

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname *StemUp Model Solution*

Forename(s)

Candidate signature

I declare this is my own work.

INTERNATIONAL A-LEVEL ECONOMICS

Unit 3 The Economics of Business Behaviour and the Distribution of Income

A

Friday 6 January 2023

07:00 GMT

Time allowed: 2 hours

Materials

For this paper you must have:

- the Source Booklet, provided as an insert (enclosed)
- a calculator, which you are expected to use where appropriate.

Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions in **Sections A, B and C**.
- Answer **EITHER** Question 15 or Question 16 in **Section D**.
- You must answer the questions in the spaces provided. Do **not** write outside the box around each page or on blank pages.
- Do **not** write in the Source Booklet.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 90.
- You may use a bilingual dictionary for this exam.
- You may **not** use an English dictionary.

For Examiner's Use

Question	Mark
1–10	
11	
12	
13	
14	
15	
16	
TOTAL	



J A N 2 3 E C 0 3 0 1

Section A

Answer **all** questions in the spaces provided.

Only **one** answer per question is allowed.

For each question completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown.



If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown.



0 1

Firms **M** and **N** operate in two different market structures. **Table 1** shows some of the characteristics of these two market structures.

Table 1

Firm	Type of competition	Degree of product differentiation	Barriers to entry
M	Price	None	None
N	Non-price	Significant	High

Which one of the following combinations identifies the market structures in which firms **M** and **N** are most likely to operate?

[1 mark]

	Firm M	Firm N	
A	Monopolistic competition	Perfect competition	☐
B	Oligopoly	Perfect competition	☐
C	Perfect competition	Monopolistic competition	☐
D	Perfect competition	Oligopoly	☒



0 2

Which one of the following is most likely to cause the divorce of ownership from control in a firm?

[1 mark]

A A conflict of interest between the owners and the managers

☐

B A small firm being taken over by a much larger one

☒

C Additional staff being needed to make a new product

☐

D Profit satisficing becoming the firm's main objective

☐
0 3

Ang and Bao sell identical holidays. Ang sells the holiday for \$1500, but Bao advertises her holidays as being 'reduced from \$2000 to \$1500'.

Which one of the following biases is most likely to explain why Bao may sell more holidays than Ang?

[1 mark]

A Altruism

☐

B Anchoring

☒

C Inertia

☐

D Social norms

☐

Turn over for the next question

Turn over ►



0 4

Figure 1 shows two demand curves for labour (D_1 and D_2) for a firm in a perfectly competitive labour market.

Figure 1



Which one of the following is the most likely reason for the firm's demand curve for labour shifting from D_1 to D_2 ?

[1 mark]

- A** A decrease in the price of a substitute good
- B** A reduced rate of indirect tax on the firm's product
- C** An increase in the supply of labour into the industry
- D** Rising money wage rates in the industry

☒
☐
☐
☐


0 5

Which one of the following reasons is most likely to cause firms **not** to produce where marginal cost equals price?

[1 mark]

A Consumers and producers have perfect information.

☐

B Firms have a significant degree of market power.

☒

C The goods being sold are all identical.

☐

D There are no production externalities.

☐

0 6

Table 2 shows the total revenue of a profit-maximising firm from different levels of sales.

Table 2

Sales (units)	Total revenue (\$)
4	4200
5	4400
6	4500
7	4200
8	3600

Which one of the following can be concluded from the information in **Table 2**?

[1 mark]

A Average revenue is negative when the firm sells 7 units.

☐

B Demand is inelastic when the firm sells 7 or more units.

☒

C Marginal revenue is positive at all levels of sales.

☐

D Profits will be maximised when the firm sells 6 units.

☐

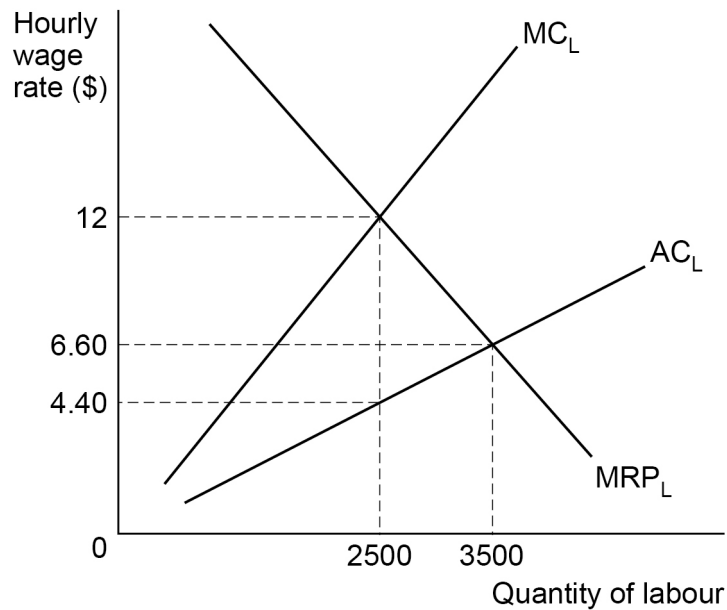
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0 7

Figure 2 shows the marginal revenue product of labour (MRP_L), marginal cost of labour (MC_L), and average cost of labour (AC_L) curves in a monopsony labour market.

Figure 2



The employer agrees to recognise a trade union. As part of the agreement, the firm now has to pay the wage rate that would exist in a perfectly competitive labour market.

What is the most likely change in the firm's hourly labour costs after the change in wage rates?

[1 mark]

- A** \$5500 ☐
- B** \$6900 ☐
- C** \$12 100 ☒
- D** \$19 000 ☐



0 8

Table 3 shows the Gini coefficient for income in Country Q in 2020 and 2021.

Table 3

Year	Gini coefficient
2020	0.36
2021	0.40

Which one of the following is a normative statement about the data in **Table 3**?

[1 mark]

- A** An increase in the cost of living may have caused the change in the Gini coefficient of Country Q.
- B** Income inequality in Country Q can be reduced if the government increases spending on unemployment benefits.
- C** The best way to reduce income inequality in Country Q is to reform the country's regressive tax system.
- D** The Gini coefficient in Country Q has increased by approximately 4% between 2020 and 2021.

☐
☐
☒
☐

Turn over for the next question

Turn over ►



0 9

Daria buys an annual pass that gives free, unlimited access to visit a cinema.

Table 4 shows the marginal utility that Daria gains from different quantities of cinema visits.

Table 4

Cinema visits	Marginal utility (in units)
1	14
2	10
3	6
4	3
5	-1

What is the total utility (in units) that Daria will receive if she behaves rationally?

[1 mark]

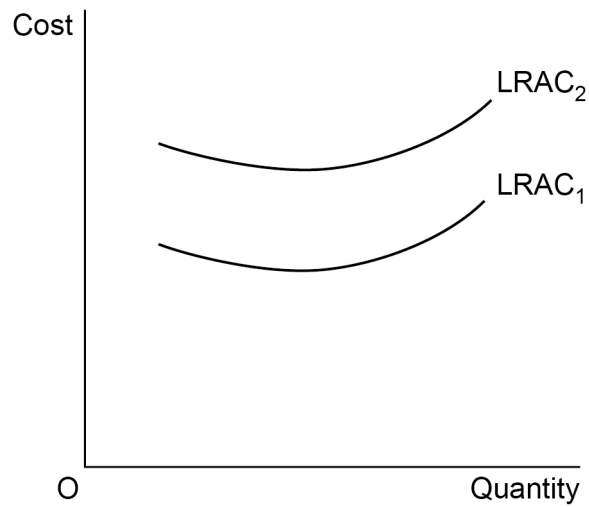
- A** 3 ☐
- B** 14 ☐
- C** 32 ☐
- D** 33 ☒



1 0

Figure 3 shows the long-run average cost curves ($LRAC_1$ and $LRAC_2$) for a firm.

Figure 3



Which one of the following is most likely to cause the shift from $LRAC_1$ to $LRAC_2$ shown in **Figure 3**?

[1 mark]

- | | |
|---|----------------------------------|
| A Diminishing marginal returns have set in | ☐ |
| B Increasing competition in the market | ☐ |
| C Rising costs of rent for the factory | ☒ |
| D There are decreasing returns to scale | ☐ |

10

Turn over for Section B

Turn over ►



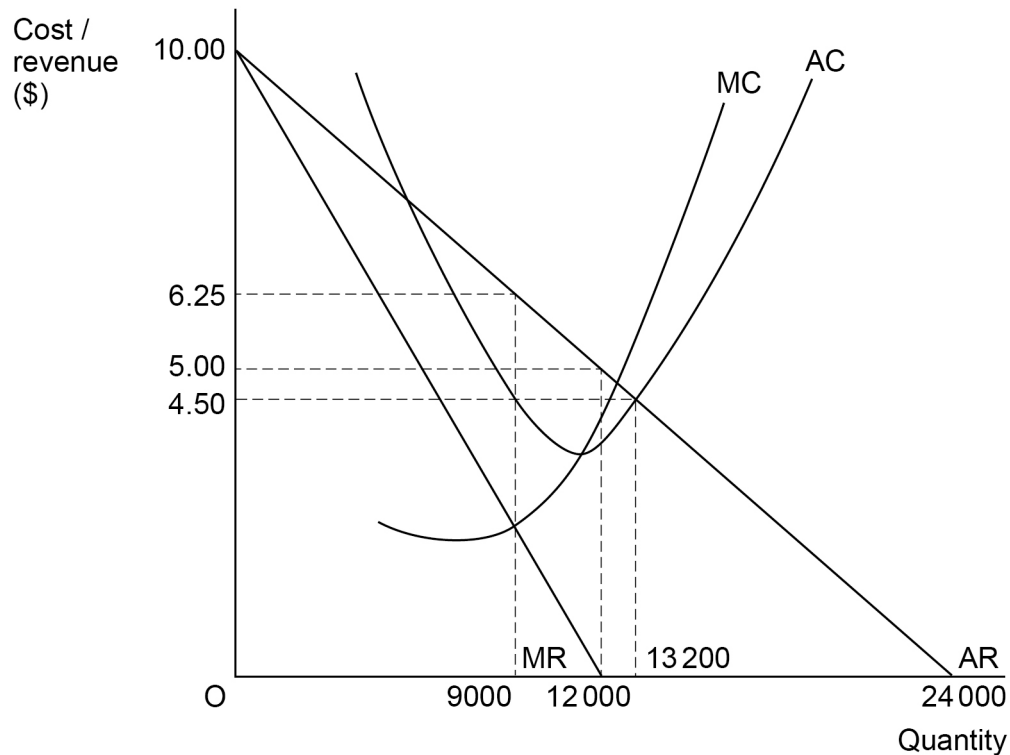
Section B

Answer **all** questions in the spaces provided.

1 1

Lin runs a small firm that sells shoes. The firm competes with many other small firms selling similar products. **Figure 4** below shows the short-run costs and revenues at different levels of output for the firm.

Figure 4



1 1

1

Profit maximisation is one objective of a firm.

Identify **two** other objectives.

[2 marks]

Revenue maximisation

Growth (increasing market share)



- 1 1 . 2** Use **Figure 4** to calculate the maximum amount of profit Lin's firm can make.

You are advised to show your working.

[2 marks]

Profit is maximised where $MR = MC$, at an output of 9000 units.

At 9000: $AR = \$6.25$ and $AC = \$4.50$

Profit = $(\$6.25 - \$4.50) \times 9000 = \$1.75 \times 9000 = \$15\,750$

- 1 1 . 3** Use **Figure 4** to calculate the maximum amount of revenue Lin's firm can make.

You are advised to show your working.

[2 marks]

Revenue is maximised where $MR = 0$, at an output of 12 000 units.

At 12 000: $AR = \$5.00$

Total revenue = $\$5.00 \times 12\,000 = \$60\,000$

Question 11 continues on the next page

Turn over ►



1 1 . 4 Figure 5 shows the short-run equilibrium position for Lin's firm.

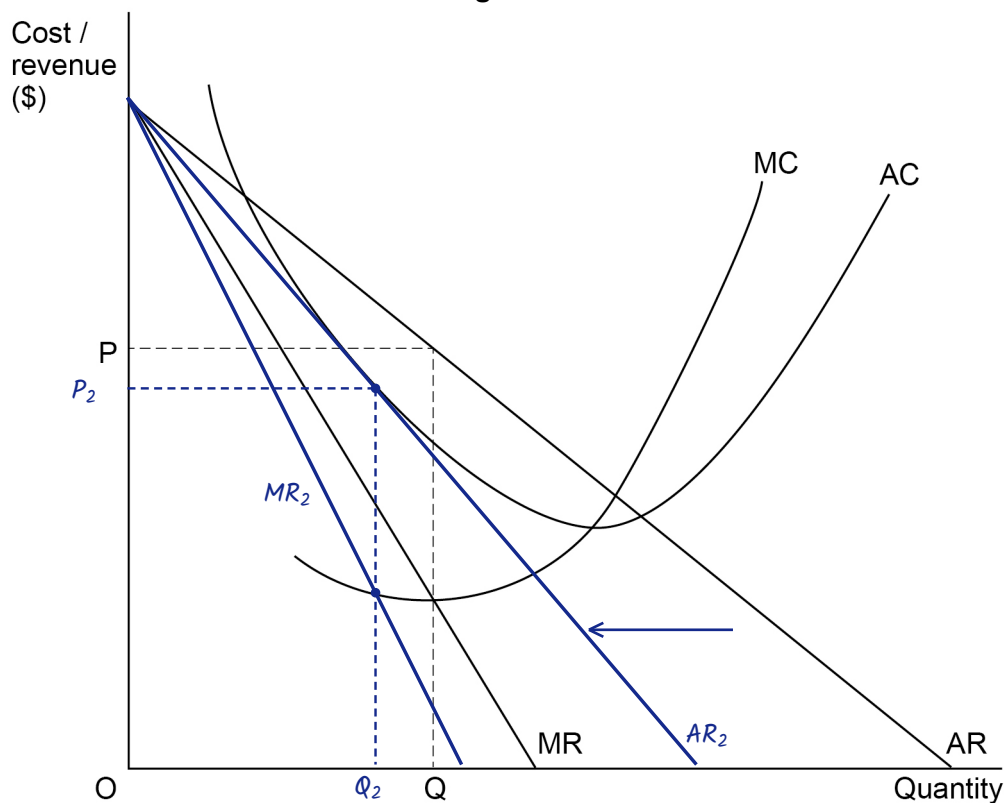
Add to Figure 5 to show the long-run equilibrium position.

The finished diagram should show:

- the changes to the cost and/or revenue curves
- the new price and quantity.

[4 marks]

Figure 5



Supernormal profit attracts new firms into the market, so Lin's share of demand falls: AR and MR shift inwards to AR_2 and MR_2 . In the long run $MR_2 = MC$ at Q_2 , where AR_2 is tangential to AC , so price $P_2 = AC$ and Lin's firm earns only normal profit.

10



Section C

Look at the Source Booklet and answer **all** questions in the spaces provided.

Do **not** write in the Source Booklet.

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Extract B (lines 17–18) states: ‘firms have left the industry due to increased losses’.

1	2	1
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Explain why the level of profit or loss may influence the number of firms in an industry.

[4 marks]

Profit is total revenue minus total costs; a loss occurs when total costs exceed total revenue. Economic theory assumes firms aim to maximise profit, so profit acts as a signal and an incentive. If firms in an industry earn supernormal profit ($AR > AC$), this signals that resources would earn more there than in their next best use, so new firms are attracted in, if barriers to entry allow, until only normal profit is made. If firms make losses ($AR < AC$), they cannot cover their opportunity costs, so in the long run they leave the industry, as Extract B describes, and the number of firms falls. A loss-making firm may stay in the short run if price covers average variable cost, and firms need time and accurate information to enter or exit, so the number of firms changes with a time lag and depends on expected future profits.

Question 12 continues on the next page

Turn over ►



1 2 . 2

To what extent do the data suggest that the level of profit or loss influenced the number of firms in the UK energy industry between 2009 and 2020?

Use the data in **Extract A** to support your answer.

[4 marks]

There is some evidence. From 2009 to 2013 profits of the six largest firms rose from £221m to £1151m and the number of firms rose from 12 to 21. After losses in 2019 and 2020 (a £173m loss in 2020) the number of firms fell from 68 in 2017 to 48. However, from 2013 to 2017 profits fell from £1151m to £924m yet the number of firms rose from 21 to 68, suggesting a time lag or other causes. The profits are only for the six largest firms, whose market share fell from nearly 100% to 70%, so they may not represent the industry; data are not given for every year; and causation may run the other way, as more firms means more competition and lower profits. Overall, profit had some influence, but the link is weak.

8



1 3

Extract C (line 16) states: 'the government is keen to encourage new firms to enter the market.'

Explain how **both** strategic **and** innocent barriers may prevent new firms from entering the energy supply market.

[12 marks]

Barriers to entry are obstacles that make it difficult or costly for new firms to enter a market, allowing existing firms to keep supernormal profits in the long run. Strategic barriers are deliberately created by existing firms to deter entry, while innocent barriers arise naturally from the nature of the industry, such as its cost structure. Both reduce the contestability of the energy supply market.

One strategic barrier is branding. The large established energy companies, such as the 'big six', are household names and can use retained profits and their creditworthiness to fund expensive advertising and promotions. A new supplier must spend heavily on marketing to win customers, which raises its average costs. Incumbents can also use tools that create consumer inertia, such as automatic contract renewal, long fixed-term deals and exit fees, so customers stay with their current supplier even if a new firm is cheaper, and the entrant cannot gain enough customers to cover its costs.

A second strategic barrier is pricing. An incumbent can use limit pricing, setting its price just below the average cost of a potential entrant, or predatory pricing, cutting prices below cost when a new firm enters, financed by profits from other markets, to force the entrant out. Expecting this, new firms are deterred. In addition, vertically integrated firms that own power stations and networks can supply themselves with cheaper energy, or raise the wholesale price paid by rivals, squeezing entrants' margins.

Innocent barriers are also important. Large existing suppliers benefit from economies of scale: the high fixed costs of billing systems, call centres, metering and buying energy in advance are spread over millions of customers,

Turn over ►



so their average costs are low. If the minimum efficient scale is large relative to the market, a new firm with few customers faces much higher average costs Extra space and cannot compete on price. Entry also involves sunk costs, such as investment in IT and customer service infrastructure, which cannot be recovered if the firm fails, so entry is very risky in a market with low and volatile profit margins.

Finally, there are start-up costs from licensing and regulatory approval. Statutory requirements, such as showing 'investment and financial stability', mean new suppliers must prove they have enough capital to survive sharp rises in wholesale prices. Although these rules exist to protect consumers rather than to deter entry, they raise the cost of entering, especially for small firms with limited access to finance.

Regardless of whether a barrier is strategic or innocent, the effect is the same: it raises the cost or risk of entry, or reduces the profit an entrant can expect, so fewer firms enter. This protects the market power of existing suppliers, keeping prices higher and quality lower, which is why the government is keen to encourage new firms to enter the market.



1 4

Extract B (lines 11–12) states: ‘in the long run, a competitive market is the best way to keep prices low and improve quality of service.’

Evaluate the likely effectiveness of measures that could be used to increase competition and protect consumers in the energy supply market.

[25 marks]

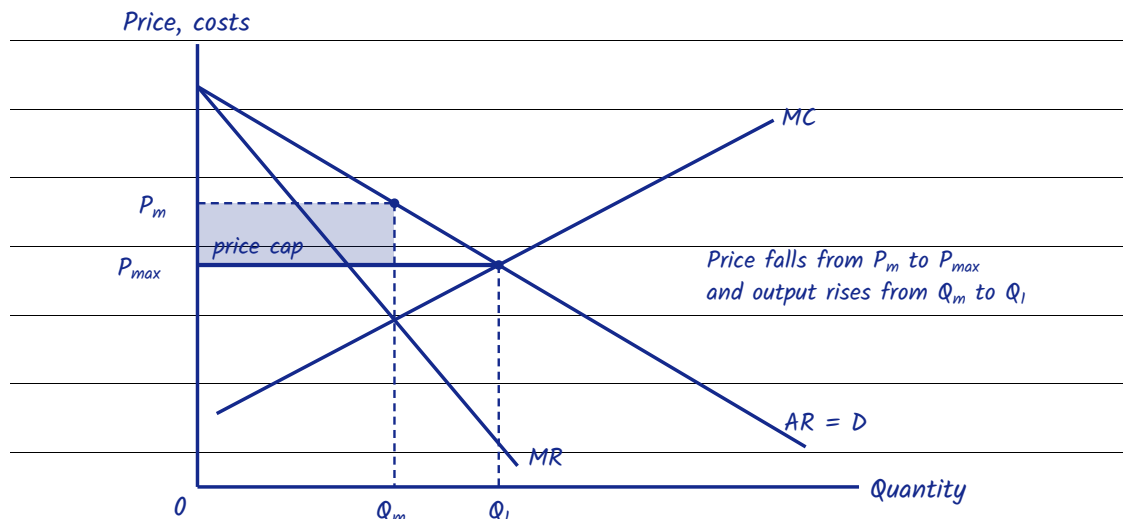
Energy is an essential good with price inelastic demand, and the market is dominated by a few large suppliers, so without competition firms could set prices above marginal cost, restrict choice and let quality of service fall, causing allocative and X-inefficiency. As Extract B suggests, competition forces firms to keep prices close to average cost, cut costs and improve service to keep customers. However, consumers may also need direct protection, so the government can use several measures.

First, a price cap, such as the UK's price cap on standard tariffs. As the diagram shows, a firm with market power would produce Q_m , where $MR = MC$, and charge P_m . A maximum price set at P_{max} makes AR horizontal up to the cap, so the firm now maximises profit at Q_1 ; price falls, output rises and the shaded area of supernormal profit is transferred back to consumers. An RPI – X style cap also gives firms an incentive to cut costs, as they keep any savings below the cap. However, the regulator has imperfect information about firms' costs. If the cap is set too high it gives little protection; if it is set too low, or cannot adjust quickly when wholesale prices rise, suppliers make losses and leave the market, which reduces competition, as seen when firms left the industry due to losses. A cap can also become a focal point, with all firms pricing at the cap rather than competing below it. So a price cap protects consumers in the short run but may weaken competition in the long run.

Second, the government can lower barriers to entry, for example by giving small firms licence and financial exemptions, as the regulator Ofgem has done, and offering support on how to join the market. More entrants make the market

Turn over ►





more contestable, so even the big suppliers must keep prices low to deter

Extra space entry, and new firms may bring innovative business models such as green or digital-only tariffs. The number of firms did rise sharply, to 68 by 2017. However, many small entrants were financially weak and did not hedge against rising wholesale prices; when they failed, their customers were moved to other suppliers and the costs were added to everyone's bills. This shows a trade-off: looser rules increase competition but stricter 'financial stability' rules protect consumers. Its effectiveness depends on getting this balance right. Third, measures that make switching easier, such as switching services, price comparison websites and clear information about tariffs. Many consumers stay on expensive default tariffs because of inertia, information overload and the hassle of switching, which are behavioural biases. If switching is quick and free, demand facing each firm becomes more price elastic, so firms must compete harder on price and service. However, its impact depends on consumers' willingness to engage: elderly, low-income and vulnerable consumers are least likely to switch, so the people most in need of protection may gain least. Nudges such as automatic switching could help.

Fourth, the competition authority can regulate mergers and takeovers and be given stronger powers to fine firms or stop them operating if they engage in



restrictive practices such as collusion. Blocking mergers between large suppliers prevents market concentration rising further. Quality standards and performance targets, for example for complaint handling and billing accuracy, can protect consumers where competition does not drive quality. These measures are only effective if collusion can be detected and fines are large enough to outweigh the extra profit. Regulators may also suffer from regulatory capture, acting in the interests of the firms they regulate, which is a form of government failure. Finally, the government can protect consumers directly by subsidising energy for low-income households. This reduces fuel poverty and income inequality, and does not interfere with competition between firms. However, it has an opportunity cost for government finances, may require higher taxes, and by keeping energy cheap it may encourage over-consumption and negative externalities such as carbon emissions. Some argue that renationalising energy supply would protect consumers better than competition, since a state-owned supplier could aim for fair prices rather than profit. But state firms may lack the profit incentive to be efficient, and may become X-inefficient and less innovative, which is why the industry was privatised.

Overall, the effectiveness of these measures depends on the time period, the design of each measure and the behaviour of consumers. Increasing competition is likely to be the best long-run way to keep prices low and improve quality, as Extract B argues, but only if entrants are financially sound and consumers actively switch. In the short run, especially when wholesale prices are volatile, competition alone cannot protect vulnerable consumers of an essential good. I judge that the most effective approach is a combination: measures to make switching easy and lower barriers to entry, with sensible financial checks on new firms, supported by a well-designed, flexible price cap and targeted subsidies as a safety net for the poorest.



Section D

Answer **EITHER** Question 15 **OR** Question 16.

Shade the circle below to indicate which optional question you have answered.

Question 1 5 ☐Question 1 6 ☒CORRECT METHOD ☒

WRONG METHODS

**Either**

1 5

According to the US Bureau of Labour Statistics, 4.4 million workers chose to leave their jobs in September 2021 – the highest number ever recorded. The technology and healthcare sectors were affected most. At the same time, wages grew at the fastest rate in more than 20 years.

Assess the importance of non-monetary influences on the supply of labour to different occupations.

[25 marks]**or**

1 6

Spain has a progressive wealth tax on both residents and non-residents. Data from the World Bank show that inequality in Spain has fallen over the last 10 years.

Evaluate whether a wealth tax is the best way to reduce inequality in an economy.

[25 marks]

Inequality is the uneven distribution of income or wealth between households.

Income is a flow, such as wages, rent and dividends received over a period, while

wealth is a stock of assets such as property, shares and savings at a point in

time. Wealth is usually far more unequally distributed than income, and the two are

linked: wealth generates unearned income, and high incomes can be saved to build

more wealth. A wealth tax is a tax on the value of assets, such as Spain's annual

tax on net wealth, or taxes on property, capital gains and inheritance.

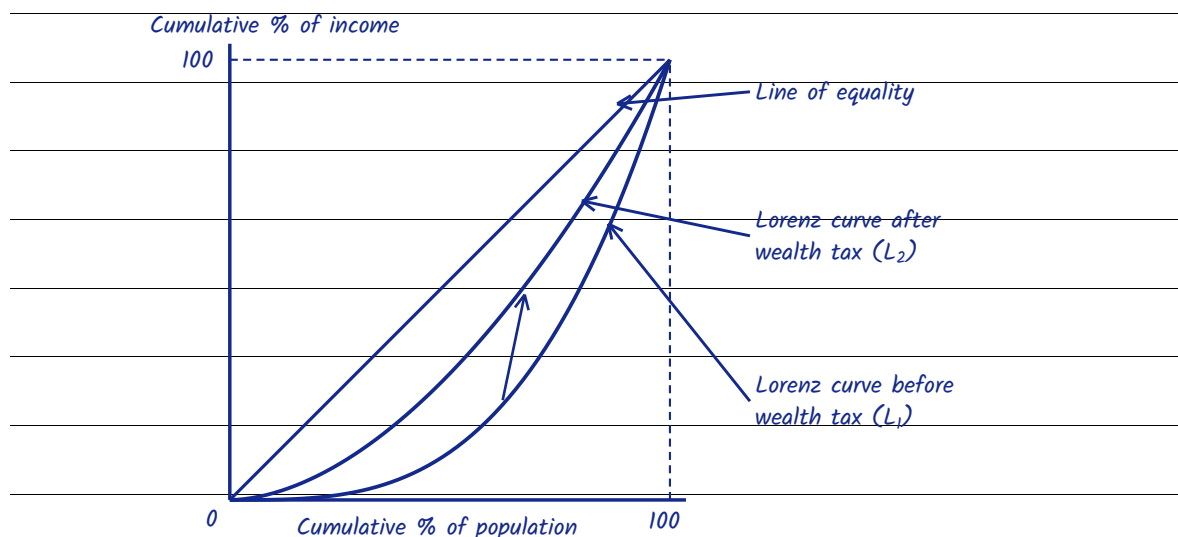
A progressive wealth tax takes a higher percentage from those with more wealth,

for example by having a high tax-free threshold and rising rates on larger fortunes.

As the diagram shows, this shifts the Lorenz curve from L_1 towards the line of

equality (L_2), reducing the Gini coefficient. It reduces inequality directly, by





reducing the wealth of the richest, and indirectly, by reducing the unearned income their assets generate in future. Because inherited wealth passes advantages from one generation to the next, taxing wealth helps break this cycle and improves equality of opportunity. The revenue can also be spent on education, health care and benefits for low-income households, so the tax is redistributive on both the tax and spending sides. Spain's experience, where inequality has fallen over the last 10 years, may support this, although correlation is not causation: the fall may be due to other factors, such as economic recovery, falling unemployment and rises in the minimum wage.

However, there are significant problems. Wealth is difficult to value: the value of property, art or a private business is not known until it is sold, so assessing households' assets is costly and open to dispute. Some households are asset rich but cash poor, such as retired people living in valuable homes or owners of family farms and businesses, and may have to sell assets to pay the tax. Wealth is also mobile: the rich can move assets abroad, put them into trusts or change their residence, so the tax is easy to avoid and even evade. This is why Spain taxes non-residents as well, but capital flight is still likely without international coordination, which is why some economists propose a global wealth tax. Several European countries, such as

Turn over ►



France, have abolished or reduced their wealth taxes, partly because they raised little revenue relative to their administrative costs.

A wealth tax may also have efficiency costs. It reduces the reward for saving, investing and enterprise, so it may reduce capital accumulation, productivity and long-run economic growth, and wealthy entrepreneurs may leave the country, a brain drain. The effect depends heavily on the rate and the starting point: a low rate with a high threshold causes few disincentives but has little effect on inequality, while a high rate would reduce inequality more but increase avoidance and disincentives.

There are alternative methods. A progressive income tax, with higher marginal rates
Extra space for high earners, targets income inequality directly and is easier to collect, since incomes are recorded through payroll systems, though high rates can also reduce incentives to work. Inheritance tax and capital gains tax are forms of wealth taxation that are charged when assets change hands, so valuation and liquidity problems are smaller. Means-tested and universal benefits, a national minimum wage and spending on education and training raise the incomes of the poorest and improve their human capital, tackling the causes of inequality rather than just its symptoms. Free provision of merit goods such as health care also reduces inequality in living standards. These measures may be more effective than a wealth tax at reducing income inequality and poverty, although they do not deal with large inherited fortunes.

Whether a wealth tax is the best way also depends on what kind of inequality the economy has. Where wealth is very concentrated and much of it is inherited, a wealth tax targets the root of the problem. Where inequality mainly comes from differences in pay, skills and unemployment, income taxes, benefits and education are likely to be more effective. It also depends on the government's capacity to value assets and enforce the tax, and on how mobile capital is. Finally, some



*inequality may be desirable, as it provides incentives to work, save and take risks;
the desired level of equality is a normative judgement.*

*In conclusion, a wealth tax can reduce wealth inequality and the unearned incomes
that sustain it, and Spain's falling inequality suggests it can play a role. However,
because of valuation problems, avoidance, capital flight and possible disincentives, it
is unlikely to be the best single way to reduce inequality. I judge it to be most
effective as one part of a package: a moderate, well-enforced wealth or inheritance
tax with a high threshold, alongside progressive income taxes, targeted benefits and
investment in education, ideally coordinated internationally to limit avoidance.*

END OF QUESTIONS



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ANSWER IN THE SPACES PROVIDED**



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2 8



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