

Surname <i>StemUp Model Solution</i>	Centre Number	Candidate Number
First name(s)		2



GCE A LEVEL

A520U10-1



MONDAY, 23 MAY 2022 – AFTERNOON

ECONOMICS – A level component 1
Economic Principles

1 hour 30 minutes

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1-20	20	
21	3	
22	5	
23	8	
24	8	
25	8	
26	8	
Total	60	

A520U101
01

ADDITIONAL MATERIALS

A calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space use the continuation pages at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

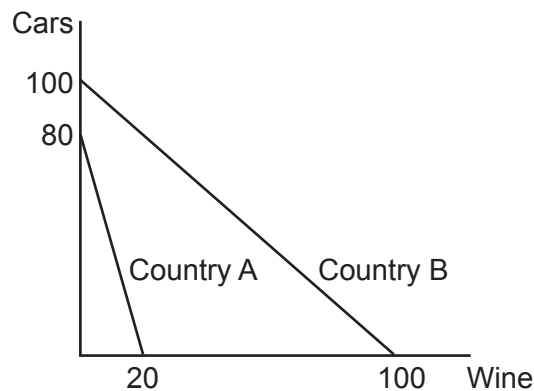
You are reminded of the necessity for good English and orderly presentation in your answers.

SECTION A

For each question in Section A, write the letter (A, B, C, D or E) that corresponds to your answer in the box provided.

You are advised to spend approximately **30 minutes** on this section.

1. The diagram below shows the PPFs for the economies of Country A and Country B.



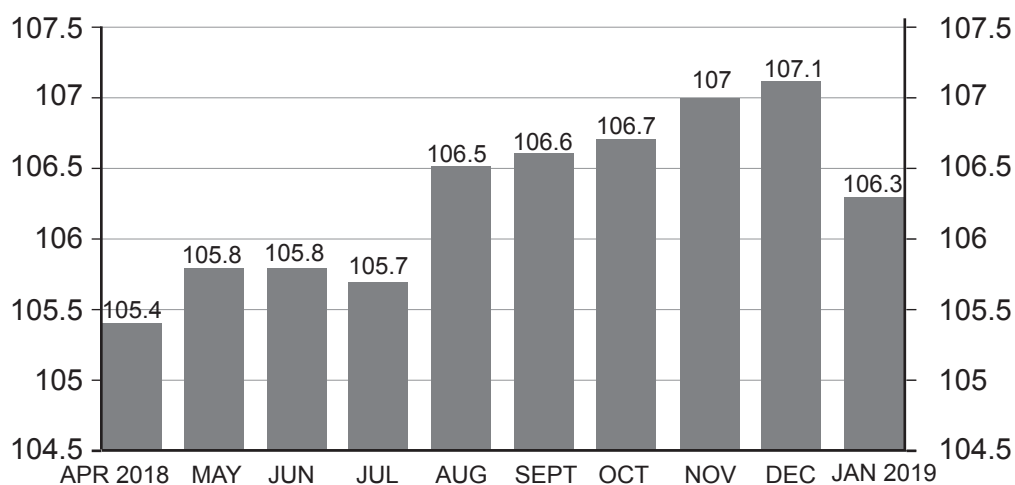
Which **one** of the following statements is correct?

[1]

- A** There are no gains from trade between Country A and Country B
- B** Country A has an absolute advantage in the production of wine
- C** Country B has comparative advantage in the production of cars
- D** Country B has comparative advantage in the production of both goods
- E** Country A has comparative advantage in the production of cars

E

2. The chart below shows the UK's CPI between April 2018 and January 2019.



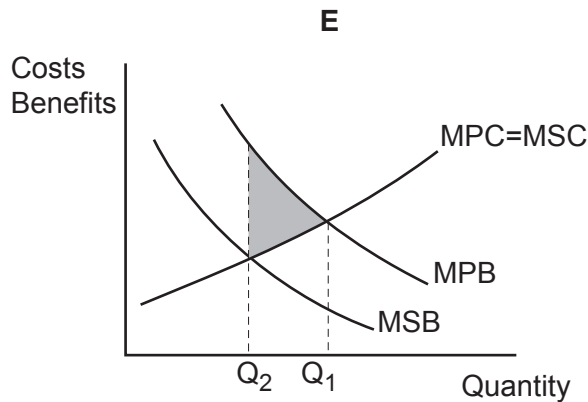
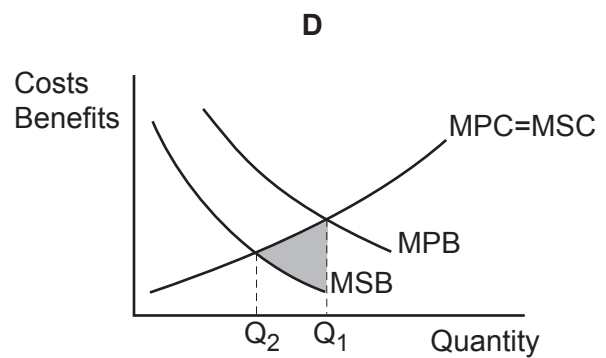
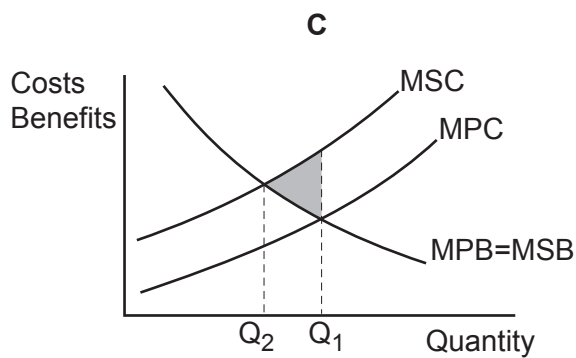
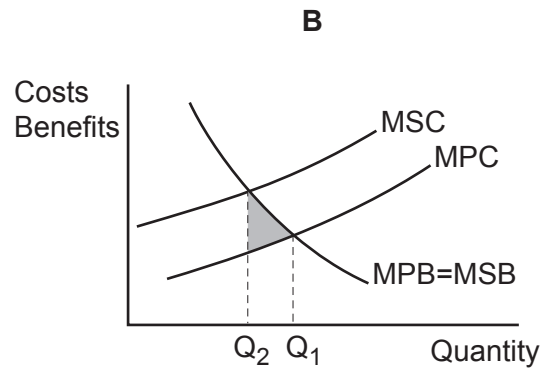
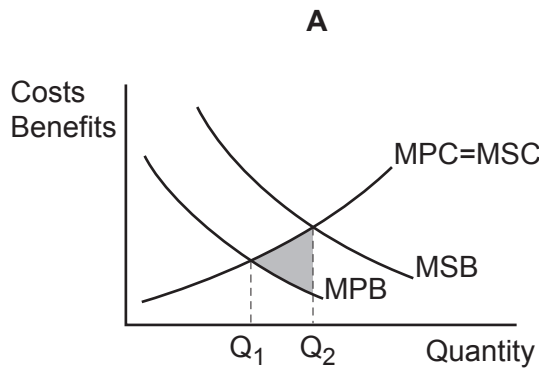
Which of the following is true?

[1]

- A** Prices rose by 1.6% between April 2018 and December 2018
- B** Prices rose by 0.9% between April 2018 and January 2019
- C** Inflation was positive in every month in the period shown
- D** Prices rose by 5.4% in April 2018
- E** Prices were highest at the end of the period

A

3. The excessive consumption of junk food imposes external costs on society, resulting in market failure. Which of the following diagrams best illustrates this economic problem? [1]



Key:

 = Welfare loss in all diagrams

MPC = marginal private cost
 MSC = marginal social cost
 MPB = marginal private benefit
 MSB = marginal social benefit

D

4. Suppose that a firm's research has shown that its total revenue increases if any one of the following occurs:

- (i) It increases its prices
- (ii) The economy enters a recession
- (iii) A related firm cuts its prices

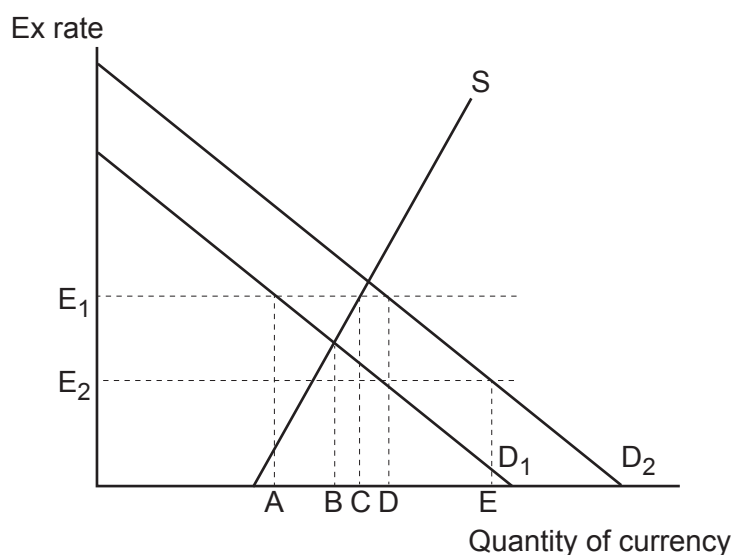
It can be concluded that for this firm's product:

[1]

	PED is	YED is	XED is
A	Elastic	Positive	Negative
B	Inelastic	Negative	Negative
C	Elastic	Positive	Positive
D	Inelastic	Positive	Negative
E	Inelastic	Negative	Positive

B

5. The diagram below shows the supply and demand for a country's currency. The central bank manages the exchange rate to keep it between E_1 and E_2 .



Suppose that demand rises from D_1 to D_2 , what would the central bank need to do to maintain the exchange rate at E_1 ? [1]

- A** Buy AC of its own currency
- B** Buy AD of its own currency
- C** Sell BD of its own currency
- D** Sell AD of its own currency
- E** Sell CD of its own currency

E

6. Which **one** of the following is an internal economy of scale?

[1]

- A** Discounts from suppliers to firms who order in bulk
- B** Efficient local transport networks
- C** Specialist training facilities provided by local colleges
- D** The reputation of an area for a particular product
- E** New technology becomes available to all firms in an industry

A

Study the graph opposite, which shows a firm in an imperfect market, to answer questions 7 and 8.

7. The firm's total fixed costs if it produces the profit maximising output are (to the nearest £): [1]

- A** £30
- B** £36
- C** £44
- D** £66
- E** £95

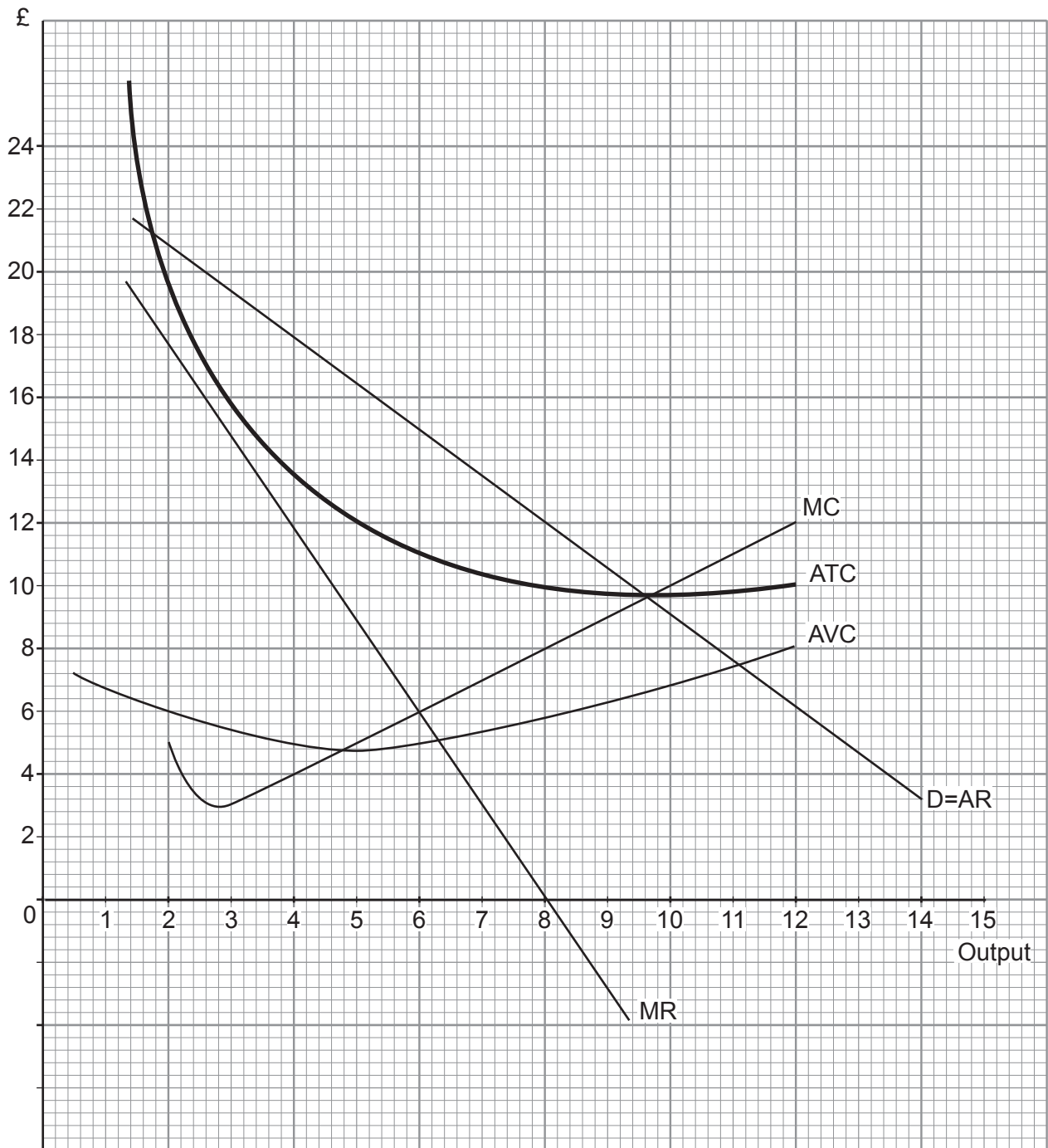
B

8. The firm's abnormal profit if it produces the sales revenue maximising output will be:

[1]

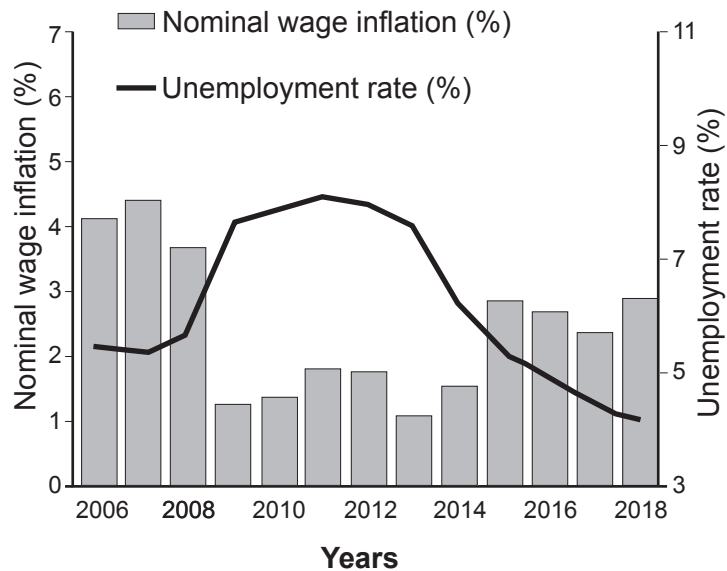
- A** £96
- B** £90
- C** £30
- D** £16
- E** £0 (Normal profit)

D



9.

UK: more people at work
The unemployment rate is at historical lows
and wage growth has recovered



The chart shows that over the period:

[1]

- A** Low levels of nominal wage growth cause high levels of unemployment
- B** Unemployment increased and then fell, but nominal wages fell and then increased
- C** Unemployment increased and then fell, but nominal wages increased in each year
- D** Increased unemployment causes nominal wages to fall
- E** Reductions in unemployment always increase nominal wage growth

C

10. The table below has information on the US money supply and nominal GDP.

	Money supply	Nominal GDP
2015	\$2.9bn	\$18.0bn
2016	\$3.1bn	\$18.4bn
2017	\$3.3bn	\$19.2bn
2018	\$3.5bn	\$20.0bn
2019	\$3.7bn	\$20.9bn

It can be concluded that:

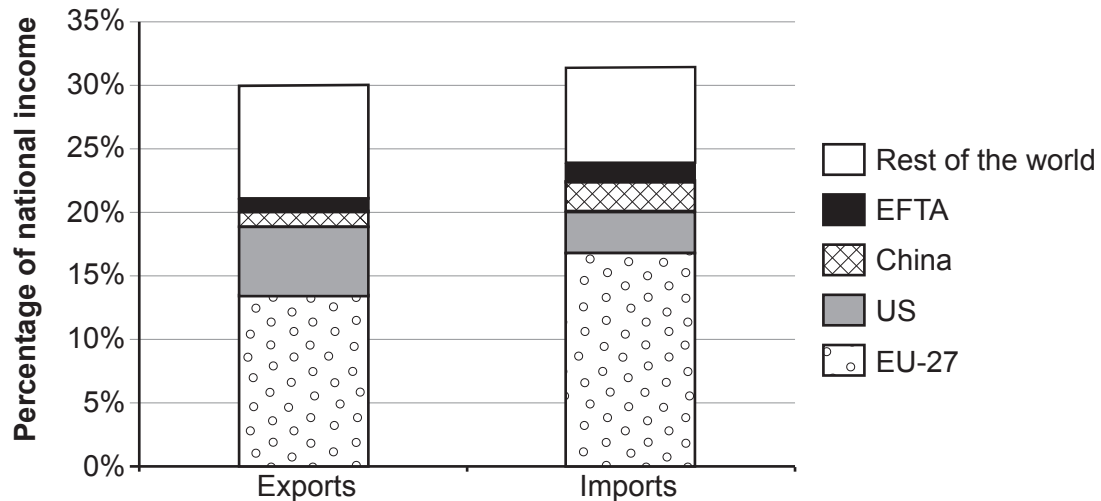
[1]

- A** The price level must have been rising
- B** Real GDP must have been rising
- C** The velocity of circulation was constant
- D** The velocity of circulation was falling
- E** The price level and real GDP must both have been rising

D

11. The chart below gives data on the UK's imports and exports of goods and services as a percentage of UK GDP.

Value of exports from and imports to the UK as a percentage of GDP, 2017



It can be concluded that:

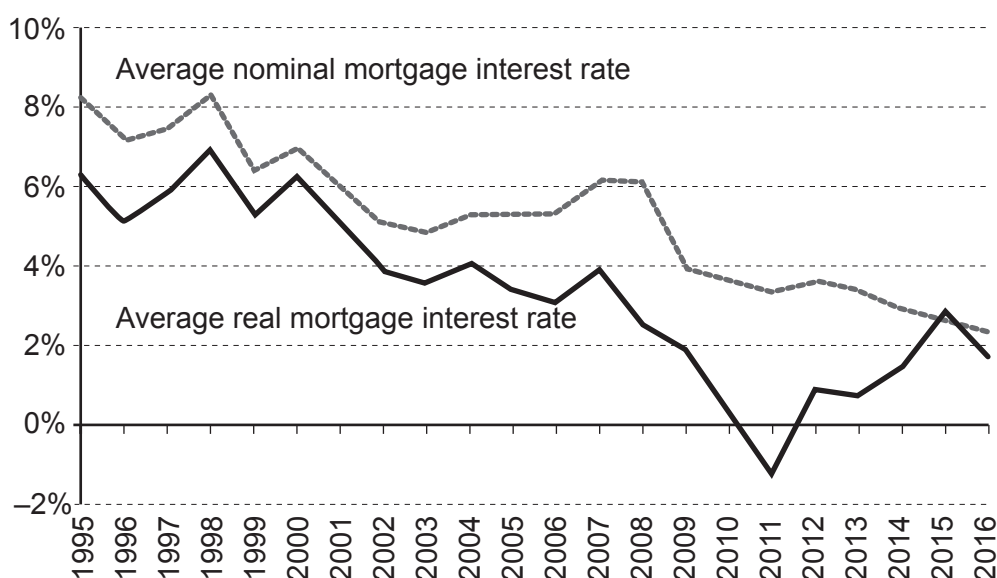
[1]

- A** The UK had an overall balance of trade surplus on goods and services
- B** The UK had a balance of trade surplus on goods and services with EFTA
- C** The UK had a balance of trade surplus on goods and services with the US
- D** The UK had a balance of trade surplus on goods and services with China
- E** The UK had a balance of trade surplus on goods and services with the EU

C

12. The chart below gives information on real and nominal mortgage interest rates between 1995 and 2016.

Average nominal and real mortgage interest rates on variable mortgages, 1995–2016



Note: Real mortgage interest rate is after adjusting for CPI inflation (excluding housing costs)

It can be concluded that:

[1]

- A** Inflation was positive each year between 1995 and 2016
- B** Inflation was highest in 1998
- C** Inflation was rising between 2011 and 2015
- D** There was deflation in 2011
- E** Inflation was rising between 2009 and 2011

E

13. An **appreciation** in the exchange rate would be most likely to improve the current account balance if the price elasticities of demand (PED) for exports and imports were:

[1]

	PED for exports	PED for imports
A	-0.2	-0.2
B	-0.5	-0.5
C	-0.9	-1.4
D	-1.4	-0.9
E	-1.4	-1.4

A

14. A firm faces the following cost and revenue situation:

The firm's total fixed costs are £20 per day.

Output per day	Marginal cost	Marginal revenue
1	£5	£15
2	£7	£15
3	£9	£15
4	£11	£15
5	£13	£15
6	£16	£15
7	£19	£15

If the firm produces the output at which profits are highest, its overall level of profit or loss will be:

[1]

- A** £20 loss
B £0
C £9 profit
D £10 profit
E £30 profit

D

15. The table below gives information on the index of UK export prices and the index of UK import prices between January 2016 and January 2018:

	Export price index	Import price index
January 2016	98	99
January 2017	111	109.5
January 2018	112	111

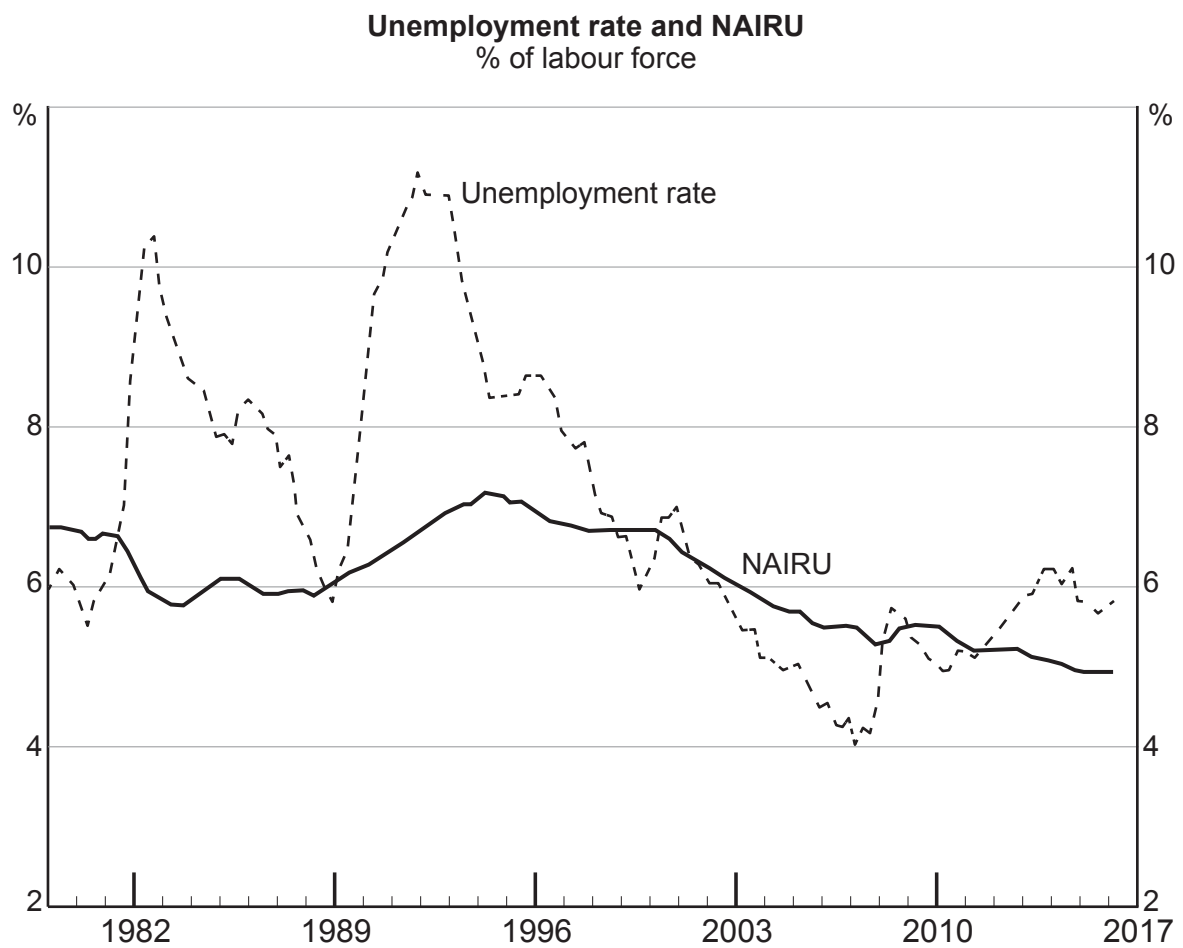
It can be concluded from the table that:

[1]

- A** The terms of trade worsened between January 2016 and January 2017
- B** The terms of trade worsened between January 2017 and January 2018
- C** There was a trade deficit in January 2016
- D** The terms of trade index improved each year
- E** There was a trade deficit in January 2018

B

16. The chart below contains information on the unemployment rate and the NAIRU (the non-accelerating inflation rate of unemployment) in Australia.



The information in the chart suggests that it is most likely that:

[1]

- A** Increases in the NAIRU increase unemployment
- B** Inflation should have been rising in the mid-1980s
- C** Inflation should have been falling in the 1990s
- D** Increases in unemployment increase the NAIRU
- E** Inflation should have been falling between 2003 and 2008

C

17. The table below gives information on a hypothetical country's income tax structure:

Annual income	Income tax due
£10 000	£1 000
£15 000	£1 200
£20 000	£1 400
£40 000	£2 400
£60 000	£3 000

It can be deduced from the above data that the tax being imposed is:

[1]

- A A progressive tax
- B An ad valorem tax
- C An indirect tax
- D A specific tax
- E A regressive tax

E

18. Suppose an economy has a GDP of \$200bn and enjoys constant 2% economic growth for the next 5 years. What will be the value of the economy's GDP after 5 years?

[1]

- A \$220.00bn
- B \$220.82bn
- C \$221.84bn
- D \$222.22bn
- E \$223.52bn

B

19. The price elasticity of demand for a product is unity (-1). Which of the following will increase as a result of an increase in the supply of the product? [1]

- A** Expenditure on the product
B Expenditure on substitute products
C Marginal revenue
D Quantity demanded
E The price of the product

D

20. The payoff matrix below shows two firms' expected revenues from different pricing decisions:

		Firm B	
		£20	£25
Firm A	£10	£500, £2000	£750, £1750
	£9	£450, £1800	£650, £1500

It can be concluded, other things being equal, that the price elasticity of demand for each firm's product is: [1]

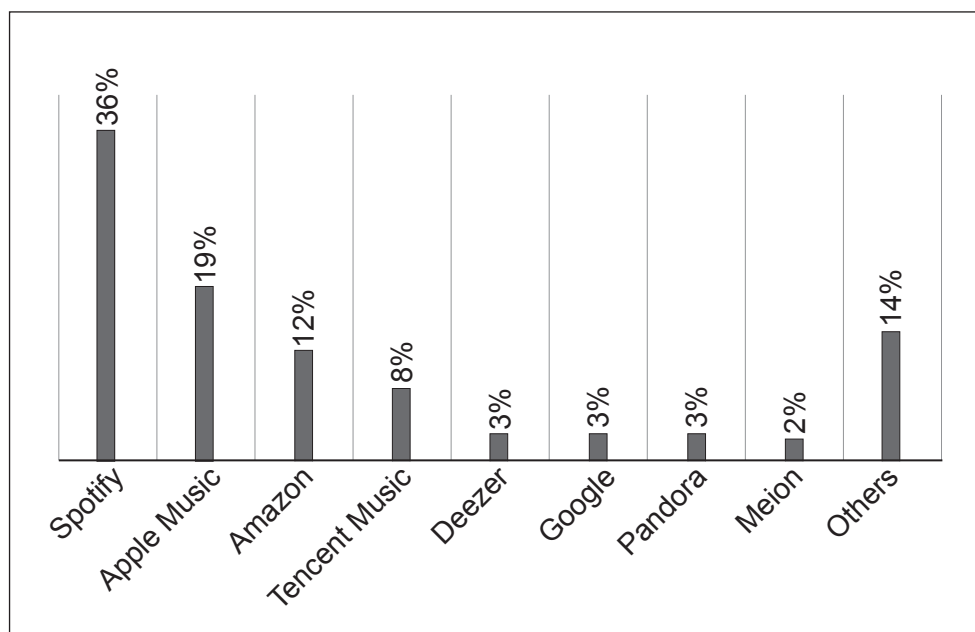
	Firm A	Firm B
A	Elastic	Elastic
B	Elastic	Inelastic
C	Inelastic	Elastic
D	Inelastic	Inelastic
E	Unknown	Unknown

C

SECTION B

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

21. The data below shows the market share of firms supplying music downloads and streaming services.



- (a) Calculate the four firm concentration ratio for this sector.

[1]

$$CR_4 = 36\% + 19\% + 12\% + 8\% = 75\%$$

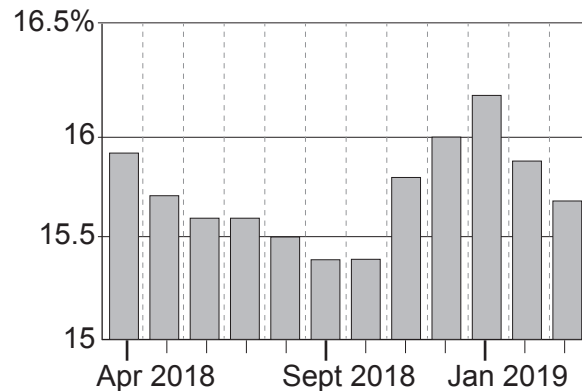
- (b) Outline the market structure of the industry.

[2]

Oligopoly: the market is dominated by a few large firms. The four largest have 75% of sales and the top two (Spotify and Apple Music) 55%, over half. Spotify, with 36%, is over 25% so it is a working monopoly. The rest is a small competitive fringe (2% to 3% each), so firms are interdependent.

22. The chart below gives information on Sainsbury's market share in 2018 and early 2019. In 2018 Sainsbury's announced plans to merge with its competitor, Asda. In April 2019 this proposed merger was blocked by the Competition and Markets Authority.

Sainsbury's market share (% of total value of supermarket sales)

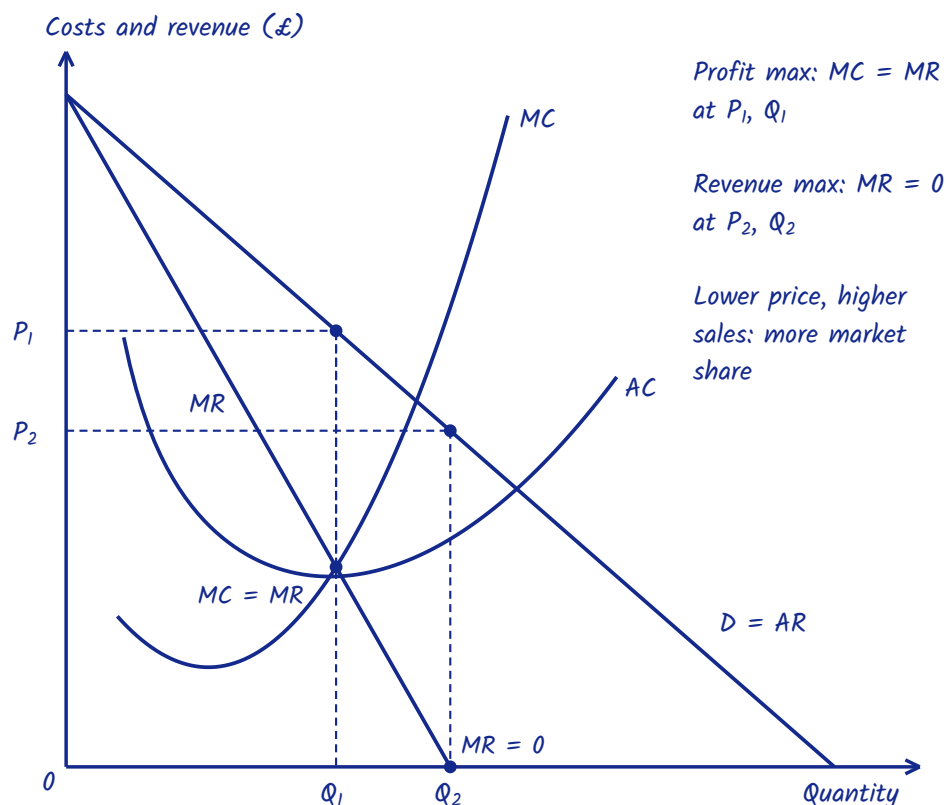


- (a) State the type of integration involved if Sainsbury's had merged with Asda. [1]

Horizontal integration: two firms at the same stage of production in the same industry

(supermarket retailing).

- (b) Using a cost and revenue diagram, explain how a switch from profit maximisation to sales revenue maximisation might affect Sainsbury's market share. [4]

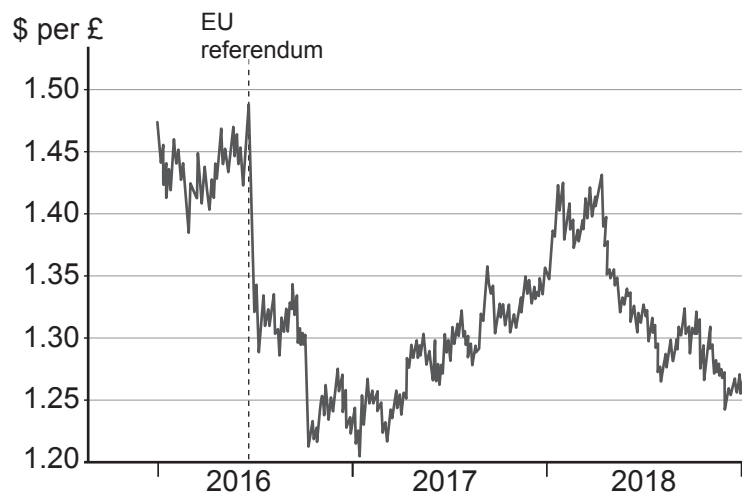


As the diagram shows, a profit maximiser produces where $MC = MR$ (P_1, Q_1). A revenue maximiser produces where $MR = 0$, cutting price to P_2 and selling Q_2 . As demand is price elastic above Q_2 , total revenue rises. Market share is Sainsbury's share of total supermarket sales value, so if Tesco and Asda do not match the cut, customers switch to Sainsbury's and its share rises above the 15.4% to 16.2% shown. Lower prices may even force smaller rivals out, raising its share further.

5

23. The chart below gives information on the £/\$ exchange rate before and after the UK's referendum on EU membership.

Exchange rate against the US dollar



Discuss the extent to which the UK's terms of trade will have deteriorated after the EU referendum in 2016.

[8]

The terms of trade (ToT) is the rate at which a country's exports exchange for imports: $ToT = (\text{index of export prices} \div \text{index of import prices}) \times 100$. A deterioration is a fall in the index, so a given volume of exports buys fewer imports.

After the June 2016 referendum the pound fell from about \$1.47 to below \$1.25 within weeks, a depreciation of about 15%, and reached a low of about \$1.20 in late 2016.

A depreciation makes imports dearer in sterling: a US good priced at \$1,470 cost £1,000 before but about £1,176 at \$1.25. UK exports priced in sterling keep the same sterling

price but become cheaper in dollars. So import prices rise while export prices are unchanged, the import price index rises relative to the export price index and the ToT deteriorates: the UK must export more to buy the same imports, reducing real incomes. However, the extent may be limited. The chart only shows the £/\$ rate, but almost half of UK trade is with the EU, so the rate against the euro matters too and the overall ToT cannot be calculated from this data. The pound recovered to about \$1.43 by early 2018, so the effect was partly temporary. UK exporters invoicing in dollars, or using imported components, will see sterling export prices rise too, offsetting dearer imports. Foreign suppliers may cut prices to keep market share, and other factors also affect the ToT, such as global commodity (e.g. oil) prices and UK and foreign inflation rates.

Overall, the ToT probably deteriorated in the short run, but by less than the 15% fall in the pound and only temporarily, as export prices adjusted and the pound recovered.

8

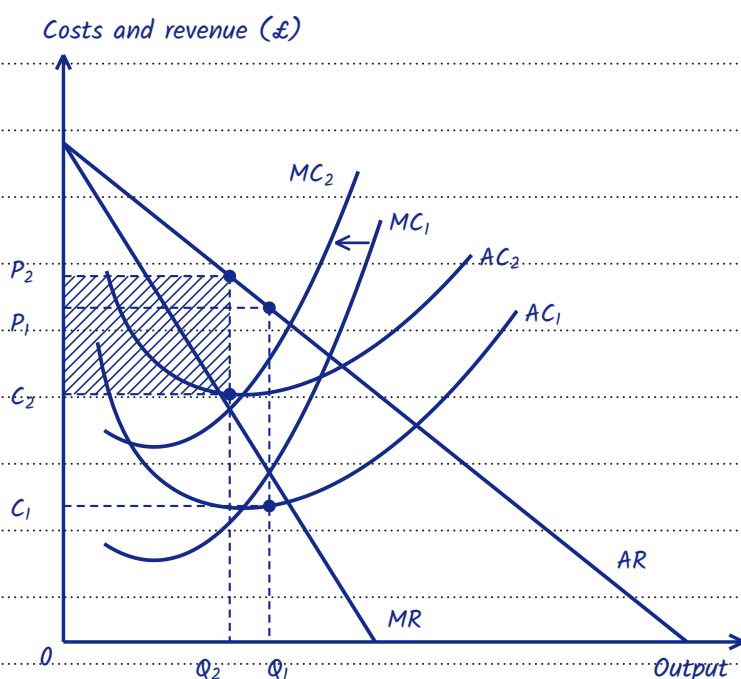
24. The table below gives information on the increases in the UK's minimum wage rates in April 2019:

Year	Age of worker			
	25 and over	21 to 24	18 to 20	Under 18
April 2018	£7.83	£7.38	£5.90	£4.20
April 2019	£8.21	£7.70	£6.15	£4.35

Using a costs and revenue diagram, discuss the likely impact on UK firms' profitability of the wage increases shown in the table above. [8]

The NMW for over-25s rose from £7.83 to £8.21, by 4.9%; for 21 to 24 year olds by 4.3%, for 18 to 20 by 4.2% and for under 18s by 3.6%. All rose faster than CPI inflation of about 2%, so real labour costs rose.

For firms paying the NMW, labour is a variable cost, so higher wages raise MC and AC. As the diagram shows, MC_1 and AC_1 shift up to MC_2 and AC_2 . Profit maximising output ($MC = MR$) falls from Q_1 to Q_2 and price rises from P_1 to P_2 , but unit cost rises by more (C_1 to C_2), so supernormal profit falls from the dashed rectangle to the smaller hatched one. Labour-intensive, low-margin sectors such as retail, hospitality and care are hit hardest. If wages were a fixed cost, only AC would shift: output and price stay the same but profit still falls.

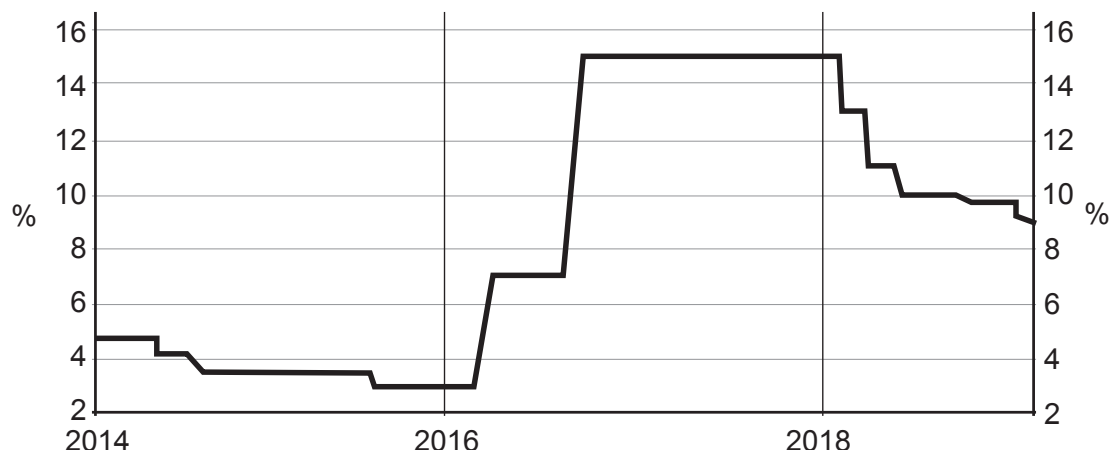


Higher NMW raises
MC and AC.

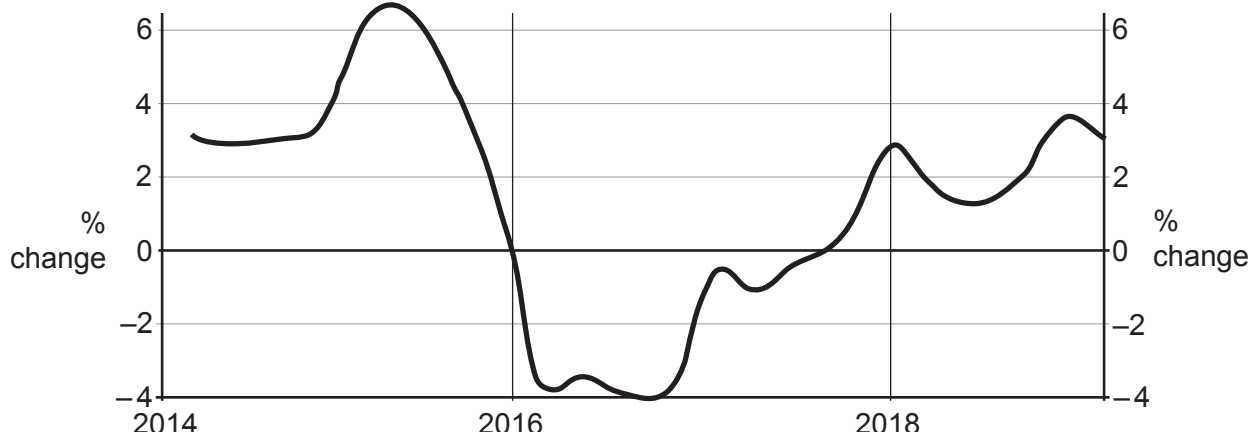
Hatched area: new
supernormal profit,
smaller than the
dashed rectangle
(old profit).

25. The charts below give information on base interest rates in Azerbaijan and Azerbaijan's annual rate of economic growth:

Azerbaijan base interest rates (%)



Azerbaijan annual economic growth (% change on previous year)



Azerbaijan is a developing economy in Eurasia which is highly oil dependent. The economy was impacted significantly by the fall in global oil prices in 2015 which also caused a drop in the exchange rate of the manat, Azerbaijan's currency.

Using economic theory and the information above, discuss the relationship between base interest rates and economic growth in Azerbaijan.

[8]

Theory suggests an inverse relationship. A cut in base rate lowers the cost of borrowing and the reward for saving, so consumption and investment rise; borrowers on variable rates have more disposable income, asset prices rise (wealth effect), business confidence improves and the currency may weaken, raising net exports. AD rises, so growth increases. Central banks therefore cut rates when growth is falling and raise

them when growth is strong to curb inflation.

The data partly supports this. Rates were cut from about 4.75% in 2014 to about 3.5% in 2015, and growth rose from about 3% to a peak of about 6.5% in mid-2015. Rates then rose from 3% in early 2016 to 15% by late 2016 and growth was negative, about -4%, through 2016 into 2017. Rate cuts from 15% to about 9% in 2018 were followed by growth of about 3% to 3.5%.

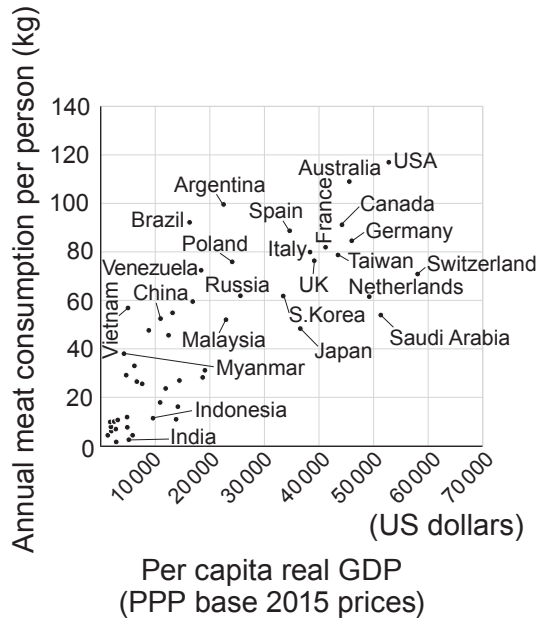
However, the relationship is not simple. Growth began falling in mid-2015 and turned negative in early 2016, before rates rose, so the recession was caused by the fall in oil prices: in an oil-dependent economy export earnings, tax revenue and investment collapsed. The central bank then raised rates as growth fell, the opposite of standard policy, because the fall in the manat raised import prices and inflation, so high rates were needed to support the currency and control inflation. Causality may run from growth and external shocks to interest rates. Growth recovered in 2017 despite 15% rates, probably as oil prices rose, and with time lags of up to two years, the 2018 cuts came after growth turned positive, so they did not cause the recovery, though they may have closed the negative output gap faster.

Overall, rates do affect growth in Azerbaijan, but oil prices and the exchange rate are the dominant influences, so the relationship is weak and runs both ways.

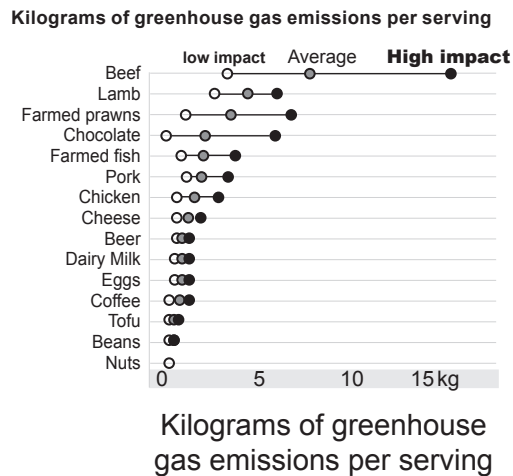
26. Vegan diet to save the planet?

According to a recent report, avoiding meat and dairy products is the single biggest way to reduce your environmental impact on the planet, but rising global incomes look likely to cause a rapid increase in meat consumption.

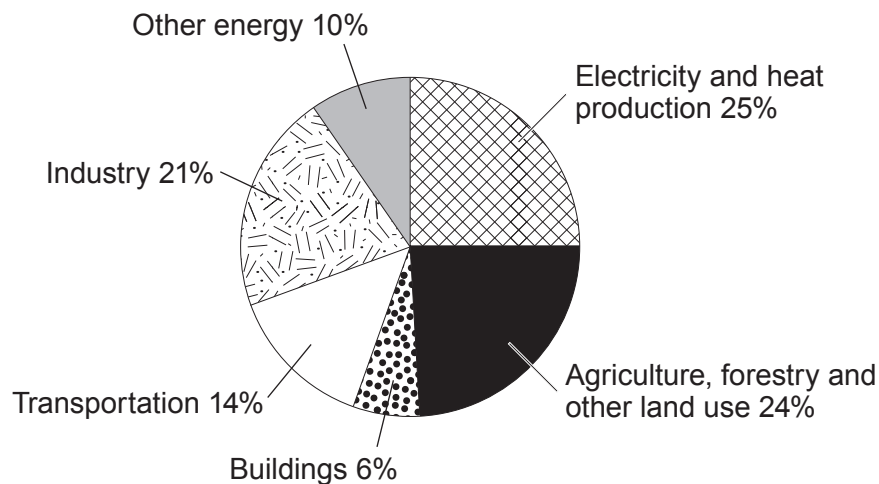
GDP per capita and annual meat consumption per person (kg)



Beef has the biggest carbon footprint – but the same food can have a range of impacts



Greenhouse gas emissions by sector



With reference to the data, and using appropriate economic analysis, discuss whether governments should significantly increase indirect taxes on meat.

[8]

Meat production creates negative externalities, mainly greenhouse gas emissions from livestock and land clearing. Agriculture, forestry and land use cause 24% of emissions, and beef emits about 8 kg of greenhouse gas per serving on average (up to about 17

kg), against under 1 kg for tofu, beans and nuts. Producers and consumers ignore these external costs, so $MSC > MPC$ and meat is overproduced at Q_1 ($MPC = MSB$) instead of the social optimum Q^* ($MSC = MSB$): a welfare loss and allocative inefficiency.

As my diagram shows, an indirect tax equal to the marginal external cost shifts supply up from MPC to $MPC + \text{tax} = MSC$. Price rises from P_1 to P^* , quantity falls to Q^* and the welfare loss is removed: the externality is internalised (polluter pays). This matters because the data shows consumption rising with income, from about 5 kg per person a year in India to about 118 kg in the USA, so emissions will grow as developing countries get richer. A tax based on emissions, highest on beef and lamb, would encourage switching to chicken (about 1.3 kg) or plant protein, and the revenue could fund green investment.

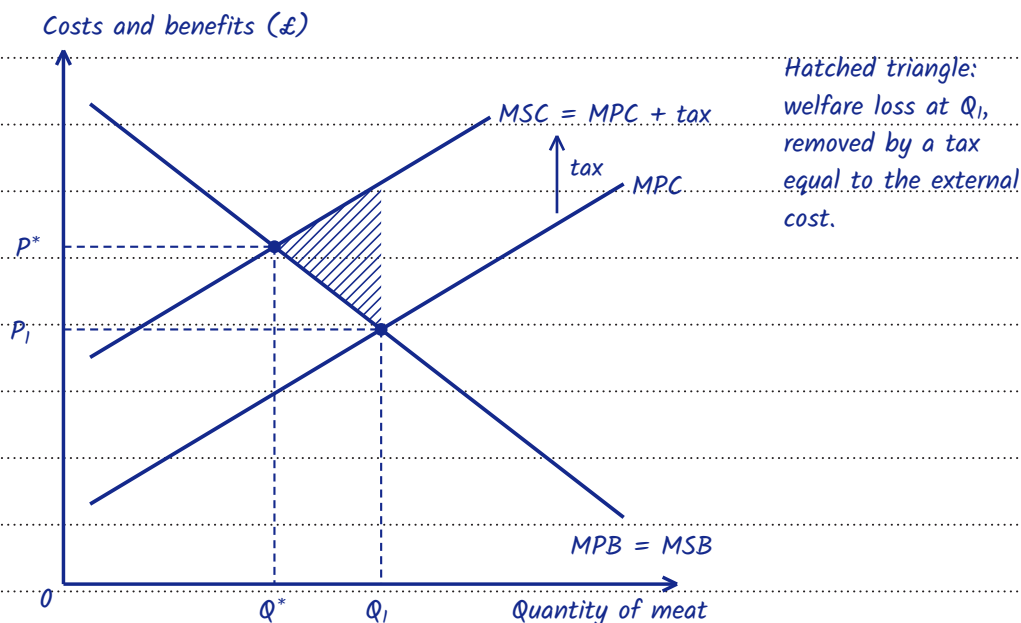
However, a significant tax may be ineffective or counter-productive. Demand for meat is likely to be price inelastic, as it is a habit and many people cannot cook alternatives, so consumption falls little. Meat appears to be a normal good with positive YED, and the data shows consumption rising with income whatever the country, so rising incomes may outweigh the price rise. Indirect taxes are regressive, taking a larger share of poorer households' income, add to cost-push inflation and hit restaurants and small farmers who are already marginal. The external cost is hard to value and the same food has a wide range of impacts depending on how it is produced, so a flat

END OF PAPER

For continuation only.

24. However, the impact on profitability depends on several factors. Firms whose workers are all paid above the NMW are unaffected, unless they raise pay to keep differentials. It depends on the share of wages in total costs: a 4.9% rise in a wage bill that is 20% of costs raises total costs by only about 1%. If demand is price inelastic, firms can pass most of the rise on to consumers in higher prices with little fall in sales. Higher pay may raise productivity and cut labour turnover and recruitment costs (efficiency wages), so unit costs may not rise. Many low-paid workers are under 25, whose rates rose by less. Also, low earners have a high MPC, so higher pay raises consumption and AD, shifting AR and MR right. Overall, profits are likely to fall slightly for labour-intensive firms facing elastic demand, such as small shops and restaurants, but for most UK firms the effect is small, as the rises are modest and partly offset by higher productivity and demand.

26.



meat tax is blunt and risks government failure. Meat is only part of agriculture's 24% share, while electricity and heat (25%) and industry (21%) may offer cheaper cuts in emissions.

26. Overall, a tax is justified to correct market failure, but a 'significant' rise risks being regressive and ineffective; a moderate tax based on emissions per kg, with information campaigns and support for low-income households, is better.