the free market have long argued that supply and demand lead to the most effective allocation of society's scarce resources. However, those in favour of a more interventionist approach have cited the recent high prices of essentials such as gas, electricity and basic foodstuffs as a reason for greater government control in markets.

Evaluate the extent to which the free market is the most effective way to ensure an efficient allocation of resources.

[25]

OR

- 5* During the COVID pandemic the UK government used information provision in various ways. These included advice on washing hands, the importance of vaccinations and lockdown rules for households and workspaces.

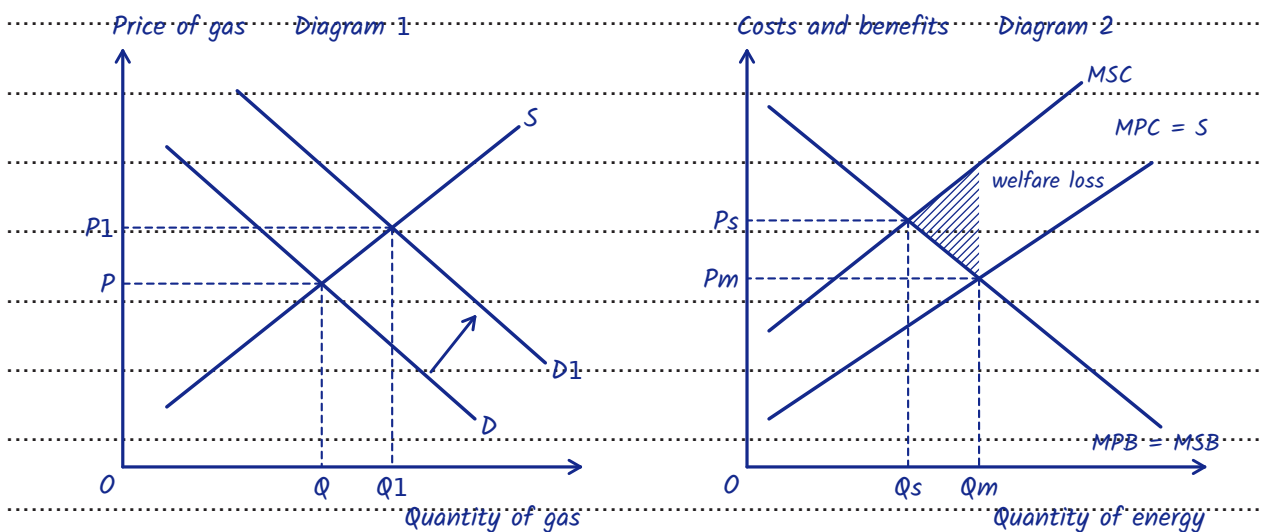
Evaluate the extent to which information provision is effective at incentivising consumers to change their behaviour.

[25]

Question No. 4.....

In a free market resources are allocated by the price mechanism, the interaction of demand and supply, without government intervention. An efficient allocation requires allocative efficiency, where $P = MC$ and society's welfare is maximised, and productive efficiency, where firms produce at the lowest point on their AC curve. Supporters argue that the price mechanism is an automatic system that allows consumer sovereignty, as consumers' spending determines what is produced. In Diagram 1, a rise in demand for gas shifts D to D_1 , creating a shortage at the original price P . The price rises to P_1 , which signals to producers that consumers want more. The higher price gives an incentive, in the form of profit, for producers to move resources into gas, so quantity supplied extends to Q_1 . The higher price also rations the scarce gas to those consumers willing and able to pay. Shortages and surpluses are therefore removed and the market clears efficiently, without the government needing any information. Competition also promotes efficiency. The firms that produce at the lowest average cost, respond fastest to changes in consumer demand and are the most innovative. They earn the highest profit, while inefficient firms lose customers, as consumers have the

choice to switch to more efficient producers. The profit motive encourages innovation and entrepreneurship, giving dynamic efficiency, and workers with the skills in greatest demand earn the highest wages, giving them an incentive to be productive. In contrast, intervention can cause government failure: a maximum price on energy or basic foods might create shortages, and governments lack the information that prices provide.



However, free markets often fail. Consumers and producers base decisions on private costs and benefits and ignore externalities. Electricity generated from fossil fuels creates pollution, an external cost, so in Diagram 2 the market produces Q_m where $MPC = MPB$, rather than the social optimum Q_s where $MSC = MSB$. Overproduction creates the hatched welfare loss, so resources are allocatively inefficient. Information failure and irrationality also lead to the overconsumption of demerit goods and the underconsumption of merit goods such as education. The free rider problem means that public goods, such as street lighting and national defence, which are non-excludable and non-rival, would not be provided at all, creating a missing market. Producers may also develop market power: energy and food retailing are dominated by a few large firms which can restrict output and raise price above MC , reduce quality and respond less to consumer demand, while a monopsony employer may keep wages low and working conditions poor. Immobility of factors of

production, such as workers unable to move to growing industries, also slows the reallocation of resources.

The free market can also lead to inequality. The recent high prices of gas, electricity and basic foodstuffs left some low-income households unable to meet their basic needs, an outcome that may be efficient but is not equitable. Behavioural economics also suggests people have bounded rationality and motivations other than private benefit, so they may not respond to price signals as the theory assumes.

In conclusion, the free market is usually the most effective way to allocate resources for most private goods, where consumers are well informed, there is competition and externalities are small, because price signals and the profit incentive respond quickly to consumers' preferences. However, it is not the most effective way where there are public goods, externalities, information failure or market power, as in essential energy markets. Some intervention is essential, so a mixed economy, combining the price mechanism with targeted intervention such as the Ofgem energy price cap, is the most effective. The extent depends on the level of information available to consumers and on whether the government can intervene without causing government failure.

© OCR 2025

This image shows a blank sheet of white paper designed for writing. It features a series of evenly spaced horizontal blue lines across its entire width. A single vertical red line runs down the left side, creating a narrow margin. The paper is otherwise completely empty, with no text or markings.

DO NOT WRITE ON THIS PAGE

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of Cambridge University Press & Assessment, which is itself a department of the University of Cambridge.

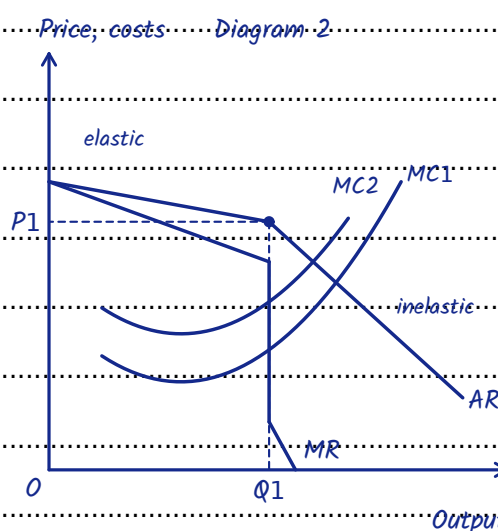
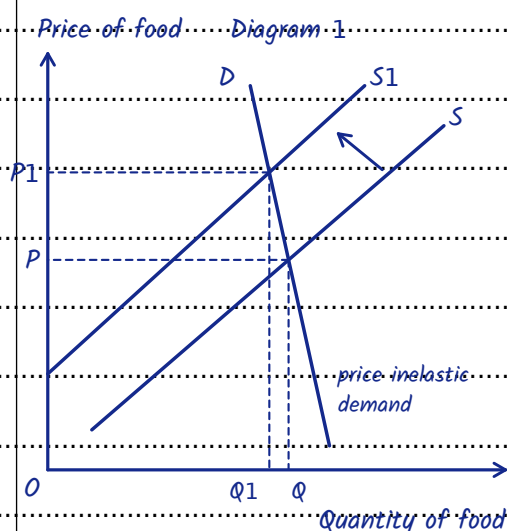
© OCR 2025

ADDITIONAL ANSWER SPACE

3

Oil is a key factor of production: it is a raw material for plastic packaging and fertiliser, it powers the lorries that transport food, and it plays a role in electricity production. A rise in the price of oil, to \$79.90 per barrel in July 2023, therefore raises firms' costs of production. Whether this always leads to higher prices in UK supermarkets depends on PED, market structure and firms' objectives.

Higher oil prices raise costs throughout the supply chain, from farms and food processors to supermarket distribution. Higher costs of production reduce profitability at each price, so the industry supply curve shifts left from S to S_1 in Diagram 1. At the original price P there is excess demand, so the price rises to P_1 . Essential foodstuffs such as bread and milk have few substitutes, so demand is price inelastic: quantity falls only slightly, from Q to Q_1 , and supermarkets' total revenue rises. This is supported by UK food price inflation reaching 13.4% over the same period.



For an individual firm, a higher oil price raises both AC and MC. A profit maximising firm produces where $MC = MR$, so a rise in MC reduces output and raises price, and the firm can pass the higher costs on to consumers. Firms with greater market power, such as near-monopolies with price setting power,

ADDITIONAL ANSWER SPACE

can pass on more of the increase, and the more price inelastic demand is, the larger the share of the higher cost paid by consumers. Services sold in supermarkets, such as cafés and pharmacies, also face higher electricity bills. However, the UK supermarket industry resembles an oligopoly: a few large firms such as Tesco, Sainsbury's, Asda and Aldi have a high concentration ratio and are interdependent. The kinked demand curve model suggests prices are sticky. If one supermarket raises its price, rivals do not follow and gain market share, so demand above P_1 is price elastic and the firm loses customers and revenue. If it cuts its price, rivals match the cut, so demand below P_1 is inelastic. This creates a vertical discontinuity in the MR curve. In Diagram 2, the rise in oil prices shifts MC_1 up to MC_2 , but as MC stays within the gap in MR, the profit maximising price remains P_1 and output Q_1 . The supermarket absorbs the higher costs by reducing its profit margin rather than raising prices. Furthermore, supermarkets have monopsony power as dominant buyers, so they can put pressure on suppliers such as farmers to absorb the rise in costs. Large supermarkets also benefit from economies of scale, such as bulk buying and efficient logistics, so they face less pressure to raise prices. Instead of raising prices, firms may compete on non-price factors such as loyalty cards, or reduce the size of products sold (shrinkflation). Firms may also avoid price rises for fear of attracting the interest of the government or the regulator. Time lags also matter. Oil prices fluctuate and firms often buy fuel in advance on contracts, so a rise in the oil price takes time to filter through to costs, and a short-lived spike may never be passed on. The 13.4% food inflation also had other causes, such as higher gas prices and poor harvests, so oil is not the only factor. Only goods with perfectly inelastic demand would see all of the cost increase passed on to consumers.

ADDITIONAL ANSWER SPACE

In conclusion, a rise in the price of oil will not always lead to higher prices in UK supermarkets. Price rises are most likely for essential foods with price inelastic demand, and when the rise is large and lasting, because it then raises every firm's costs at the same time, so all supermarkets can raise prices together without losing market share, as happened in 2023. However, the extent depends on the PED of the goods sold, the degree of interdependence, market power and brand loyalty, and each supermarket's objectives: a low-cost firm such as Aldi aiming to grow its market share may absorb costs, whereas Waitrose, with more loyal customers, may pass them on. Therefore higher prices are likely but not inevitable.

ADDITIONAL ANSWER SPACE

5

Information provision is when the government provides information, through advertising campaigns, labelling or guidance, to correct information failure, where consumers lack the information to make rational choices that maximise their utility. Merit goods have more private benefit than consumers realise, while demerit goods have higher private costs than consumers realise.

Information provision may encourage consumers to act more rationally. During the COVID pandemic the government explained the importance of vaccinations.

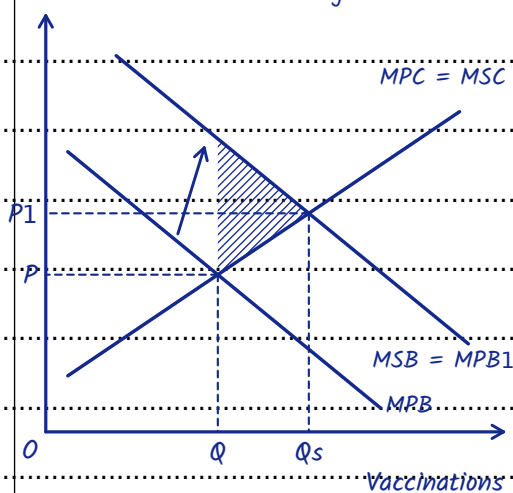
A vaccination is a merit good with positive externalities, as a vaccinated person is less likely to infect third parties. Without information, consumers

underestimate the private benefit, so consumption is at Q in Diagram 1, where

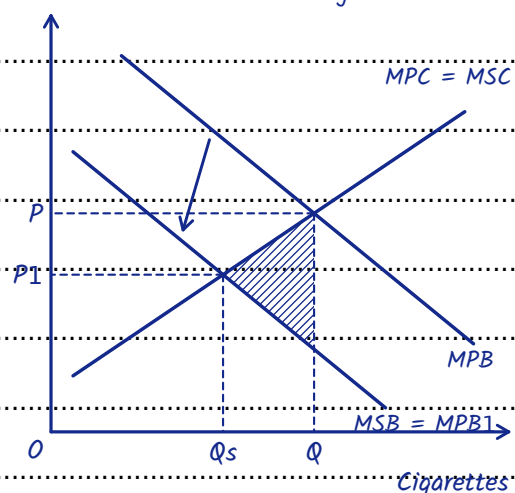
$MPB = MPC$, below the social optimum Q_s where $MSB = MSC$, causing the

hatched welfare loss. Information shifts MPB right to MPB_1 , moving private benefit closer to social benefit and reducing underconsumption. High vaccine uptake in the UK suggests the campaign worked.

Costs and benefits Diagram 1



Costs and benefits Diagram 2



Information also corrects asymmetric information and simplifies decision making.

Clear advice on washing hands and simple lockdown rules reduced the difficulty of computation, helping consumers maximise their utility. Information can also discourage consumption of demerit goods, such as cigarettes, with higher private

ADDITIONAL ANSWER SPACE

costs than consumers realise. In Diagram 2, health warnings shift MPB left towards MSB, reducing overconsumption from Q towards Q_s . Compared with taxes or bans, information provision is relatively cheap and does not restrict consumer choice, so it avoids the distortions and black markets that regulation can cause.

However, consumers may still act irrationally even with more information.

Addictive goods such as cigarettes have inelastic demand, and herding or social norms, such as anti-vaccine messages on social media, may outweigh government advice. Consumers may also ignore the effect on third parties, since they still base decisions on private costs and benefits rather than social ones, so information about externalities may not change their behaviour. Consumers on lower incomes are more likely to make decisions based on price than on information.

Furthermore, the government may suffer from information failure itself. Costs and benefits are difficult to measure, so it is hard to know what information to provide, and information changes rapidly with a new virus, so advice may be wrong or contradictory, as with early guidance on face masks. The government may also base decisions on misleading information from private firms. If trust is lost, for example after reports of rule-breaking in Downing Street, people are less likely to follow advice.

Other interventions may be more effective. Lockdown rules were backed by laws and fines, not just information, and some countries made COVID vaccinations mandatory. Taxes and subsidies change prices directly, which affects behaviour even when consumers ignore information, and social trends may matter more than government campaigns.

In conclusion, information provision can be effective, especially when the

ADDITIONAL ANSWER SPACE

information is clear, trusted and widely reached, and when consumers have a strong private incentive to act, as with COVID vaccinations where the private benefit was high. It is less effective for addictive demerit goods or where most benefits go to third parties. Therefore its effectiveness depends on the nature of the market and the importance of price, the quality and reach of the information, and whether consumers trust the government. It is most effective when backed up by regulation, as during the pandemic, rather than used on its own.