Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/41**

Paper 4 Data Response and Essays **May/June 2022**

2 hours 15 minutes

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **three** questions in total:
  - Section A: answer Question 1.
  - Section B: answer **two** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- You may use a calculator.
- You may answer with reference to any economy you have studied where relevant to the question.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **4** pages.

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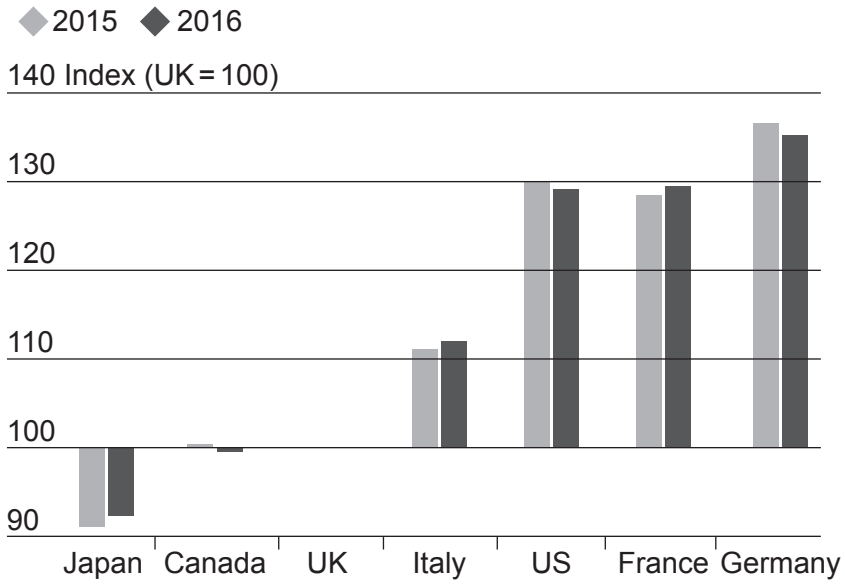
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Section A

Answer this question.

1 **Productivity in the G7 countries**

The G7 is a group of countries that have some of the world's major advanced economies. Productivity in the G7 countries varies, as shown in Fig. 1.1 below, with United Kingdom (UK) performance as the base index of 100.



Source: The Sunday Times*, 24 June 2018*

Fig. 1.1: Gross domestic product per hour worked, G7 countries, for 2015 and 2016

Productivity in the UK was one of the worst in the G7. Poor management practices and lower levels of skills in the workforce were the main reasons for the UK's position. In low wage, high employment sectors of the UK economy, the performance compared unfavourably with five of the G7 countries. In retailing, the UK was 40% lower than the performance in the United States (US). In hospitality industries the UK had a 45% lower rate than France.

Tackling poor productivity is about innovation, investment and improving infrastructure as well as labour skills.

The Federal Reserve Bank of the US suggested that innovation is one of the keys to productivity differences among the G7 countries. Innovation can occur using different factor inputs such as IT hardware and software, investment in staff training, research and development (R&D) and marketing. In 2015, the US had the most advanced software and IT services industries in the world accounting for a third of the global IT market. In 2018, the industry accounted for 12% of private sector employment and contributed 7.1% of GNP. Three of the top ten IT companies in the world were based in the US.

In 2014, in the UK, businesses spent US$26 billion on R&D, notably on digital technology and biomedical research projects that are world-renowned. However over the past 25 years R&D in the UK has only averaged between 1% and 1.3% of GNP and falls behind Japan with 3.4%, Germany 2.9%, the US 2.7% and France 2.2%.

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There were concerns about the UK government reducing spending but in 2018 it made a commitment to a large investment programme in transport and communications to provide a boost to productivity. At that time one threat to the UK economy was its decision to leave the European Union's single market. The decision created uncertainties for investors and the balance of foreign direct investment (FDI) showed that there were more investments abroad than there were foreign investments in the UK. This made some UK industries, such as car production, vulnerable. The central bank in the UK has stated that foreign owned car manufacturers in the UK invest heavily in R&D and their presence boosts the productivity of labour. It was thought this may change in the future.

Sources: The Sunday Times 24 June 2018, David Smith (Economic Outlook). 'We don't need a new target but we must raise our game'.
The Times 27 June 2018, David Smith. 'Inward Investment so important to Britain is now at risk'.
Office for National Statistics, Britain, 2016

(a) Explain what is meant by productivity. [2]

(b) The information suggests that innovation and R&D are important in ensuring high productivity. Is this statement consistent with the evidence in Fig. 1.1? [4]

(c) Use the information to comment on productivity in the US and indicate which factors contributed to its performance. [6]

(d) Use the information to discuss whether or not it is likely that the UK's productivity within the G7 countries will improve. [8]

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Section B

Answer **two** questions.

2 **(a)** Explain what economists mean by a public good and discuss why the provision of such a good is associated with market failure. [12]

(b) Discuss the extent to which monopoly producers and the consumers of their products might benefit from the existence of barriers to entry. [13]

3 **(a)** Firms in perfect competition and firms in monopolistic competition will only achieve normal profits in the long run. This means that firms in both these types of market structure are equally efficient.

Discuss, with the help of diagrams, the extent to which you agree with this statement. [12]

(b) Interdependence is a key characteristic of oligopoly firms. This creates a problem regarding the pricing decisions made by such firms.

Explain this statement and discuss the extent to which game theory can help to solve this problem. [13]

4 **(a)** Discuss the costs and benefits of a trade union intervening to influence the wages of workers in a specific occupation. [12]

(b) The introduction of a national minimum wage will always benefit employees at the expense of employers.

Discuss the extent to which you agree with this statement. [13]

5 With the help of a circular flow diagram discuss how a policy of export-led growth might affect the standard of living in a developing economy. [25]

6 **(a)** Explain what is meant by a transmissions mechanism of monetary policy and consider why it might not work in practice. [12]

(b) Discuss the role and importance of the commercial banks in a developed economy. [13]

7 Keynesians argue that increasing budget deficits will solve the problem of unemployment. Monetarists argue that supply side policies are more effective in reducing unemployment.

Consider which view is more likely to be correct. [25]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9708/41

1(a) Productivity is output per unit of input over a given period, for example output per worker or per hour worked. Here it is measured as GDP per hour worked, so it shows how efficiently the factors of production are used to produce output.

1(b) Partly. The countries that spend the most on R&D as a percentage of GNP, Germany (2.9%), the US (2.7%) and France (2.2%), also have the highest productivity in Fig. 1.1, with indices of about 135, 129 and 130 in 2016. The UK spends only 1% to 1.3% and has an index of 100, which supports the statement. However, Japan spends the most of all, 3.4% of GNP, yet has the lowest productivity, an index of only about 92 to 93 in 2016. Also, innovation is only one of the factors named, along with investment, infrastructure and labour skills. So the evidence is not entirely consistent with the statement.

1(c) US productivity is relatively high: its index was about 130 in 2015 and 129 in 2016, about 30% above the UK, the third highest in the G7 after Germany and France, although it fell slightly between the two years. In retailing the UK was 40% lower than the US.

Several factors contributed. R&D and innovation are a strong element: the US spends 2.7% of GNP on R&D, more than double the UK. The US has the most advanced software and IT services industries in the world, with a third of the global IT market; the industry accounted for 12% of private sector employment and 7.1% of GNP. Three of the top ten IT companies in the world were based in the US. Investment in IT hardware, software and staff training raises the output

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	of each worker per hour.
1(d)	In the short term it seems unlikely that the UK's position will improve. It had the lowest productivity of the G7 apart from Japan and Canada, and the reasons are deep-rooted: poor management practices and lower levels of skills in the workforce, which take years to change. R&D has averaged only 1% to 1.3% of GNP over 25 years, well below Germany (2.9%) and the US (2.7%), so there has been low investment in innovation for a long period. There is also a threat from leaving the EU single market. Uncertainty for investors meant more investment abroad than foreign investment in the UK, so the FDI balance was negative. Foreign owned car manufacturers invest heavily in R&D and boost labour productivity, so if this investment falls UK productivity could fall further behind. However, there are some reasons for improvement in the long term. UK businesses spent US$26 billion on R&D in 2014, and its research in digital technology and biomedical science is world-renowned. In 2018 the government committed to a large investment programme in transport and communications, which should raise productivity once completed. Overall, the UK is unlikely to improve its position in the short run, but it may in the long run if the infrastructure investment goes ahead, R&D rises and inward investment recovers. It also depends on how fast the other G7 countries improve.
2(a)	A public good is a good that is non-rival and non-excludable. Non-rival means that one person's consumption does not reduce the amount available to others, so the marginal cost of an extra consumer is zero. Non-excludable means that once the good is provided it is impossible, or too costly, to stop people who have not paid from benefiting. Examples are national defence, street lighting and lighthouses. Pure public goods are also non-rejectable: people cannot choose not to consume

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them.

Market failure occurs when the free market does not allocate resources efficiently. Allocative efficiency is achieved when resources are allocated so that consumer satisfaction (welfare) is maximised, where P = MC, so that the value consumers place on the last unit equals the cost of producing it.

Because a public good is non-excludable, consumers have an incentive to be free riders: they wait for someone else to pay, knowing they cannot be excluded. So consumers do not reveal their true preferences and there is no effective demand. A private firm cannot charge a price and make a profit, so there is no incentive to supply the good. The market is missing altogether, so a good that people value is not produced. Non-rivalry makes this worse: because the marginal cost of an extra user is zero, the efficient price is zero, which no profit-seeking firm will charge. As a result, too few resources, often none, are allocated to the good. Total consumer satisfaction is lower than it could be: society would be willing to pay more for street lighting than it costs, but it is not provided. Resources are allocated to private goods instead, so the allocation is not the one that maximises welfare and this is a complete market failure.

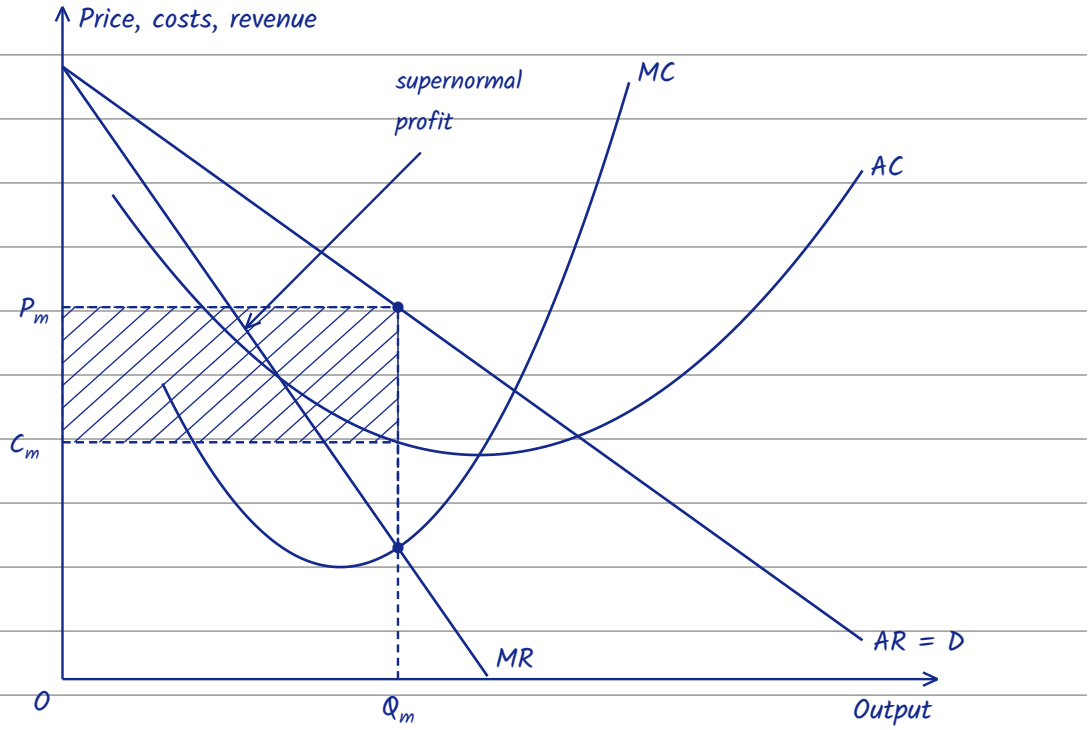
However, the extent of the failure depends on the good. Some goods are quasi-public: roads become rival when congested and can be made excludable with tolls, so markets can provide some of them. Technology can also make goods excludable, as with encrypted television signals.

In conclusion, public goods are important for welfare, and their non-excludability means the free rider problem causes the market to fail. The government can correct this by providing them directly, financed by taxation, although it then has to estimate how much people value the good, which can lead to government failure through over- or under-provision.

2(b) A monopoly is a single seller of a good with no close substitutes; legally, a firm

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with at least 25% market share may be treated as a monopoly. Barriers to entry are obstacles that prevent new firms entering the market. They allow a monopolist to keep supernormal profits in the long run.



The diagram shows the monopolist maximising profit where MR = MC, at output Qm and price Pm. Because barriers stop entry, the supernormal profit (shaded) is not competed away. Producers clearly benefit: higher profits, a secure market share and the funds to grow.

Economies of scale are one barrier. A large firm has a lower long-run average cost, so a new small entrant could not compete. The producer benefits from lower costs and higher profit. Consumers may also benefit if the lower costs are passed on as lower prices; in a natural monopoly, one firm supplies at a lower cost than several firms could. But there is no competitive pressure to pass cost savings on, so the monopolist may keep them as profit, and price is still above MC, so output is allocatively inefficient.

Patents and legal barriers are a second barrier. A patent gives a firm the sole right to sell a new product for a number of years. The producer benefits from

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supernormal profit that rewards its R&D. Consumers benefit in the long run because, without this protection, firms would not risk investing in new medicines or technology, so there is dynamic efficiency: better quality products and more choice over time. However, during the patent consumers pay high prices, for example for some medicines.

Branding, advertising and limit pricing can also deter entry. With limit pricing the monopolist sets a price just below the average cost of a potential entrant. Consumers gain from lower prices in the short run, but once rivals are deterred the firm's market share and long-run profits are higher.

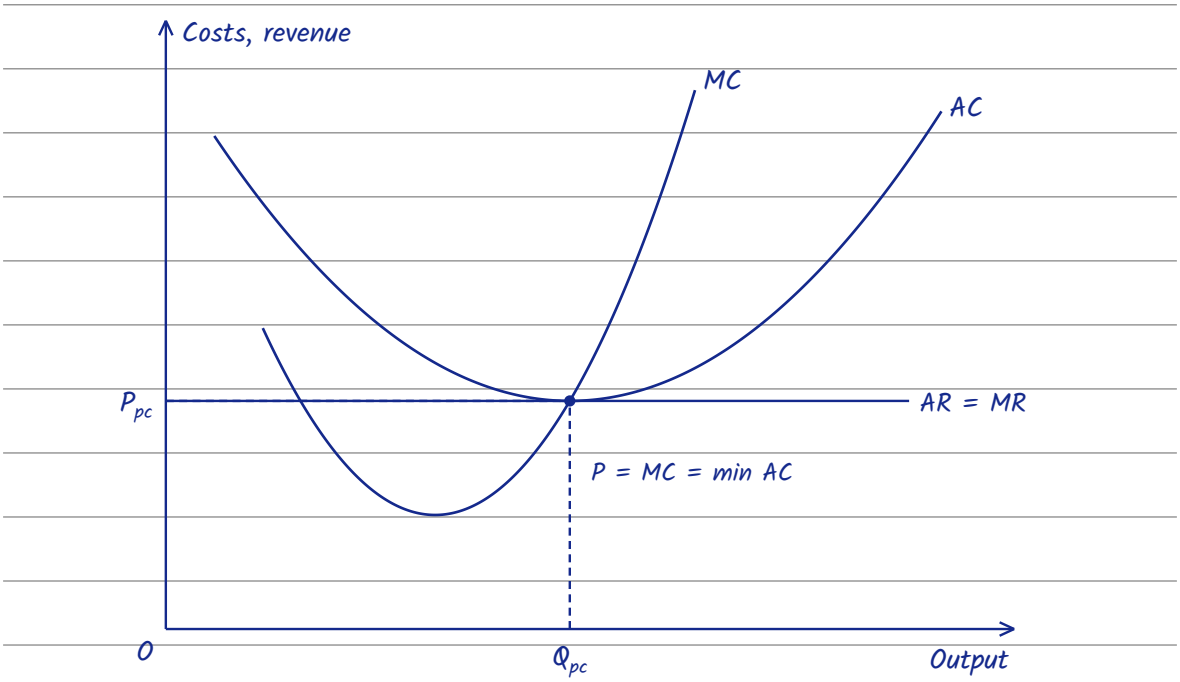
On the other hand, protection from competition can lead to complacency and X-inefficiency, where costs are higher than necessary. Then consumers face higher prices and lower quality, and even the producer loses some potential profit.

In conclusion, monopoly producers almost always benefit from barriers to entry. Consumers benefit only in some cases: where the barrier is economies of scale or patents that lead to lower costs and innovation, and where the monopolist reinvests its profits rather than becoming X-inefficient. The net benefit to consumers depends on the type of barrier and on regulation by the government.

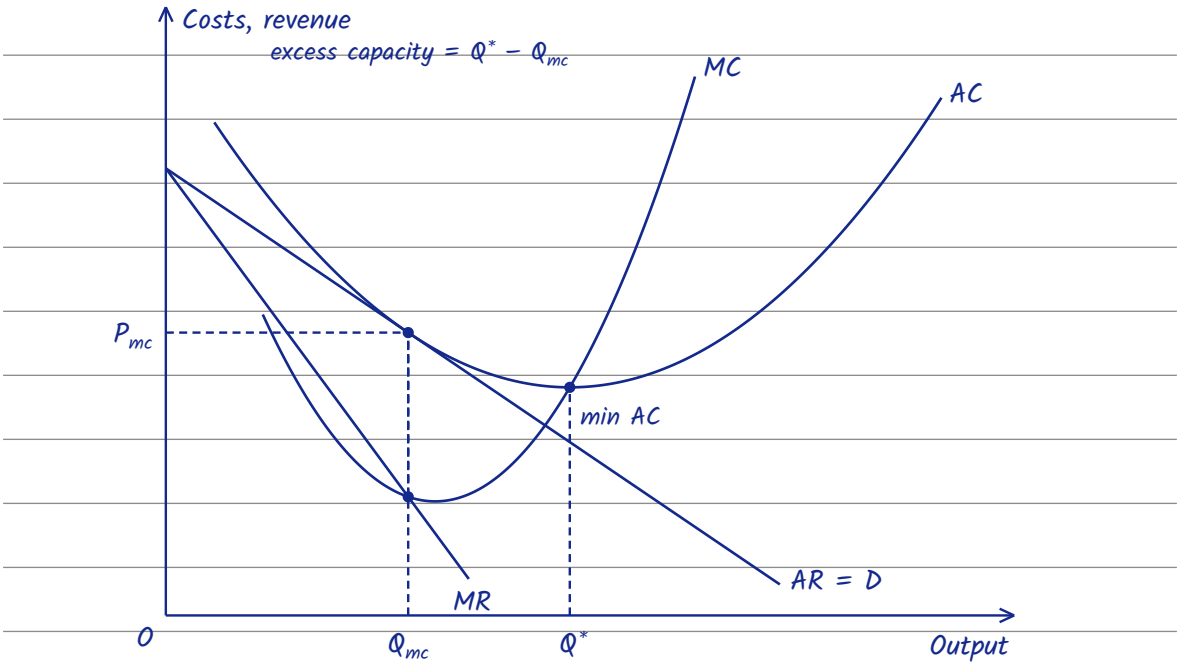
3(a) Normal profit is the minimum profit needed to keep a firm in the industry, where AR = AC. It is counted as a cost. In both structures there are no barriers to entry, so any supernormal profit attracts new firms until only normal profit is made in the long run. But this does not mean the firms are equally efficient.

Productive efficiency is producing at the lowest point of the average cost curve. Allocative efficiency is where price equals marginal cost (P = MC), so resources are used to produce what consumers value most.

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In perfect competition the firm is a price taker, so its demand curve is horizontal: P = AR = MR. Entry lowers the price until it equals the minimum of AC. The firm maximises profit where MR = MC, at Qpc, so P = MC, which is allocatively efficient, and it produces at minimum AC, which is productively efficient.



In monopolistic competition products are differentiated, so the firm's demand curve slopes downwards and MR lies below AR. Entry shifts each firm's demand to the

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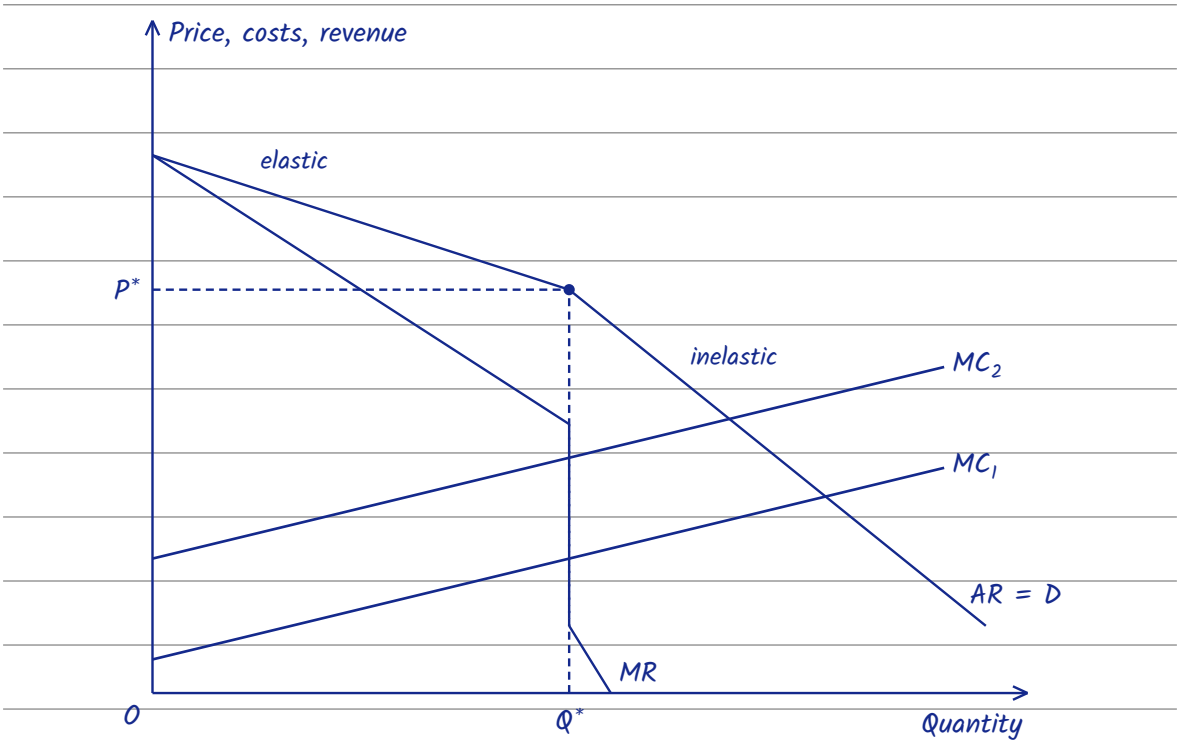
left until AR is tangent to AC, so P = AC and only normal profit is made at Qmc. But the tangency is on the falling part of AC, so output Qmc is below Q^*, the output at minimum AC: the firm has excess capacity and is not productively efficient at the optimum level of output. Price Pmc is above MC, so it is also allocatively inefficient. It may be productively efficient only in the narrow sense of producing Qmc at the lowest attainable cost for that output.

Neither type of firm is likely to be dynamically efficient, because with only normal profit and small firms there are few funds for R&D. However, monopolistic competition gives consumers variety and choice, which they value, and some of the extra cost is the price of this choice.

In conclusion, I disagree with the statement. Both earn normal profit in the long run, but the perfectly competitive firm is both allocatively and productively efficient while the monopolistically competitive firm is neither, so perfect competition is more efficient.

3(b) An oligopoly is a market dominated by a few large firms, with a high concentration ratio. Interdependence means that each firm's pricing and output decisions significantly affect the profits, market share and growth of its rivals, so each firm must consider how rivals will react before it acts.

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The kinked demand curve shows the problem. If a firm raises its price above P^*, rivals do not follow, so it loses many customers: demand is elastic and total revenue falls. If it cuts its price, rivals match it to protect their market share, so demand is inelastic and total revenue again falls. There is a discontinuity in MR, so MC can change between MC1 and MC2 without the price changing. Prices are sticky, and a price cut risks a price war in which all firms lose profit while consumers gain. Firms do not know how rivals will respond, so they find it hard to choose a price.

Game theory analyses these decisions by looking at the strategies of rivals and the payoffs. For example:

	Firm B: high price	Firm B: low price
Firm A: high price	A $10m, B $10m	A $4m, B $14m
Firm A: low price	A $14m, B $4m	A $6m, B $6m

If B charges a high price, A earns more with a low price ($14m against $10m); if B charges low, A again earns more with a low price ($6m against $4m). So low

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price is A's dominant strategy, and the same for B. A maximin strategy, choosing the best of the worst outcomes, also gives a low price. Both end at $6m each, a Nash equilibrium, although both would earn $10m with a high price. This is the prisoners' dilemma.

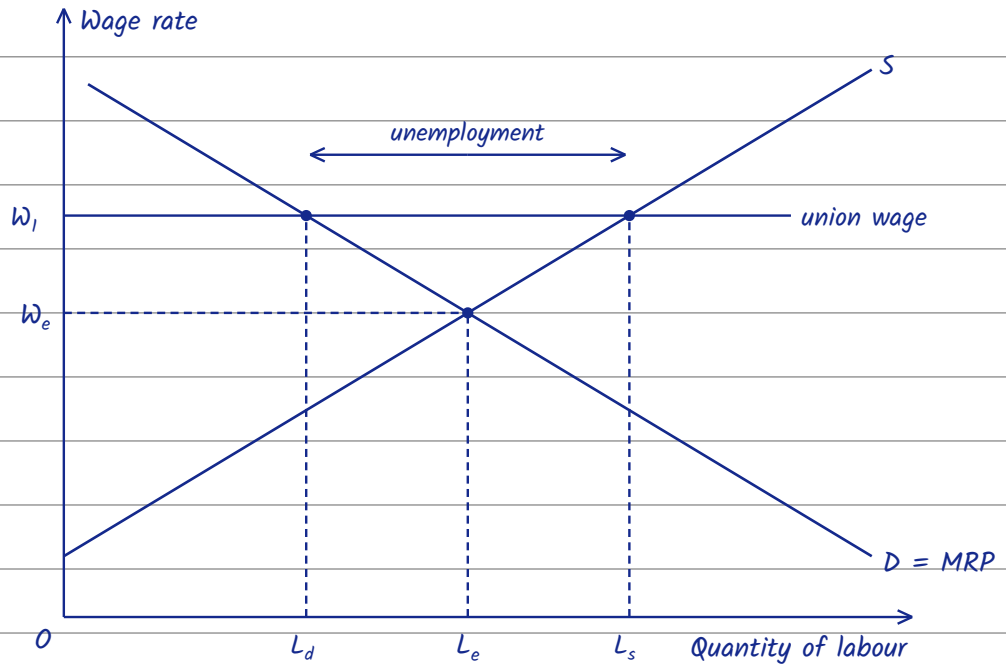
Game theory therefore helps to explain the problem and suggests a solution: firms can see that collusion, agreeing to charge a high price, maximises their joint profits. In a repeated game, firms may learn to cooperate, for example using a tit-for-tat strategy.

However, game theory has limits. Real markets have more than two firms and many strategies, payoffs are not known with certainty, and formal collusion is illegal in most countries. Collusive agreements also break down because each firm has an incentive to cheat. So other approaches are used: price leadership, where a dominant firm sets the price and the others follow, tacit collusion, and rules of thumb such as average cost pricing, or firms compete through non-price competition such as advertising instead.

In conclusion, interdependence does create a pricing problem, and game theory is very useful in explaining it and showing why cooperation pays, but it only partly solves it; in practice firms also rely on price leadership, tacit collusion and non-price competition.

4(a) A trade union is an organisation of workers that bargains collectively with employers over wages, working conditions and job security. Its effect depends on the type of labour market.

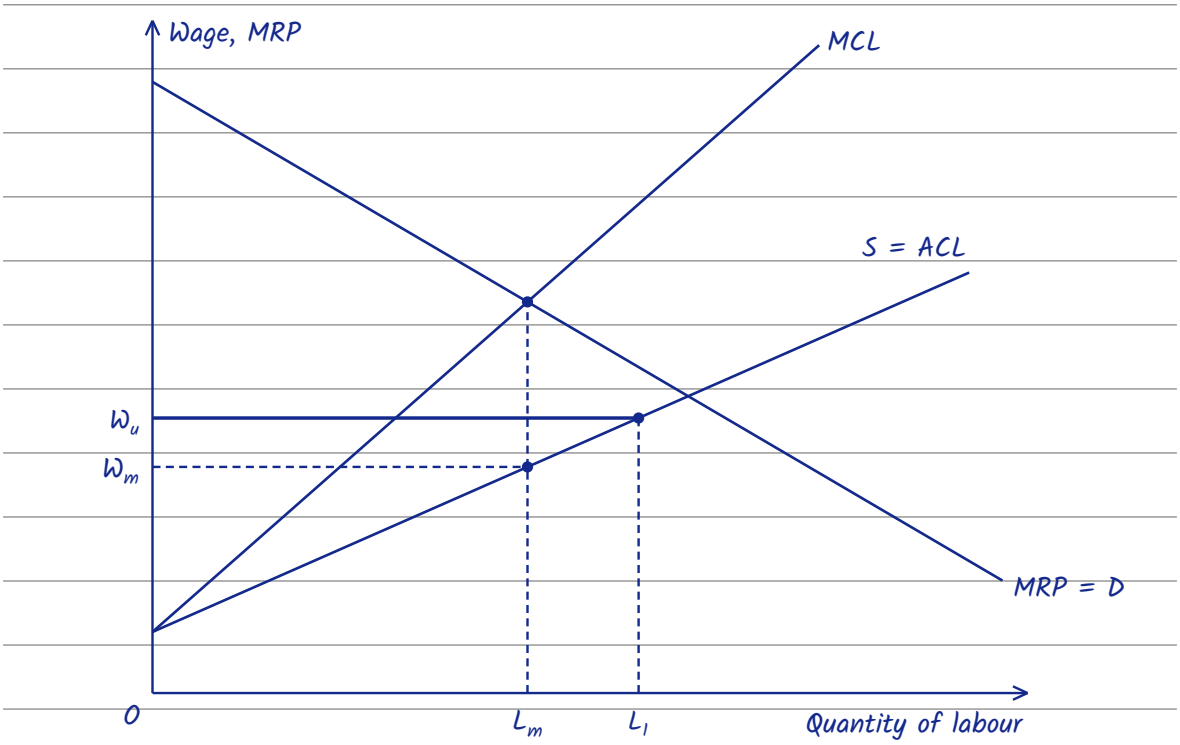
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In a competitive labour market the wage is set by supply and demand at We, with employment Le. If the union uses collective bargaining to raise the wage to WI, the benefit is higher pay for those who keep their jobs. The cost is that employers demand only Ld while Ls want to work, so employment falls from Le to Ld and there is unemployment of Ls – Ld. The size of the job losses depends on the elasticity of demand for labour: if labour costs are a small share of total costs and the product has inelastic demand, few jobs are lost. Higher costs may also be passed on as higher prices.

A union can, however, raise wages without job losses if it helps to raise the MRP of labour, for example by supporting training and better working conditions, which shifts the demand for labour to the right. Union bargaining also reduces costs for firms of negotiating with each worker separately.

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In a monopsony labour market, where there is a single buyer of labour, the employer hires where MCL = MRP, at Lm, and pays only Wm, below MRP. If a union negotiates a wage of Wu, this becomes the marginal cost of labour up to the supply curve, so the employer hires L1. Here the union raises both wages and employment, which is a clear benefit. This is bilateral monopoly, and the outcome depends on the relative bargaining power of the union and the employer. If the union pushes the wage above the competitive level, jobs are lost.

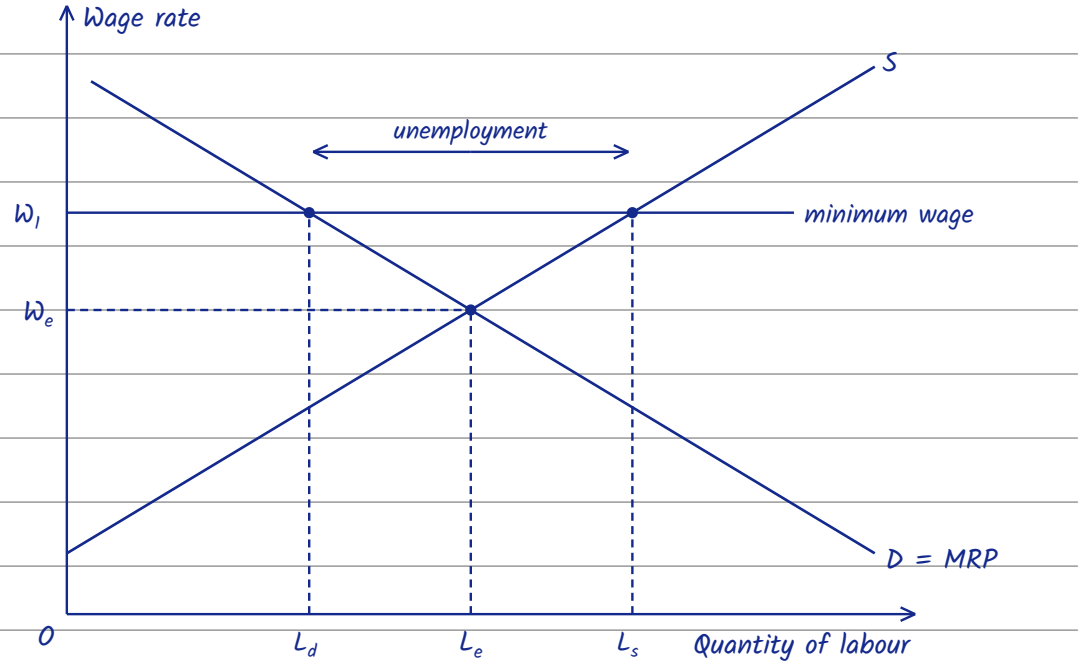
Other costs include strikes, which lose output and income, and possible restrictive practices that reduce productivity and make the firm less competitive, threatening job security in the long run.

In conclusion, in a monopsony a union is likely to give a net benefit, raising both wages and employment, whereas in a competitive labour market higher wages are likely to cost jobs unless productivity rises. So whether the benefits outweigh the costs depends on the market structure and the elasticity of demand for labour.

4(b) A national minimum wage is a legal minimum hourly wage that employers must

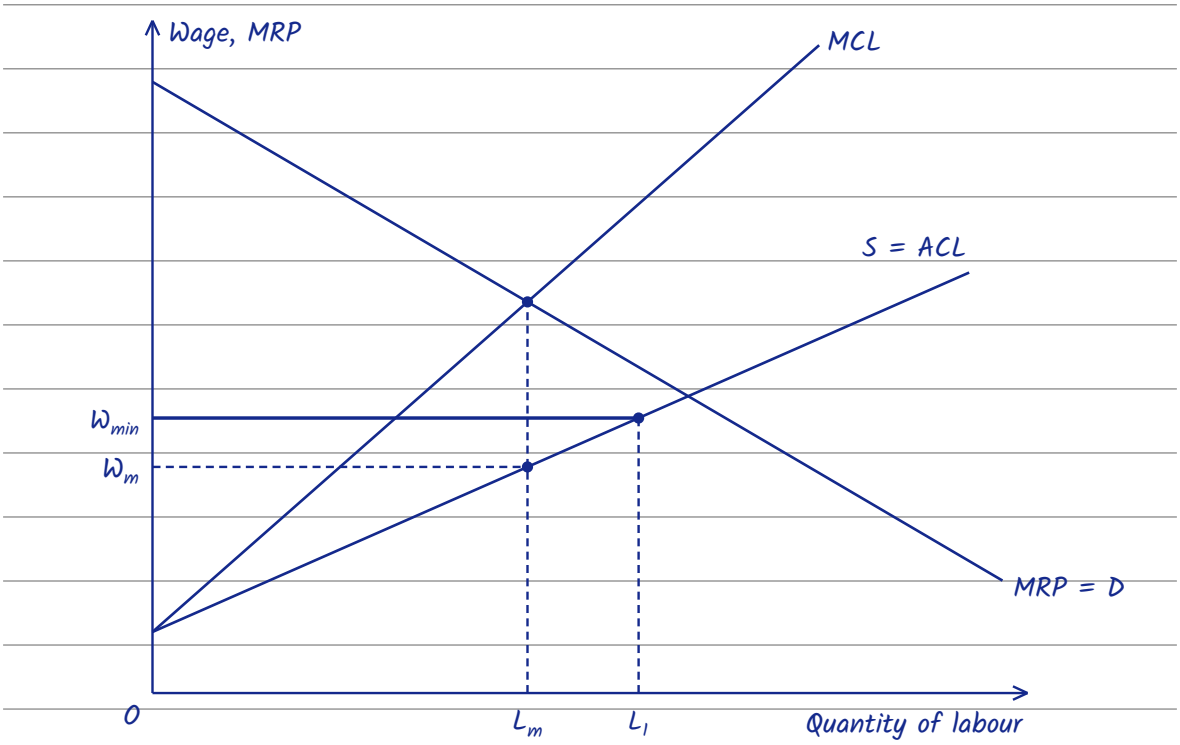
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pay. Governments introduce it to protect basic living standards, to make the distribution of income more equal, to encourage people to take jobs rather than rely on benefits, and to encourage labour productivity. To have any effect it must be set above the market equilibrium wage.



In a competitive labour market, a minimum wage at W1 above We benefits employees who keep their jobs, through higher incomes and less poverty, and the higher wage attracts more people into work (Ls). It is at the expense of employers, whose costs rise, reducing profits, so they cut employment to Ld. But not all employees benefit: Le – Ld workers lose their jobs, so the statement is not always true even for employees. The size of the effect depends on the wage elasticity of demand for labour: if demand is inelastic, few jobs are lost.

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In a monopsony, the employer pays Wm and employs only Lm. A minimum wage at Wmin makes the marginal cost of labour constant up to the supply curve, so employment rises to LI. Employees benefit from higher wages and more jobs, and the employer loses only some of its monopsony profit, while output rises.

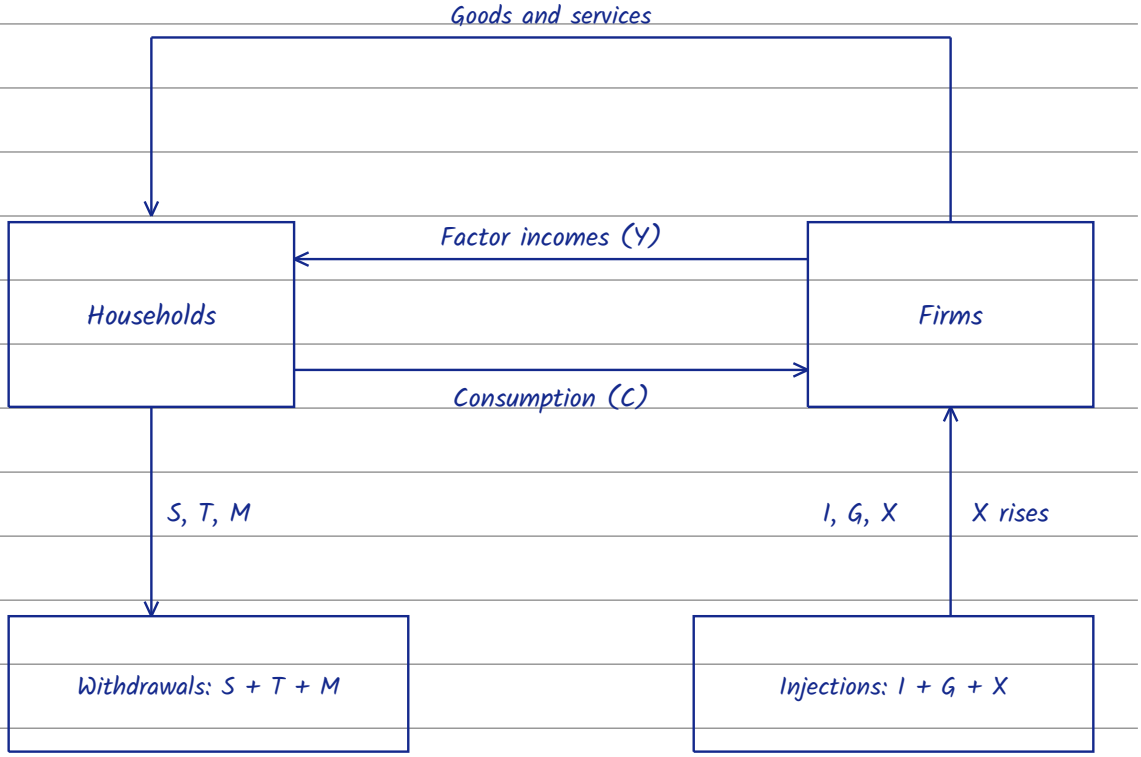
Employers can also benefit. Higher wages act as an incentive (an efficiency wage effect): workers are more motivated, labour turnover and recruitment costs fall and productivity rises, raising MRP. Higher incomes of low paid workers, who have a high marginal propensity to consume, raise aggregate demand and so the sales of firms. On the other hand, firms may pass higher costs on as higher prices, raising the cost of living, so the real gain to employees is smaller, and firms in competitive international markets may lose competitiveness.

In conclusion, I disagree with the statement. A minimum wage does not always benefit employees, because some may lose their jobs, and it is not always at the expense of employers, who may gain from higher productivity and demand. The outcome depends on the type of labour market, the level of the minimum wage relative to the equilibrium wage and the elasticity of demand for labour.

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5

Export-led growth is a strategy in which a country achieves economic growth by expanding its exports, relying on openness to international trade. The standard of living is the level of material and non-material well-being of the population, usually measured by real GDP per head and indicators such as the HDI.



The circular flow diagram shows households supplying factor services to firms in return for factor incomes, and spending these incomes on goods and services produced by firms. Some income is withdrawn from the flow as savings (S), taxation (T) and imports (M), and injections are added as investment (I), government spending (G) and exports (X). National income is in equilibrium when total withdrawals equal total injections.

Under export-led growth, exports rise, so injections exceed withdrawals. Firms receive more revenue from abroad, so they increase output and employ more workers, paying more factor incomes to households. Households then spend part of

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this extra income, which becomes income for other firms. This is the multiplier effect: the final increase in national income is a multiple of the initial rise in exports, $k = 1 \div (MPS + MPT + MPM)$. Income keeps rising until withdrawals have risen to equal the new higher level of injections, at a higher equilibrium level of income, output and employment.

Growth in real GDP, if it is faster than population growth, raises real GDP per head, so people can consume more goods and services, which improves the standard of living. Exports also earn foreign currency to pay for imports of capital goods and technology, which raises productivity, and the extra tax revenue lets the government spend more on education, health care and infrastructure. Firms producing for export may also gain economies of scale and attract foreign direct investment.

However, there are reasons why the benefits may be limited. A developing economy is likely to export mainly primary products, where it has a comparative advantage. World demand for these goods is income inelastic, so as world incomes grow demand rises only slowly, and the terms of trade may worsen over time. Supply is also volatile, depending on the weather, and prices fluctuate, so export earnings and growth are unstable.

The size of the effect depends on the multiplier. In many developing economies the marginal propensity to import is high, because consumer goods and inputs are imported, so much of the extra income leaks out and the multiplier is small. If export industries are owned by multinational companies, profits may be repatriated rather than spent in the domestic economy.

Even if GDP rises, the standard of living may not rise for most people. It depends on how the extra income is distributed: if the gains go to a small number of owners and workers in export industries, inequality increases. Workers may work longer hours in poor conditions, losing leisure time, and expanding mining or plantation agriculture may cause pollution and environmental damage, which reduce

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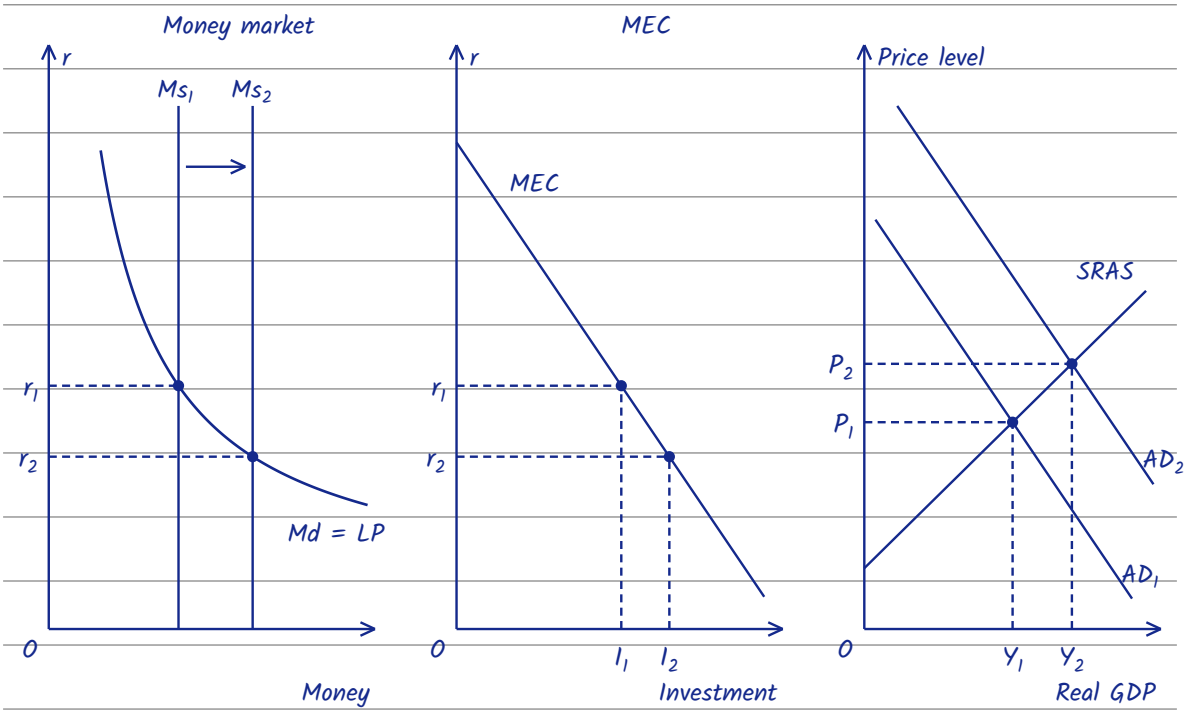
well-being but are not shown in GDP. Concentrating on primary products may also limit long-run growth and diversification. Finally, export-led growth depends on world demand: a global recession or protectionism by trading partners would reduce exports and reverse the multiplier.

On the other hand, countries such as South Korea and China show that export-led growth based on manufactured goods, with investment in education and diversification, can raise living standards substantially over time.

In conclusion, export-led growth increases injections into the circular flow and, through the multiplier, raises income, output and employment, giving the potential for a higher standard of living. Whether living standards actually rise depends on the type of exports, the size of the multiplier, how the extra income is distributed and spent, and the stability of world demand. It is most likely to succeed if the economy diversifies into manufactured goods and uses the export earnings to invest in human capital.

6(a) Monetary policy is the use of the money supply and interest rates by the central bank to influence the economy. The transmission mechanism of monetary policy explains how a change in monetary policy is passed on, through a series of links, to key macroeconomic variables such as aggregate demand, national income, output, employment and inflation.

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In the Keynesian model, an increase in the money supply from Ms1 to Ms2 creates an excess supply of money. People use the extra money to buy bonds, so bond prices rise and the rate of interest falls from r1 to r2. Because the cost of borrowing falls, investment rises along the marginal efficiency of capital (MEC) curve from I1 to I2. Higher investment raises aggregate demand from AD1 to AD2, and through the multiplier real output rises from Y1 to Y2, so employment rises. Similarly, a central bank can raise its base rate to reduce borrowing and spending, lowering AD and so controlling inflation.

However, each link in the chain may be weak. First, there may be a liquidity trap: when interest rates are already very low, people expect them to rise and hold any extra money, so the demand for money is perfectly elastic and the interest rate does not fall. Second, investment may be interest inelastic: firms' investment depends more on expectations and business confidence, so in a recession they may not invest even at low rates. Third, the multiplier may be small if the marginal propensities to save, tax and import are high. Fourth, as income rises the transactions demand for money rises, which pushes the interest rate back up and partly offsets the original fall. In addition, commercial banks may not pass on

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lower base rates, and there are long and variable time lags. If the economy is near full employment, higher AD may cause inflation rather than higher output.

In conclusion, the transmission mechanism explains how monetary policy can affect output and prices, but it works only if every link is strong. It is most likely to work when the economy has spare capacity, confidence is good and interest rates are not already close to zero, and is least effective in a deep recession.

6(b)

Commercial banks are profit-making financial institutions that accept deposits from and make loans to households and firms. Their main roles are: the safekeeping of funds by accepting deposits, providing loans and overdrafts to consumers and producers, acting as financial intermediaries between savers and borrowers, and providing a means of payment through cheques, cards and electronic transfers.

Safekeeping of deposits is important because it gives savers a secure place for their money and pays them interest, which encourages saving. These savings can then be lent to firms for investment, increasing the capital stock and promoting long-term economic growth. However, this depends on depositors' confidence; if a bank fails, as in the 2008 financial crisis, savers may lose money and the government may have to rescue the bank.

Lending to producers and consumers is important for aggregate demand. Loans allow firms to invest in new capital and consumers to buy durable goods, which raises AD, output and employment. However, profitability is one of the main aims of a bank, and it must balance it against liquidity and security. Banks may refuse loans to risky small firms or new businesses, so investment that the economy needs may not be financed, especially in a recession when banks become cautious.

Financial intermediation and payment services make transactions easier, quicker and cheaper, which promotes specialisation and exchange and encourages growth.

In a developed economy, almost all payments go through the banking system, so a

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failure of this system would cause great disruption.

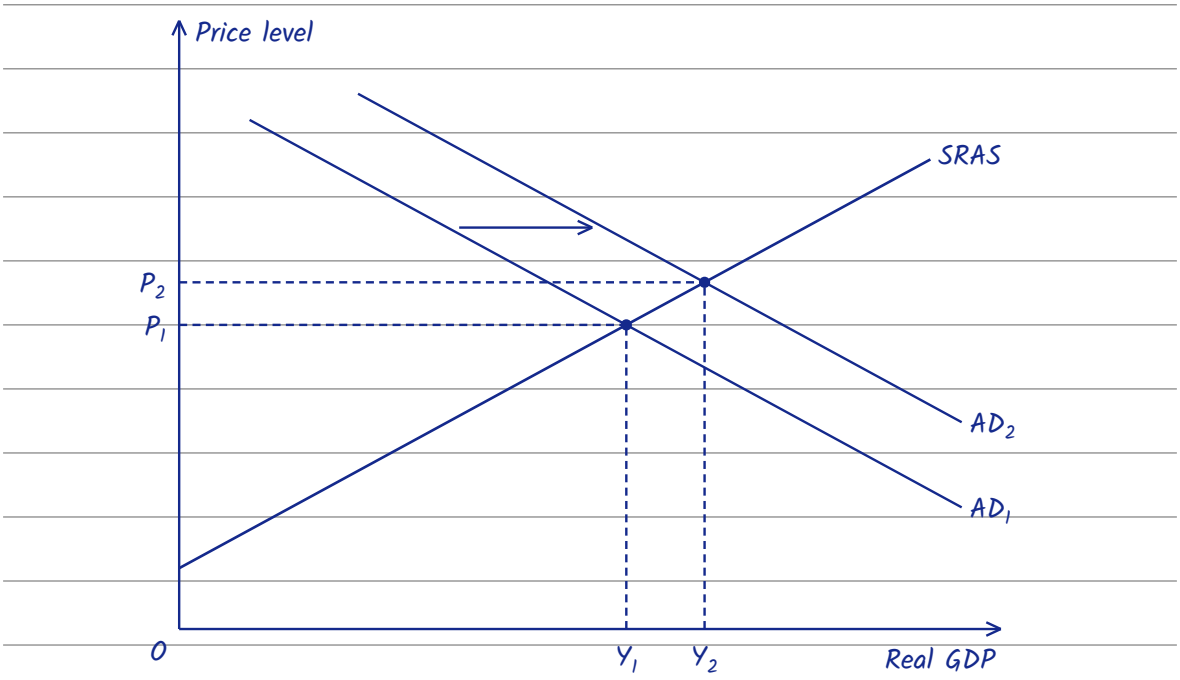
Banks also create credit. When a bank lends, it creates a new deposit, so bank lending increases the money supply through the credit multiplier. This is important for monetary policy, because the central bank works through commercial banks to influence interest rates and lending. However, rapid growth of bank lending when the economy is already near full employment can cause inflation and asset price bubbles, which makes it harder for the government to control the economy; this is why banks are regulated, for example with capital and liquidity requirements.

In conclusion, commercial banks are very important in a developed economy: they mobilise savings for investment, finance spending, provide the payment system and transmit monetary policy. But their pursuit of profit means they may lend too little in a recession and too much in a boom, so their contribution depends on effective regulation and supervision by the central bank.

7 A budget deficit occurs when government total expenditure is greater than its total revenue, mainly from taxation, in a year. Unemployment is when people who are willing and able to work at the current wage cannot find a job. It is a problem because it is a waste of scarce resources: the economy produces inside its production possibility curve, output and tax revenue are lost, spending on benefits rises, and the unemployed suffer a lower standard of living and loss of skills.

Keynesians argue that unemployment is mainly caused by a lack of aggregate demand (cyclical or demand-deficient unemployment), and that the economy can stay in equilibrium below full employment for a long time because wages are sticky downwards. So the government should increase its budget deficit, by raising government spending or cutting taxes.

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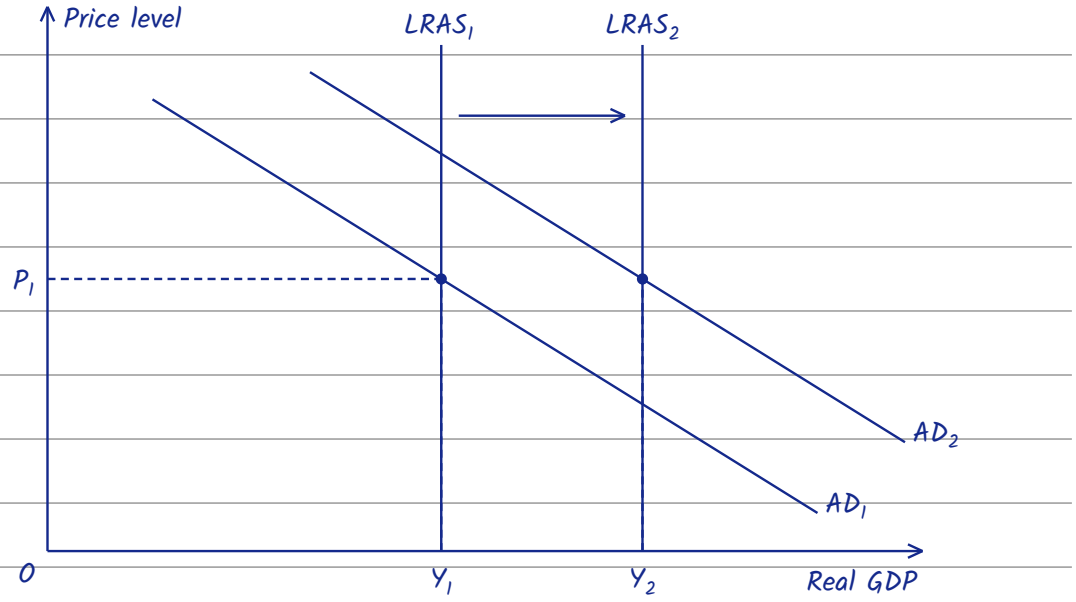
Higher government spending is an injection into the circular flow, and lower taxes raise disposable income and consumption, so AD shifts right from AD1 to AD2. Through the multiplier, real output rises from Y1 to Y2 by more than the initial increase in spending. Because firms need more workers to produce the extra output, the derived demand for labour rises and unemployment falls. When there is a large amount of spare capacity, the AS curve is relatively flat, so most of the increase in AD raises output rather than the price level.

Monetarists criticise this view. First, if the deficit is financed by borrowing, the government competes with the private sector for loanable funds, so interest rates rise and private investment is crowded out, which offsets the rise in AD. Second, if the deficit is financed by printing money, the money supply rises faster than output, and according to the quantity theory ($MV = PT$) this leads to inflation. Third, monetarists believe that in the long run the economy returns to the natural rate of unemployment, where the LRAS is vertical; raising AD reduces unemployment only temporarily, as workers adjust their inflation expectations (the expectations-augmented Phillips curve). Finally, a demand-side policy does not deal with structural or frictional unemployment, caused by changes in the pattern of

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demand, lack of skills or lack of information.

Monetarists therefore argue for supply-side policies, which aim to reduce the natural rate of unemployment and shift LRAS to the right.



Market-based policies include cutting income and corporation tax to increase the incentive to work and to invest, reducing unemployment benefits to encourage people to search for work, reducing trade union power, deregulation and privatisation to make markets more flexible. Interventionist policies include education and training, which help structurally unemployed workers gain new skills, and better job information, which reduces frictional unemployment. As LRAS shifts from LRAS1 to LRAS2, potential output rises from Y1 to Y2 without inflation.

However, supply-side policies also have weaknesses. They take a long time to work: training workers or improving infrastructure may take years, and they do little to help the cyclically unemployed in a recession, because a firm will not hire more workers if there is no demand for its products. Cutting benefits and union power may increase inequality and poverty, and tax cuts may increase, not reduce, the budget deficit. Also, many interventionist supply-side policies themselves require government spending.

Similarly, Keynesian policy has limits: crowding out is less likely in a recession,

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when interest rates are low and there is spare saving, but a large deficit increases the national debt and future interest payments, and there are time lags in implementing fiscal policy.

In conclusion, neither view is correct in all cases; it depends on the type of unemployment. When unemployment is cyclical, caused by a lack of demand in a recession, the Keynesian approach of increasing the budget deficit is more likely to work quickly. When unemployment is structural or frictional, or the economy is close to full capacity, the monetarist supply-side approach is more effective, especially in the long run. In practice, a combination of demand-side policies in the short run and supply-side policies in the long run is likely to be most successful.

Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/42**

Paper 4 Data Response and Essays **May/June 2022**

2 hours 15 minutes

7304689890

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **three** questions in total:
  - Section A: answer Question 1.
  - Section B: answer **two** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- You may use a calculator.
- You may answer with reference to any economy you have studied where relevant to the question.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [ ].

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Section A

Answer this question.

1 Recent changes in the world oil market

The world price of oil is primarily determined by OPEC (Organization of the Petroleum Exporting Countries), which is a cartel consisting of 15 major oil producing countries. These countries have over 75% of the world's reserves of oil. Saudi Arabia is effectively the leader of the cartel. It exercises leadership by adjusting the output of the cartel to maintain the price agreed by the cartel's members. Russia and the US are not members of OPEC, but they engage in collusion with the cartel by accepting the oil price agreed by OPEC.

Between 2010 and 2019 United States (US) oil production increased from 6m barrels per day (mbd) to 12 mbd, equal to the output of Russia and exceeding that of Saudi Arabia. The increase in US production was mainly through a process known as fracking, with low fixed costs and high variable costs. This contrasts with Russia and Saudi Arabia where oil production involves high fixed costs and low variable costs.

In spring 2020, faced with a falling world oil price, Saudi Arabia proposed to cut its oil production. Russia did not agree with the proposal and increased its output by 4%. Saudi Arabia responded by increasing its output by 20%. The result of this disagreement was that the world price of oil fell significantly from US$70 per barrel to under US$30 per barrel. The situation was not helped by a sharp drop in the global demand for oil as many countries shut down large sections of their economies in response to the coronavirus (Covid-19) pandemic.

The joint action of Russia and Saudi Arabia was thought to be an attempt to undermine the US oil industry. This was because oil exports were a major source of income for both countries. Oil was responsible for more than 60% of Russia's exports and provided more than 30% of the country's gross domestic product (GDP). For Saudi Arabia, the importance was even greater. The oil sector accounted for about 70% of export earnings, and 50% of GDP.

The high price of oil in past years had enabled Russia to accumulate a significant budget surplus. The recent fall in the price of oil was thought to double the budget deficit of Saudi Arabia to US$100 billion at a time when the government was seeking to develop the country's industry and reduce unemployment.

(a) Define what is meant by a cartel. [2]

(b) 'Russia and the US are not members of OPEC, but they engage in collusion with the cartel.'

Explain what the term collusion means in the context of an oligopoly. [3]

(c) The oil production processes used by Saudi Arabia and the US have different proportions of fixed costs and variable costs.

Analyse why the fall in the price of oil may have a more significant effect on the output of oil in the US. [7]

(d) Discuss, with the use of AD/AS diagrams, how Russia and Saudi Arabia are likely to be able to respond to the fall in oil prices. [8]

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Section B

Answer **two** questions.

2 A rational consumer will always purchase less of an item as the price increases.

Discuss, with the use of indifference curve analysis, whether this statement is correct. [25]

3 **(a)** Explain the relationship between marginal revenue and average revenue and their role in determining the output and profit of a profit maximising firm in a perfectly competitive market. [12]

(b) Discuss the significance of economies of scale for the survival of firms. [13]

4 **(a)** Explain how the problems of climate change, such as global warming, may be regarded as a consequence of resource misallocation. [12]

(b) Evaluate **two** policies a government may implement to reduce the impact of climate change. [13]

5 The best outcome for labour markets is that the forces of supply and demand are left to determine wages without government interference.

Discuss with the use of diagrams, whether this statement is always true. [25]

6 **(a)** Distinguish between the characteristics of developed (high-income) and developing (low-income) countries. [12]

(b) Discuss whether gross domestic product (GDP) is the best measure of the standard of living. [13]

7 **(a)** Explain the relationship between the Keynesian demand for money and the rate of interest. [12]

(b) Discuss whether monetary policy alone is sufficient for a government to achieve its macroeconomic aims simultaneously. [13]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

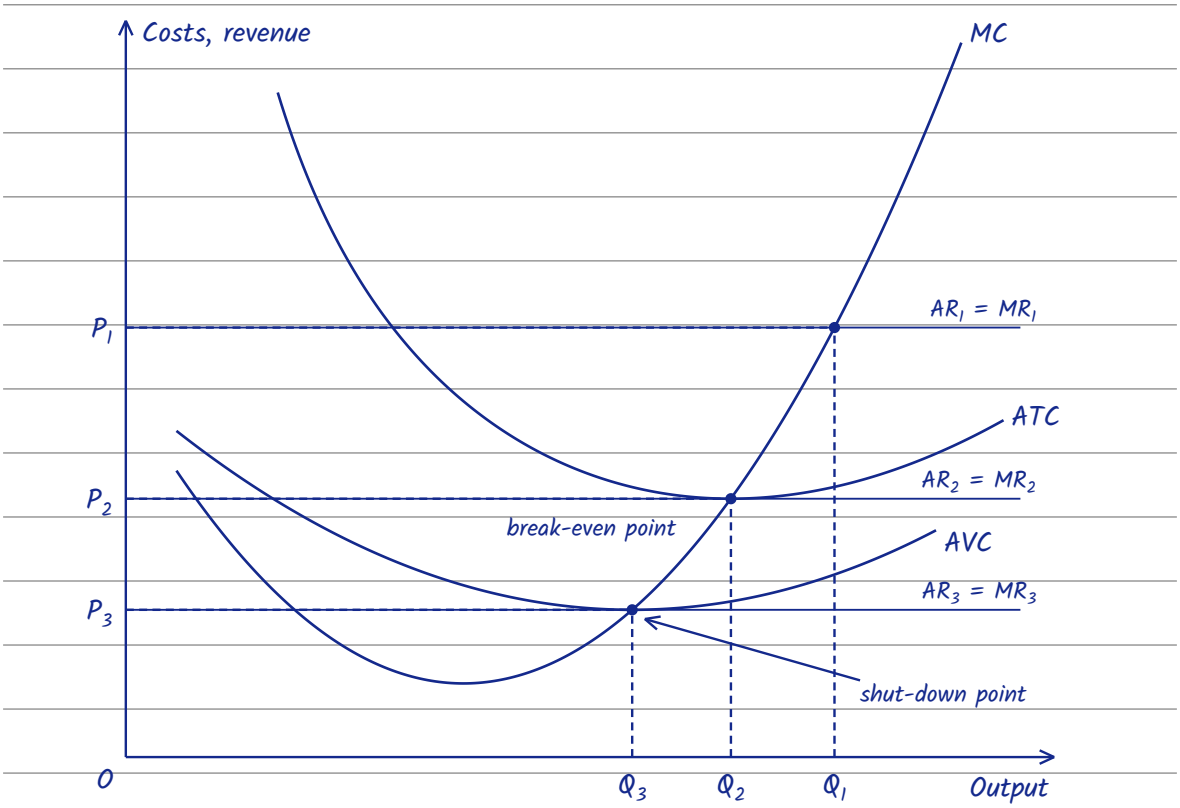
Answers for paper 9708/42

1(a) A cartel is a formal agreement between firms (or countries) in an industry to act collectively, by fixing the price or limiting output, in order to reduce competition and control the market, as OPEC does with oil.

1(b) Collusion is an agreement, usually informal or unwritten, between oligopoly firms to limit competition, for example by charging the same price, which benefits the firms. It may be tacit, as in price leadership: one firm, such as Saudi Arabia, sets the price and the other firms, here Russia and the US, accept it. Another example is all firms raising prices when one does, or refusing to cut prices even when costs fall.

1(c) Fixed costs are costs that do not change with output, such as the cost of drilling and building a well. Variable costs change directly with output, such as energy, chemicals and labour used to extract each barrel. US fracking has low fixed costs but high variable costs, while Saudi Arabia and Russia have high fixed costs but low variable costs.

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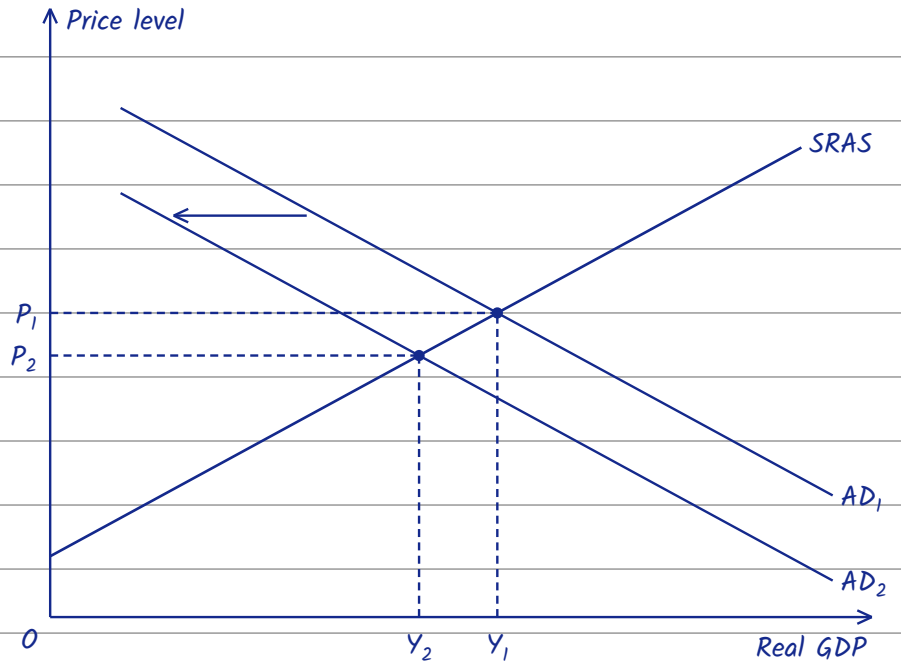
In the short run a firm should continue to produce as long as price covers average variable cost. If the price falls below ATC but stays above AVC (between P2 and P3), the well makes a loss but still makes a contribution to fixed costs, so it loses less by producing than by shutting down. If the price falls below AVC (below P3, the shut-down point), every barrel adds to the loss, so losses would be greater than the fixed costs, and the well should stop producing.

Because US wells have high AVC, the fall in price from US$70 to under US$30 per barrel is more likely to take the price below their AVC, so some US wells may close and US output falls. Saudi and Russian wells have low AVC, so the price is still likely to cover it and they keep producing. However, without detailed information on the AVC of each US well, we cannot say how many will close.

1(d) The fall in the oil price from US$70 to under US$30 per barrel reduces the value of oil exports. Exports are a component of aggregate demand (AD = C + I + G + X – M), and oil provides more than 60% of Russia's exports and 30% of its GDP,

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and about 70% of Saudi export earnings and 50% of GDP. So AD falls in both countries.



AD shifts left from AD1 to AD2, so real output falls from Y1 to Y2 and the price level from P1 to P2. Unemployment is likely to rise, which is a problem for Saudi Arabia, which wants to reduce unemployment.

The two countries need different policies because their budget positions differ. Russia has accumulated a significant budget surplus from the high oil prices in past years, so it can use expansionary fiscal policy, increasing government spending or cutting taxes without needing to borrow. This raises AD and shifts it back towards AD1, restoring output and employment. However, its surplus will run down if low prices last.

Saudi Arabia's budget deficit is expected to double to US$100 billion, so expansionary fiscal policy would be difficult. But as the leader of OPEC it can cut the supply of oil, as it originally proposed. Because the demand for oil is price inelastic, a cut in supply raises the price by a larger proportion, so export revenue rises and AD shifts back to the right. This depends on other producers, especially Russia, also cutting output, and on global demand recovering after the Covid-19

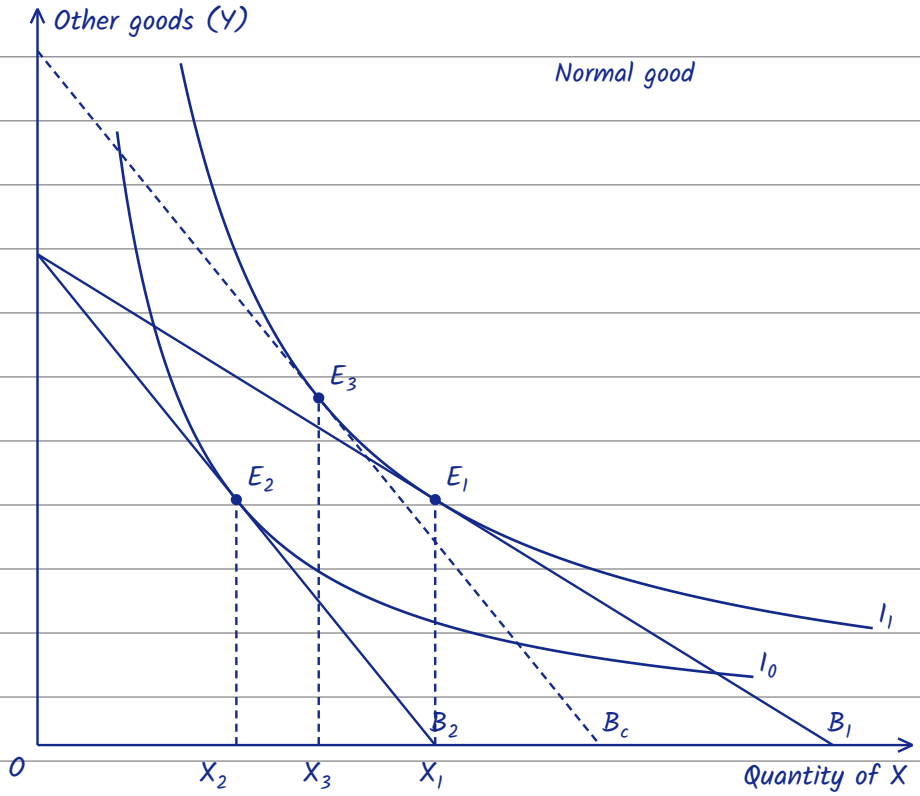
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shutdowns.

2 A rational consumer is one who aims to maximise total utility (satisfaction) from a limited income. An indifference curve (IC) shows all combinations of two goods that give the consumer the same level of satisfaction. It is downward sloping and convex to the origin because of a diminishing marginal rate of substitution, and higher curves show higher satisfaction. The budget line shows all combinations of the two goods that the consumer can just afford with a given income and prices; its slope is the ratio of the prices. The consumer maximises satisfaction where the budget line is tangent to the highest attainable IC.

When the price of good X rises, the budget line pivots inwards, from B1 to B2, and the change in quantity demanded can be split into two effects. The substitution effect is the change caused by the change in relative prices alone, keeping real income (utility) constant. X is now relatively more expensive, so the consumer substitutes towards other goods; the substitution effect of a price rise is always negative. The income effect is the change caused by the fall in real income (purchasing power), which can be positive or negative depending on the type of good.

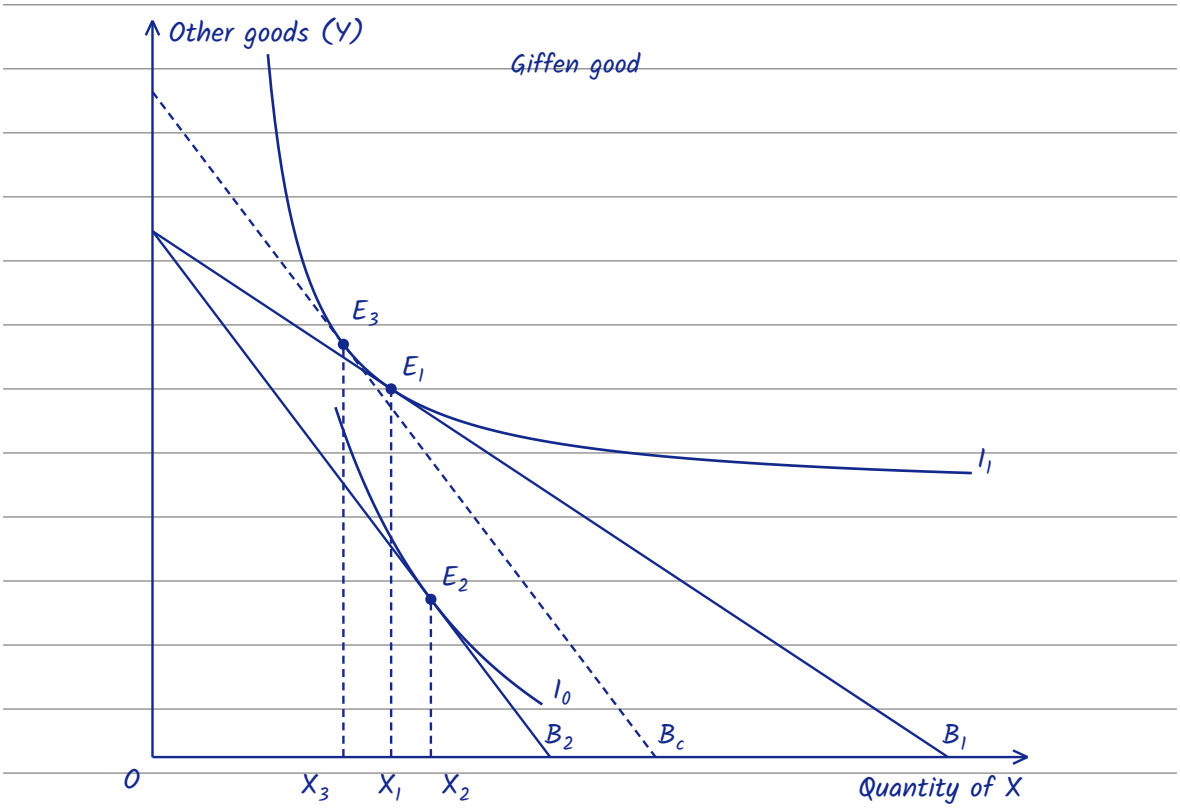
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For a normal good, the consumer starts at E1 on I1, buying X1. After the price rise, the compensated budget line Bc, parallel to B2 but tangent to the original curve I1, shows the substitution effect: a move from E1 to E3, so quantity falls from X1 to X3. The parallel shift from Bc to B2 is the income effect: real income falls, so for a normal good less is bought, from X3 to X2 at E2 on I0. Both effects reduce quantity demanded, so the consumer buys less, which supports the statement.

For an inferior good, the income effect works in the opposite direction: a fall in real income leads the consumer to buy more. In most cases the substitution effect is larger, so the consumer still buys less and the demand curve still slopes downwards.

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However, for a Giffen good, a strongly inferior good that takes a large share of a poor consumer's income, such as a staple food like rice or bread, the positive income effect (X3 to X2) is larger than the negative substitution effect (X1 to X3). The consumer can no longer afford better foods, so buys more of the staple. The overall result is a rise in quantity demanded from X1 to X2 when the price rises, so the demand curve slopes upwards. This consumer is still rational: buying more of X is the best choice given the lower real income, so the statement is not always correct.

There are other exceptions. For Veblen (ostentatious) goods, such as designer jewellery, a higher price makes the good more desirable as a status symbol, so more may be bought. Consumers may also buy more when the price rises if they expect it to rise further, as with shares and houses.

However, these exceptions are rare. Giffen goods have very seldom been observed in practice, and only for the poorest consumers. Indifference curve analysis also assumes consumers have perfect information and consistent preferences, which

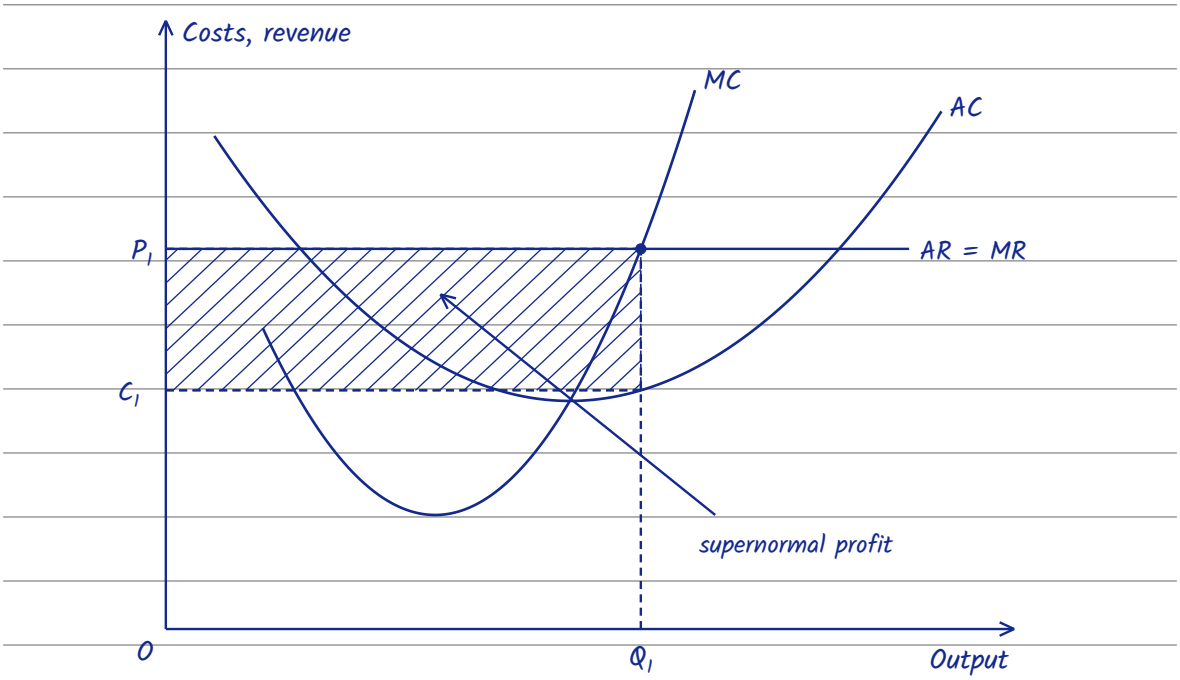
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behavioural economics questions.

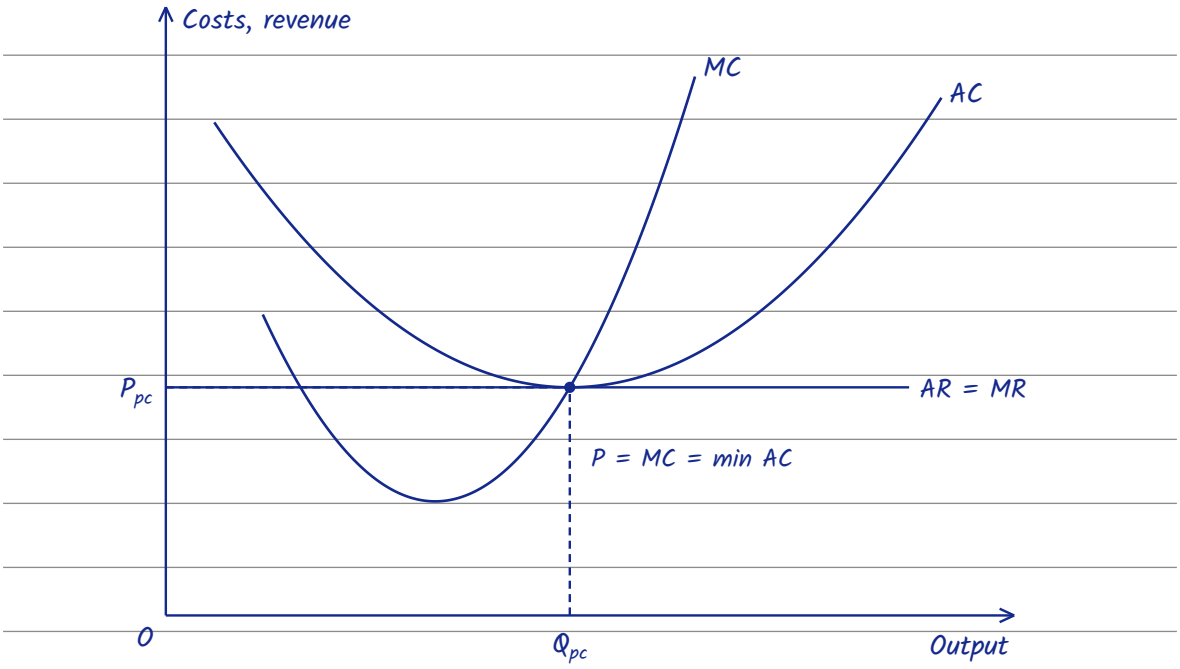
In conclusion, the statement is correct for most goods, because the substitution effect is always negative and for normal goods and most inferior goods the overall effect is a fall in quantity demanded. But it is not always correct: for a Giffen good a rational consumer buys more as the price rises, because the income effect outweighs the substitution effect, and Veblen goods are a further exception.

3(a) Average revenue (AR) is total revenue divided by the quantity sold, which equals the price. Marginal revenue (MR) is the change in total revenue from selling one more unit. In perfect competition there are many small firms selling identical products, so each firm is a price taker: it can sell any quantity at the market price. Every extra unit adds the market price to total revenue, so MR = AR = P, and the firm's demand curve is perfectly elastic (horizontal) at the market price. A profit-maximising firm produces where MR = MC (with MC rising). If MR > MC, an extra unit adds more to revenue than to costs, so output should rise; if MC > MR, output should fall. Because MR = AR = P, the firm produces where P = MC. The level of profit is then found by comparing AR with AC at that output: profit per unit = AR − AC, and total profit = (AR − AC) × output.

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In the short run, if the market price is P1, the firm produces Q1 where MR = MC. AR is above AC (C1), so the firm makes supernormal profit, shown by the shaded area (P1 – C1) × Q1. If the price were below AC, it would make a loss, but would keep producing in the short run as long as AR covers AVC.

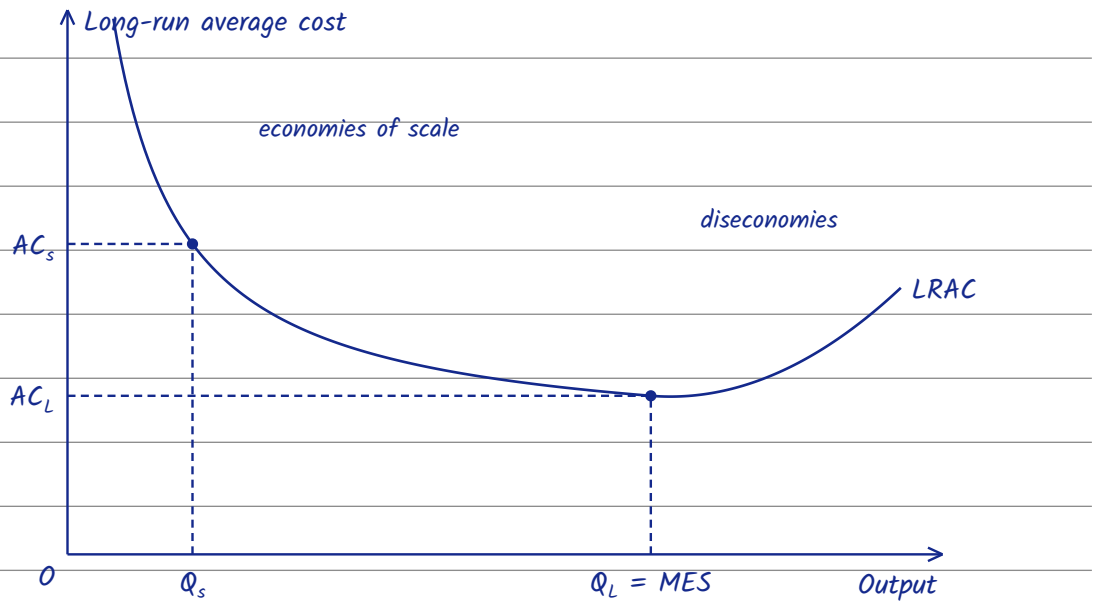


In the long run, there are no barriers to entry and perfect information, so supernormal profit attracts new firms. Market supply increases and the market

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price falls, shifting AR = MR down until it is tangent to the minimum point of AC. At Qpc, MR = MC = AR = AC, so the firm makes only normal profit. If firms make losses, some leave the industry, the price rises and normal profit is restored. So in the long run the relationship MR = AR = MC = AC means the firm is both allocatively efficient (P = MC) and productively efficient (minimum AC).

3(b) Economies of scale are the reductions in long-run average cost (LRAC) that occur as a firm increases the scale of its output. Internal economies arise within the firm, such as technical economies from large, more efficient machinery, purchasing economies from bulk buying, financial economies from borrowing more cheaply, and managerial and marketing economies. External economies arise from the growth of the whole industry, such as a pool of skilled labour or specialist suppliers in an area.



The diagram shows that a large firm producing QL has a much lower average cost (ACL) than a small firm producing Qs (ACs). The large firm can therefore charge a lower price and still make a profit, or make higher profits to invest in R&D and advertising. The small firm cannot compete on price and may be forced out of the market, so economies of scale are important for survival.

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Economies of scale also act as a barrier to entry. If the minimum efficient scale (MES), the lowest output at which LRAC is minimised, is large relative to market demand, only a few firms can survive, and a new entrant starting small faces much higher costs. This leads to oligopoly, as in car manufacturing or oil, or even natural monopoly, as in water supply, and protects the survival of the existing large firms in the long run.

However, economies of scale are not the only factor in survival. Very large firms may suffer diseconomies of scale, as communication and coordination become difficult and LRAC rises beyond a certain output. Many small firms survive because they serve small or niche markets where demand is too small for large-scale production, offer a personal or specialist service, provide flexibility, or work as suppliers to large firms. External economies of scale can also benefit small firms in the same area. Some small firms survive because of government support, and some large firms fail despite low costs if they lose touch with consumer demand.

In conclusion, economies of scale are very significant for the survival of firms in industries where the MES is large, such as manufacturing, because they give large firms a cost advantage and create barriers to entry. In markets with low MES, product differentiation, or limited demand, small firms can survive well, so the significance of economies of scale depends on the industry.

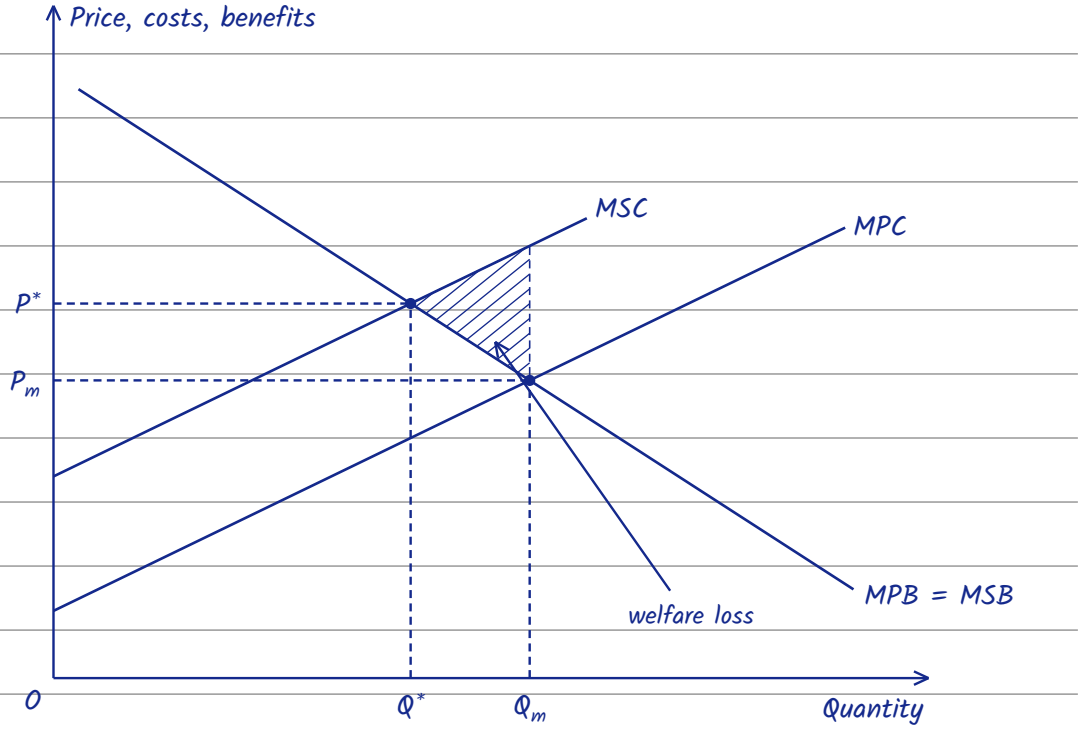
4(a)

Resource misallocation occurs when resources are not allocated where they give the greatest welfare to society, so allocative efficiency (where marginal social benefit equals marginal social cost) is not achieved. Climate change is caused by greenhouse gases, mainly carbon dioxide from burning fossil fuels in production and consumption, for example in power stations, factories and cars.

These emissions are a negative externality: a cost imposed on third parties who are not part of the transaction and are not compensated. Marginal social cost (MSC) is the marginal private cost (MPC) plus the marginal external cost. Rising

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temperatures, floods, droughts and damage to crops and health impose large external costs on people around the world and on future generations.



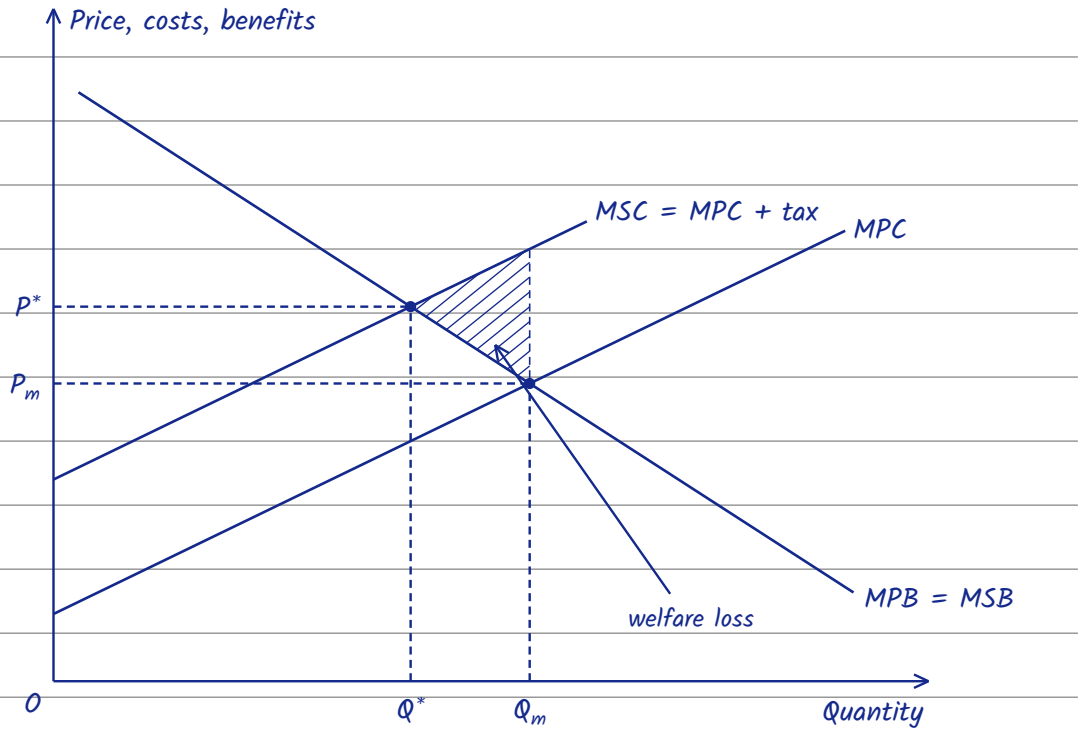
Producers and consumers make decisions based only on their private costs and benefits. The market equilibrium is where MPB = MPC, at output Qm and price Pm. But the socially optimal output is Q^*, where MSB = MSC. Because the external costs are ignored, the market overproduces carbon-emitting goods: for each unit between Q^* and Qm, MSC is greater than MSB, so society loses welfare, shown by the shaded welfare loss triangle. Too many resources are allocated to fossil fuel energy and too few to cleaner alternatives, so there is a misallocation of resources.

Externalities also arise in consumption: driving cars and flying create emissions, so the marginal social benefit of these activities is less than the private benefit. In addition, the atmosphere is a common resource with no property rights, so no one has to pay for using it as a dump for carbon, and the price of fossil fuels does not reflect their full social cost. Information failure adds to this, because people may not know the long-term effects of their decisions.

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Therefore climate change can be regarded as a consequence of resource misallocation, because the price mechanism fails to include external costs, leading to the overconsumption and overproduction of goods that emit carbon.

4(b) One policy is a carbon tax, an indirect tax on each unit of carbon emitted, set equal to the marginal external cost.



The tax raises firms' costs, so the MPC curve shifts up to MSC = MPC + tax, and output falls from Qm to the socially optimal level Q*, removing the welfare loss. This internalises the externality: the polluter pays. It also gives firms an incentive to switch to cleaner technology, and raises revenue that can be spent on renewable energy. However, it is very hard to measure the external cost of carbon in money terms, so the tax may be set at the wrong level. Demand for energy is price inelastic, so emissions may fall only a little while prices rise. The tax is regressive, because poorer households spend a larger share of income on fuel, and it raises firms' costs, reducing international competitiveness and possibly employment; firms may move to countries without the tax.

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A second policy is tradable pollution permits. The government sets a cap on the total emissions allowed and issues permits for this quantity, which firms can buy and sell. Firms that can cut emissions cheaply do so and sell their spare permits, while firms for which it is expensive buy permits. So emissions are reduced to the target at the lowest total cost, and firms have an ongoing incentive to cut pollution. The government can reduce the cap over time. However, setting the right cap is difficult; if too many permits are issued, as happened in the early years of the EU scheme, the price of permits collapses and emissions hardly fall. Monitoring emissions is costly, and the scheme mostly covers large firms, not households or transport.

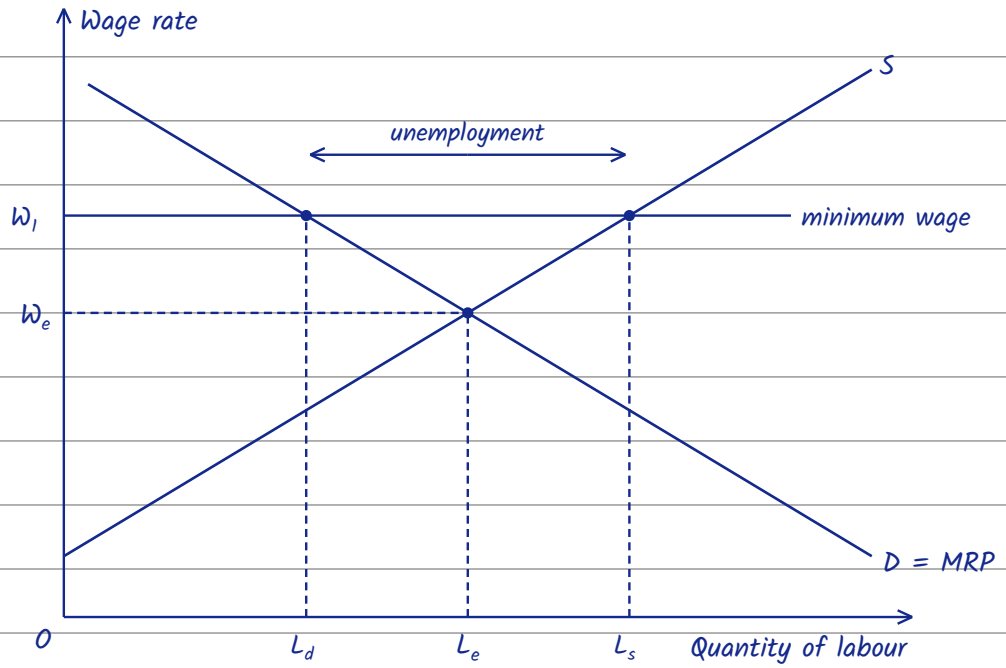
Other policies include subsidies for renewable energy, regulation such as banning the sale of new petrol cars, and information campaigns.

Both policies face the problem that climate change is global: one country cutting its emissions has a small effect unless others act too, so international agreements such as the Paris Agreement are needed. In conclusion, pollution permits give more certainty about the quantity of emissions, while a carbon tax gives certainty about the price and raises revenue. Both can reduce the impact of climate change if set at the right level, and they are most effective when used together with subsidies for clean energy and international cooperation.

5

In a free labour market, wages are determined by the demand for and supply of labour. The demand for labour is a derived demand, and according to marginal revenue product (MRP) theory a profit-maximising firm employs workers up to the point where the wage equals MRP, the extra revenue from the output of the last worker. Because of diminishing returns, MRP falls as more workers are employed, so the demand curve for labour slopes downwards. The supply of labour slopes upwards because higher wages attract more workers into the occupation.

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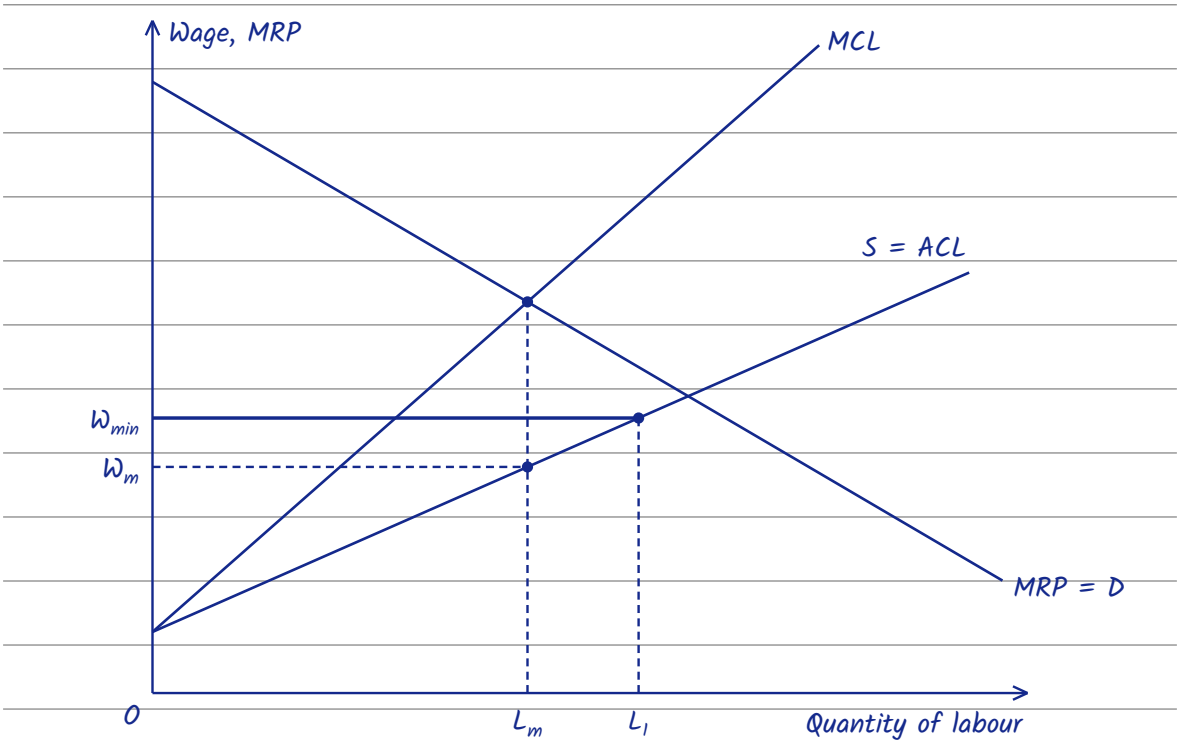


In a competitive labour market the equilibrium wage is We and employment Le. Here the free market gives an efficient outcome: each worker is paid the value of their MRP, there is no involuntary unemployment, and wage differences act as signals that move workers to the jobs where they are most productive. The level of the wage depends on elasticities: if labour supply is inelastic, for example because a skill takes years to learn, wages are high.

If the government interferes with a minimum wage at W1 above We, employers demand only Ld while Ls workers want jobs, so Le – Ld workers lose their jobs and there is unemployment of Ls – Ld. The more elastic the demand for labour, the more jobs are lost. In this case, leaving wages to supply and demand appears best, which supports the statement.

However, the statement assumes a perfectly competitive labour market, which is rare. Many labour markets are imperfect. In a monopsony, where there is a single dominant employer, for example a large employer in a small town or a government health service, the employer has wage-setting power.

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To hire an extra worker, the monopsonist must raise the wage for all its workers, so the marginal cost of labour (MCL) is above the supply curve (ACL). It employs where MCL = MRP, at Lm, and pays only Wm, which is below the MRP of the workers and below the competitive wage. Both the wage and employment are lower than in a competitive market, so the free market outcome is exploitative and inefficient. If the government sets a minimum wage at Wmin, the MCL becomes horizontal at Wmin up to the supply curve, so the firm employs LI. Government intervention raises both wages and employment, so the statement is not true here.

There are other reasons why the free market outcome may not be best. It may produce a very unequal distribution of income, with low pay causing poverty, even if it is efficient. Workers may lack information about jobs, or face discrimination, so they are not paid their MRP. Some workers, such as nurses, create positive externalities that the market does not reward. Government intervention through minimum wages, equal pay laws, training and job information can therefore improve both efficiency and equity.

On the other hand, government intervention can fail. If the minimum wage is set

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too high, or the market is close to competitive, unemployment results, especially among young and unskilled workers. Governments may lack the information to set the right wage, and regulations increase costs for firms, possibly reducing international competitiveness.

In conclusion, the statement is not always true. In a competitive labour market with full information, leaving wages to supply and demand may give the best outcome, and intervention may cause unemployment. But in imperfect markets such as monopsony, or where there is inequality and discrimination, well-designed government intervention can raise both wages and employment, giving a better outcome than the free market.

6(a) Developed (high-income) countries have a high GDP per capita, while developing (low-income) countries have a low GDP per capita. The characteristics are closely linked to each other.

Sectoral structure of employment: in developing countries a large share of the labour force works in the primary sector, often in low-productivity subsistence agriculture, while in developed countries most work in the tertiary (service) sector. Because productivity in agriculture is low, incomes are low, which links directly to the low GDP per capita. As countries develop, workers move into manufacturing and services, where productivity and wages are higher.

Population structure: developing countries tend to have high birth rates and a young population, with a large proportion under 15, so the dependency ratio is high. Developed countries have low birth rates, longer life expectancy and an ageing population. A high youth dependency ratio means a large share of income is needed to support children, leaving less for saving and investment, which keeps GDP per capita low.

Education and health care: developed countries have high literacy rates, many years of schooling and good health care, so life expectancy is high and infant mortality

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low. In developing countries spending on education and health is limited, so human capital is low. This reduces labour productivity, and so incomes, creating a cycle of poverty: low incomes mean low tax revenue and little to spend on education and health.

Other characteristics are also linked. Developing countries often have poor infrastructure, such as roads, power and communications, which raises costs and deters investment; a lower level of urbanisation, although urban areas are growing quickly; higher levels of unemployment and underemployment, with a large informal sector; and, in many cases, high levels of foreign debt, which means a large share of export earnings is used for debt repayment rather than investment.

So the characteristics reinforce one another: low productivity, low education and high dependency keep GDP per capita low, while developed countries benefit from a cycle of high skills, high investment and high incomes. However, the distinction is not always clear-cut: countries such as China and India have many characteristics of both groups.

6(b) Gross domestic product (GDP) is the total value of all goods and services produced within a country in a year. To measure the standard of living it is converted into real GDP per capita, by adjusting for inflation and dividing by the population, and for comparisons between countries it can be converted at purchasing power parity (PPP) exchange rates.

Real GDP per capita is a useful measure. A higher figure means more goods and services are available per person, so material living standards are generally higher. The data are collected regularly in most countries using an agreed method, so it is easy to compare over time and between countries.

However, it has important weaknesses. It is an average, so it says nothing about the distribution of income: if the gains go to the richest, most people may not be better off. It excludes non-marketed output such as housework and subsistence

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farming, and the informal economy, which are large in developing countries, so their living standards may be understated. It ignores the quality of goods, leisure time and working conditions, and it counts output that does not improve welfare, such as defence, while ignoring negative externalities such as pollution and environmental damage. Exchange rates may also distort comparisons if PPP is not used.

An alternative is the Human Development Index (HDI), which combines three dimensions: health, measured by life expectancy at birth; education, measured by mean and expected years of schooling; and income, measured by GNI per capita at PPP. It gives a value between 0 and 1. The HDI is broader than GDP, because it includes non-material aspects of living standards, and it shows that some countries with similar incomes have very different levels of health and education. However, it includes only three indicators, gives them equal weight, and still ignores inequality, the environment and political freedom.

Other measures include the Measure of Economic Welfare (MEW), which adjusts GDP by adding leisure and unpaid work and subtracting environmental damage, and the Multidimensional Poverty Index. These are more complete but harder to measure, because values for leisure and pollution are estimates.

In conclusion, real GDP per capita is a convenient and widely available measure of material living standards, but it is not the best measure of the standard of living overall. A broader measure such as the HDI gives a better picture, and the best approach is to use GDP per capita together with the HDI and indicators of inequality and the environment.

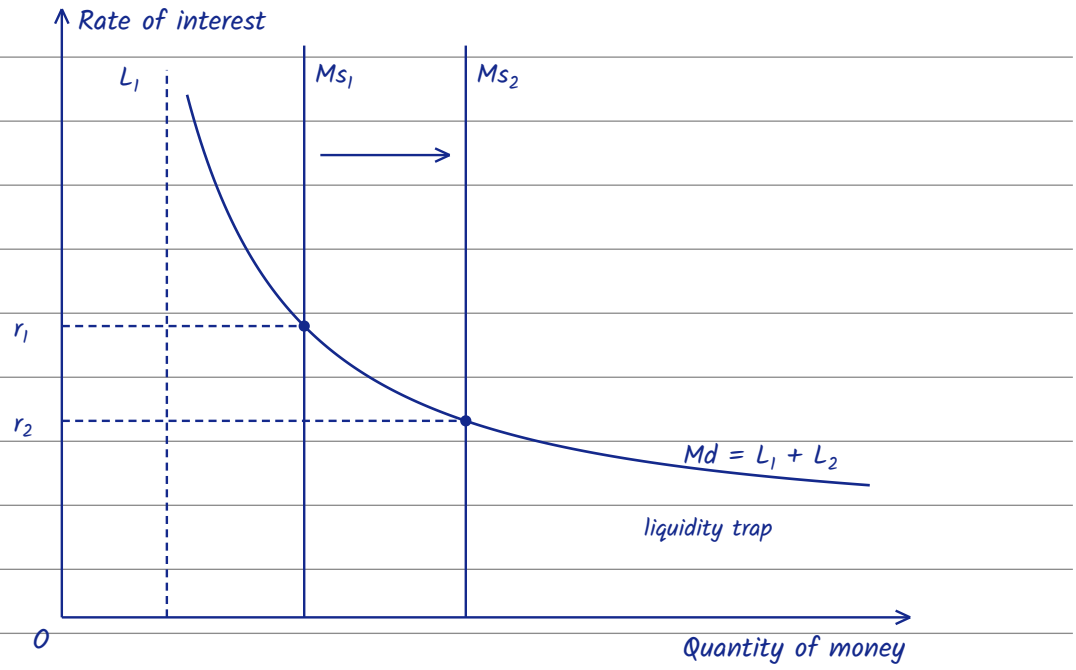
7(a) Keynes argued that people hold money for three motives; this demand for money is called liquidity preference.

The transactions demand is money held to pay for day-to-day spending, because income is received at intervals but spending takes place continuously. It depends

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mainly on the level of income: the higher the income, the more transactions, so the more money is held. The precautionary demand is money held for unexpected expenses, such as illness or repairs, and also depends mainly on income. These two demands (L1) are therefore interest inelastic, shown as a vertical line.

The speculative demand (L2) is money held as an alternative to buying bonds. Bond prices and the rate of interest are inversely related. When the interest rate is high, the opportunity cost of holding money is high, and people expect interest rates to fall and bond prices to rise, so they buy bonds to make a capital gain and hold little speculative money. When the interest rate is low, the opportunity cost of holding money is low and people expect interest rates to rise and bond prices to fall, so they hold money to avoid a capital loss. So the speculative demand is inversely related to the rate of interest.



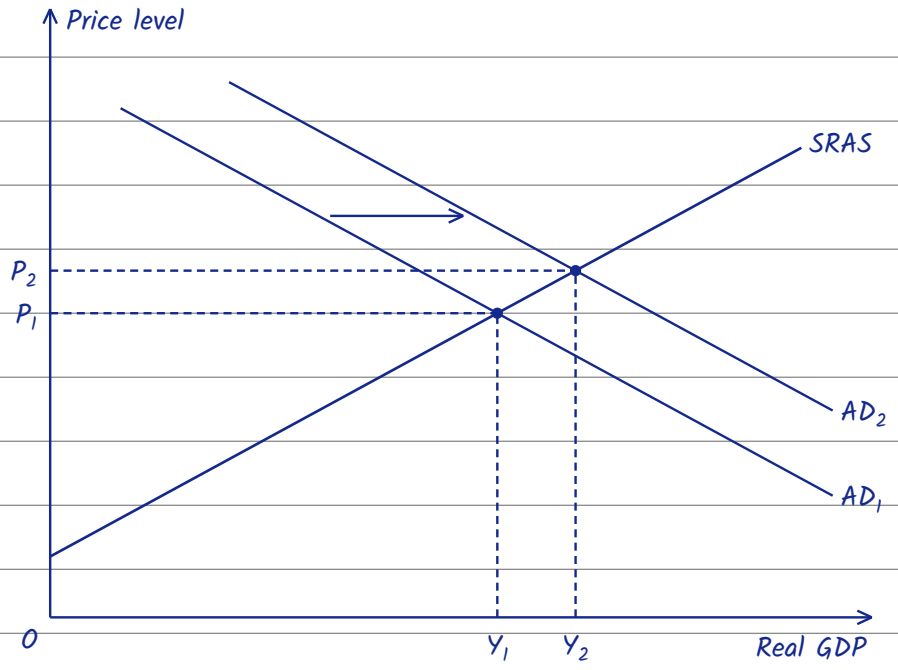
Adding the three demands gives the total demand for money, Md = L1 + L2, which slopes downwards: as the rate of interest falls, the quantity of money demanded rises. With the money supply fixed by the central bank, the rate of interest is determined where the demand for money equals the supply. If the money supply increases from Ms1 to Ms2, the rate of interest falls from r1 to r2

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as people use the extra money to buy bonds.

At very low interest rates, everyone expects rates to rise, so the demand for money becomes perfectly elastic. This is the liquidity trap: any increase in the money supply is held as idle balances and the rate of interest does not fall. An increase in income shifts the whole Md curve to the right, because the transactions and precautionary demands rise, which raises the rate of interest for a given money supply.

7(b) The government's main macroeconomic aims are low and stable inflation, low unemployment, sustained economic growth and a stable balance of payments. Monetary policy uses interest rates, the money supply and the exchange rate to influence aggregate demand.



Expansionary monetary policy, lowering interest rates or quantitative easing, reduces the cost of borrowing and the reward for saving, so consumption and investment rise and AD shifts right from AD1 to AD2. Output rises from Y1 to Y2, so growth increases and unemployment falls. But the price level also rises from P1 to P2. Lower interest rates also tend to cause the exchange rate to depreciate,

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which makes exports more competitive, but higher incomes increase imports. So monetary policy can achieve some aims together, such as growth and lower unemployment, but at the cost of others, such as low inflation. Raising interest rates reduces inflation but also reduces growth and raises unemployment: there are conflicts between the aims, as the Phillips curve suggests.

Monetary policy also has limitations. Changes in interest rates take up to two years to have their full effect. In a deep recession, interest rates may already be close to zero and confidence low, so lower rates may not raise investment. And monetary policy cannot deal with problems on the supply side, such as cost-push inflation from higher oil prices or structural unemployment.

Other policies are therefore needed. Fiscal policy, changing government spending and taxation, can target particular areas: for example, government spending on infrastructure can raise AD directly in a recession when monetary policy is weak. But it has time lags, may cause crowding out and increases government borrowing. Supply-side policies, such as education and training and lower taxes on enterprise, shift LRAS to the right, which allows growth and lower unemployment without inflation and improves international competitiveness. Their weakness is that they take a long time to work.

In conclusion, monetary policy alone is not sufficient to achieve all the macroeconomic aims at the same time, because it works only on aggregate demand and so faces conflicts between the aims, particularly between inflation and unemployment. It is most effective for controlling inflation, but it needs to be combined with fiscal and especially supply-side policies to achieve all the aims simultaneously.

Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/43**

Paper 4 Data Response and Essays **May/June 2022**

2 hours 15 minutes

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You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **three** questions in total:
  - Section A: answer Question 1.
  - Section B: answer **two** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- You may use a calculator.
- You may answer with reference to any economy you have studied where relevant to the question.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **4** pages.

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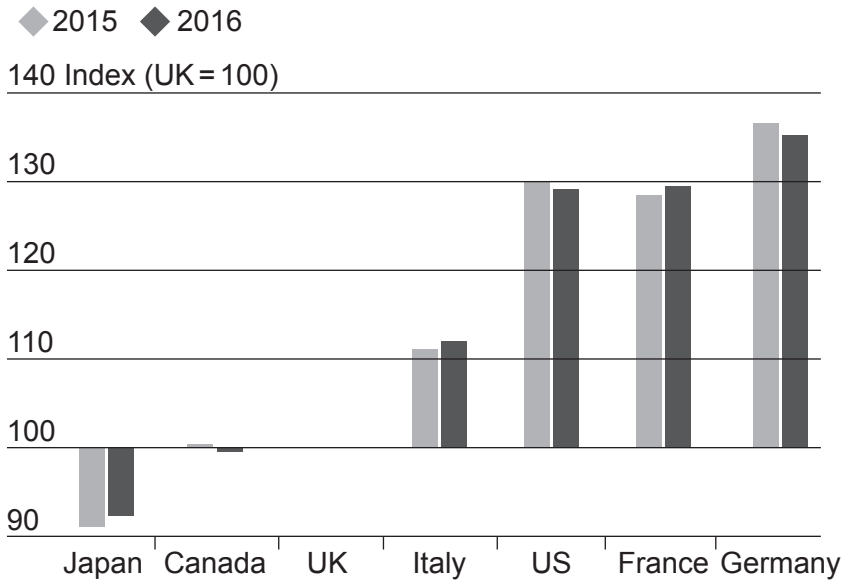
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Section A

Answer this question.

1 **Productivity in the G7 countries**

The G7 is a group of countries that have some of the world's major advanced economies. Productivity in the G7 countries varies, as shown in Fig. 1.1 below, with United Kingdom (UK) performance as the base index of 100.



Source: The Sunday Times*, 24 June 2018*

Fig. 1.1: Gross domestic product per hour worked, G7 countries, for 2015 and 2016

Productivity in the UK was one of the worst in the G7. Poor management practices and lower levels of skills in the workforce were the main reasons for the UK's position. In low wage, high employment sectors of the UK economy, the performance compared unfavourably with five of the G7 countries. In retailing, the UK was 40% lower than the performance in the United States (US). In hospitality industries the UK had a 45% lower rate than France.

Tackling poor productivity is about innovation, investment and improving infrastructure as well as labour skills.

The Federal Reserve Bank of the US suggested that innovation is one of the keys to productivity differences among the G7 countries. Innovation can occur using different factor inputs such as IT hardware and software, investment in staff training, research and development (R&D) and marketing. In 2015, the US had the most advanced software and IT services industries in the world accounting for a third of the global IT market. In 2018, the industry accounted for 12% of private sector employment and contributed 7.1% of GNP. Three of the top ten IT companies in the world were based in the US.

In 2014, in the UK, businesses spent US$26 billion on R&D, notably on digital technology and biomedical research projects that are world-renowned. However over the past 25 years R&D in the UK has only averaged between 1% and 1.3% of GNP and falls behind Japan with 3.4%, Germany 2.9%, the US 2.7% and France 2.2%.

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There were concerns about the UK government reducing spending but in 2018 it made a commitment to a large investment programme in transport and communications to provide a boost to productivity. At that time one threat to the UK economy was its decision to leave the European Union's single market. The decision created uncertainties for investors and the balance of foreign direct investment (FDI) showed that there were more investments abroad than there were foreign investments in the UK. This made some UK industries, such as car production, vulnerable. The central bank in the UK has stated that foreign owned car manufacturers in the UK invest heavily in R&D and their presence boosts the productivity of labour. It was thought this may change in the future.

Sources: The Sunday Times 24 June 2018, David Smith (Economic Outlook). 'We don't need a new target but we must raise our game'.
The Times 27 June 2018, David Smith. 'Inward Investment so important to Britain is now at risk'.
Office for National Statistics, Britain, 2016

(a) Explain what is meant by productivity. [2]

(b) The information suggests that innovation and R&D are important in ensuring high productivity. Is this statement consistent with the evidence in Fig. 1.1? [4]

(c) Use the information to comment on productivity in the US and indicate which factors contributed to its performance. [6]

(d) Use the information to discuss whether or not it is likely that the UK's productivity within the G7 countries will improve. [8]

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Section B

Answer **two** questions.

2 **(a)** Explain what economists mean by a public good and discuss why the provision of such a good is associated with market failure. [12]

(b) Discuss the extent to which monopoly producers and the consumers of their products might benefit from the existence of barriers to entry. [13]

3 **(a)** Firms in perfect competition and firms in monopolistic competition will only achieve normal profits in the long run. This means that firms in both these types of market structure are equally efficient.

Discuss, with the help of diagrams, the extent to which you agree with this statement. [12]

(b) Interdependence is a key characteristic of oligopoly firms. This creates a problem regarding the pricing decisions made by such firms.

Explain this statement and discuss the extent to which game theory can help to solve this problem. [13]

4 **(a)** Discuss the costs and benefits of a trade union intervening to influence the wages of workers in a specific occupation. [12]

(b) The introduction of a national minimum wage will always benefit employees at the expense of employers.

Discuss the extent to which you agree with this statement. [13]

5 With the help of a circular flow diagram discuss how a policy of export-led growth might affect the standard of living in a developing economy. [25]

6 **(a)** Explain what is meant by a transmissions mechanism of monetary policy and consider why it might not work in practice. [12]

(b) Discuss the role and importance of the commercial banks in a developed economy. [13]

7 Keynesians argue that increasing budget deficits will solve the problem of unemployment. Monetarists argue that supply side policies are more effective in reducing unemployment.

Consider which view is more likely to be correct. [25]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9708/43

1(a) Productivity is output per unit of input over a given period, for example output per worker or per hour worked. Here it is measured as GDP per hour worked, so it shows how efficiently the factors of production are used to produce output.

1(b) Partly. The countries that spend the most on R&D as a percentage of GNP, Germany (2.9%), the US (2.7%) and France (2.2%), also have the highest productivity in Fig. 1.1, with indices of about 135, 129 and 130 in 2016. The UK spends only 1% to 1.3% and has an index of 100, which supports the statement. However, Japan spends the most of all, 3.4% of GNP, yet has the lowest productivity, an index of only about 92 to 93 in 2016. Also, innovation is only one of the factors named, along with investment, infrastructure and labour skills. So the evidence is not entirely consistent with the statement.

1(c) US productivity is relatively high: its index was about 130 in 2015 and 129 in 2016, about 30% above the UK, the third highest in the G7 after Germany and France, although it fell slightly between the two years. In retailing the UK was 40% lower than the US.

Several factors contributed. R&D and innovation are a strong element: the US spends 2.7% of GNP on R&D, more than double the UK. The US has the most advanced software and IT services industries in the world, with a third of the global IT market; the industry accounted for 12% of private sector employment and 7.1% of GNP. Three of the top ten IT companies in the world were based in the US. Investment in IT hardware, software and staff training raises the output

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	of each worker per hour.
1(d)	In the short term it seems unlikely that the UK's position will improve. It had the lowest productivity of the G7 apart from Japan and Canada, and the reasons are deep-rooted: poor management practices and lower levels of skills in the workforce, which take years to change. R&D has averaged only 1% to 1.3% of GNP over 25 years, well below Germany (2.9%) and the US (2.7%), so there has been low investment in innovation for a long period. There is also a threat from leaving the EU single market. Uncertainty for investors meant more investment abroad than foreign investment in the UK, so the FDI balance was negative. Foreign owned car manufacturers invest heavily in R&D and boost labour productivity, so if this investment falls UK productivity could fall further behind. However, there are some reasons for improvement in the long term. UK businesses spent US$26 billion on R&D in 2014, and its research in digital technology and biomedical science is world-renowned. In 2018 the government committed to a large investment programme in transport and communications, which should raise productivity once completed. Overall, the UK is unlikely to improve its position in the short run, but it may in the long run if the infrastructure investment goes ahead, R&D rises and inward investment recovers. It also depends on how fast the other G7 countries improve.
2(a)	A public good is a good that is non-rival and non-excludable. Non-rival means that one person's consumption does not reduce the amount available to others, so the marginal cost of an extra consumer is zero. Non-excludable means that once the good is provided it is impossible, or too costly, to stop people who have not paid from benefiting. Examples are national defence, street lighting and lighthouses. Pure public goods are also non-rejectable: people cannot choose not to consume

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them.

Market failure occurs when the free market does not allocate resources efficiently. Allocative efficiency is achieved when resources are allocated so that consumer satisfaction (welfare) is maximised, where P = MC, so that the value consumers place on the last unit equals the cost of producing it.

Because a public good is non-excludable, consumers have an incentive to be free riders: they wait for someone else to pay, knowing they cannot be excluded. So consumers do not reveal their true preferences and there is no effective demand. A private firm cannot charge a price and make a profit, so there is no incentive to supply the good. The market is missing altogether, so a good that people value is not produced. Non-rivalry makes this worse: because the marginal cost of an extra user is zero, the efficient price is zero, which no profit-seeking firm will charge. As a result, too few resources, often none, are allocated to the good. Total consumer satisfaction is lower than it could be: society would be willing to pay more for street lighting than it costs, but it is not provided. Resources are allocated to private goods instead, so the allocation is not the one that maximises welfare and this is a complete market failure.

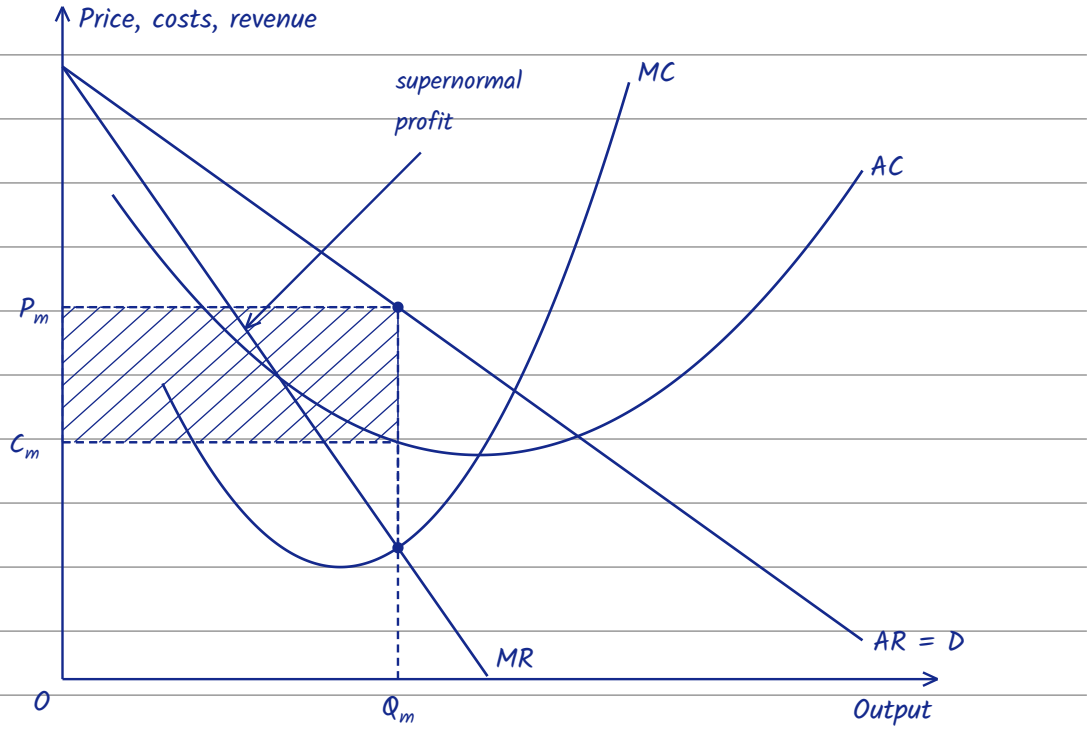
However, the extent of the failure depends on the good. Some goods are quasi-public: roads become rival when congested and can be made excludable with tolls, so markets can provide some of them. Technology can also make goods excludable, as with encrypted television signals.

In conclusion, public goods are important for welfare, and their non-excludability means the free rider problem causes the market to fail. The government can correct this by providing them directly, financed by taxation, although it then has to estimate how much people value the good, which can lead to government failure through over- or under-provision.

2(b) A monopoly is a single seller of a good with no close substitutes; legally, a firm

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with at least 25% market share may be treated as a monopoly. Barriers to entry are obstacles that prevent new firms entering the market. They allow a monopolist to keep supernormal profits in the long run.



The diagram shows the monopolist maximising profit where MR = MC, at output Qm and price Pm. Because barriers stop entry, the supernormal profit (shaded) is not competed away. Producers clearly benefit: higher profits, a secure market share and the funds to grow.

Economies of scale are one barrier. A large firm has a lower long-run average cost, so a new small entrant could not compete. The producer benefits from lower costs and higher profit. Consumers may also benefit if the lower costs are passed on as lower prices; in a natural monopoly, one firm supplies at a lower cost than several firms could. But there is no competitive pressure to pass cost savings on, so the monopolist may keep them as profit, and price is still above MC, so output is allocatively inefficient.

Patents and legal barriers are a second barrier. A patent gives a firm the sole right to sell a new product for a number of years. The producer benefits from

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supernormal profit that rewards its R&D. Consumers benefit in the long run because, without this protection, firms would not risk investing in new medicines or technology, so there is dynamic efficiency: better quality products and more choice over time. However, during the patent consumers pay high prices, for example for some medicines.

Branding, advertising and limit pricing can also deter entry. With limit pricing the monopolist sets a price just below the average cost of a potential entrant. Consumers gain from lower prices in the short run, but once rivals are deterred the firm's market share and long-run profits are higher.

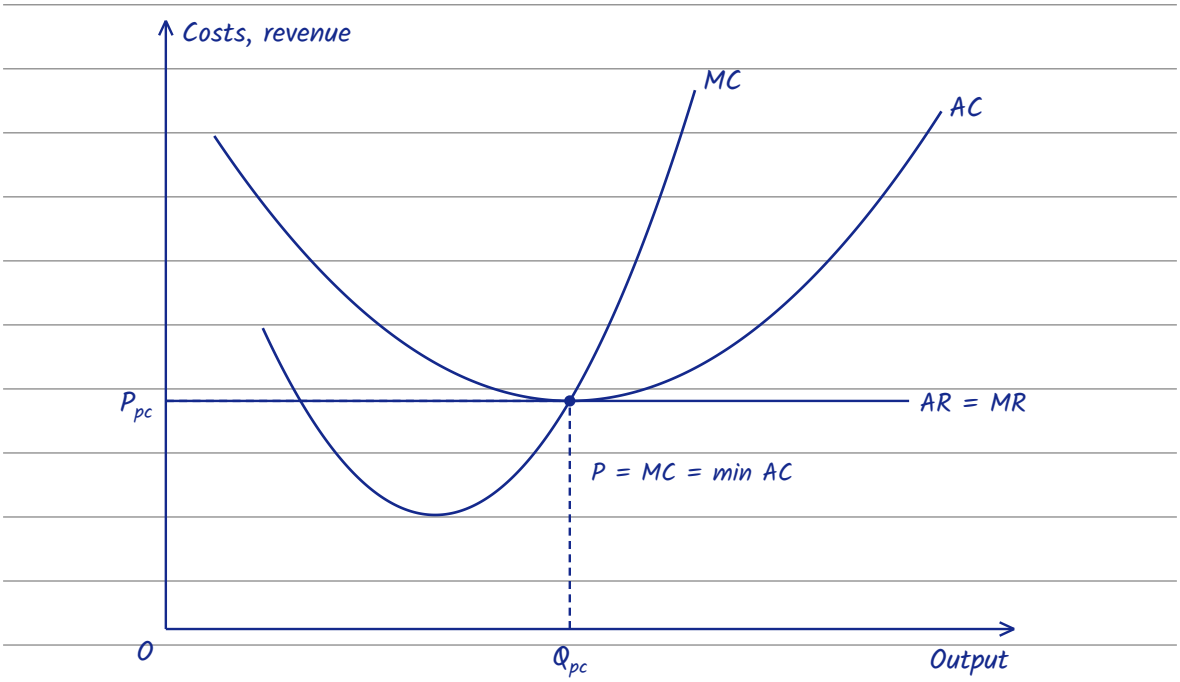
On the other hand, protection from competition can lead to complacency and X-inefficiency, where costs are higher than necessary. Then consumers face higher prices and lower quality, and even the producer loses some potential profit.

In conclusion, monopoly producers almost always benefit from barriers to entry. Consumers benefit only in some cases: where the barrier is economies of scale or patents that lead to lower costs and innovation, and where the monopolist reinvests its profits rather than becoming X-inefficient. The net benefit to consumers depends on the type of barrier and on regulation by the government.

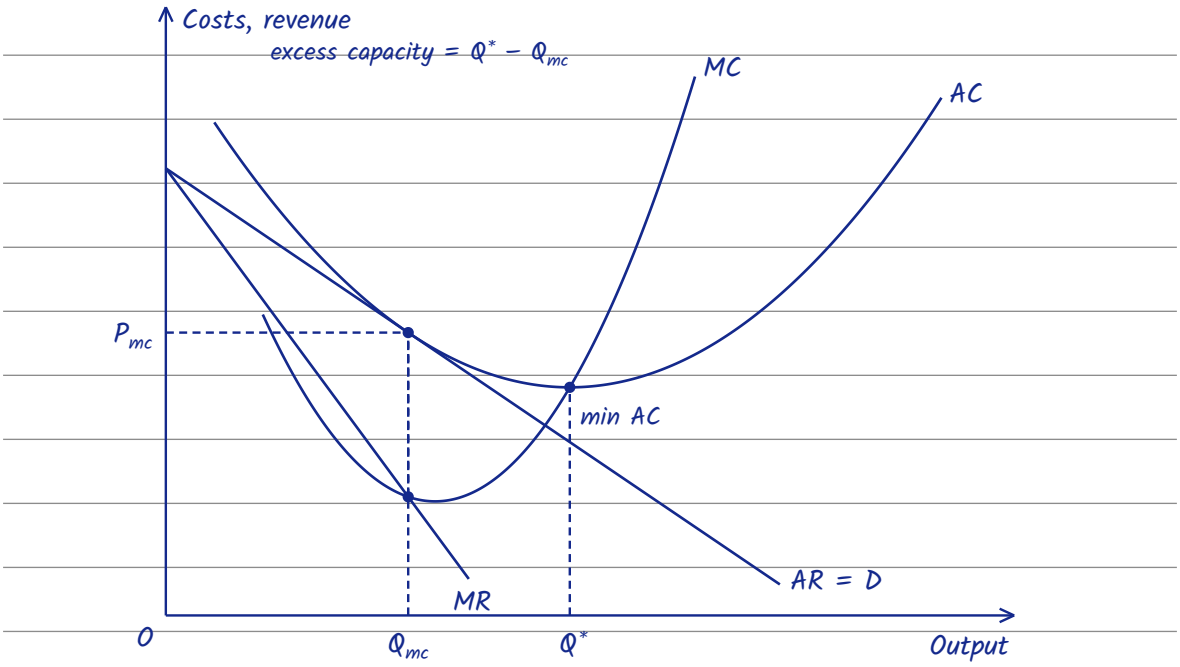
3(a) Normal profit is the minimum profit needed to keep a firm in the industry, where AR = AC. It is counted as a cost. In both structures there are no barriers to entry, so any supernormal profit attracts new firms until only normal profit is made in the long run. But this does not mean the firms are equally efficient.

Productive efficiency is producing at the lowest point of the average cost curve. Allocative efficiency is where price equals marginal cost (P = MC), so resources are used to produce what consumers value most.

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In perfect competition the firm is a price taker, so its demand curve is horizontal: P = AR = MR. Entry lowers the price until it equals the minimum of AC. The firm maximises profit where MR = MC, at Qpc, so P = MC, which is allocatively efficient, and it produces at minimum AC, which is productively efficient.



In monopolistic competition products are differentiated, so the firm's demand curve slopes downwards and MR lies below AR. Entry shifts each firm's demand to the

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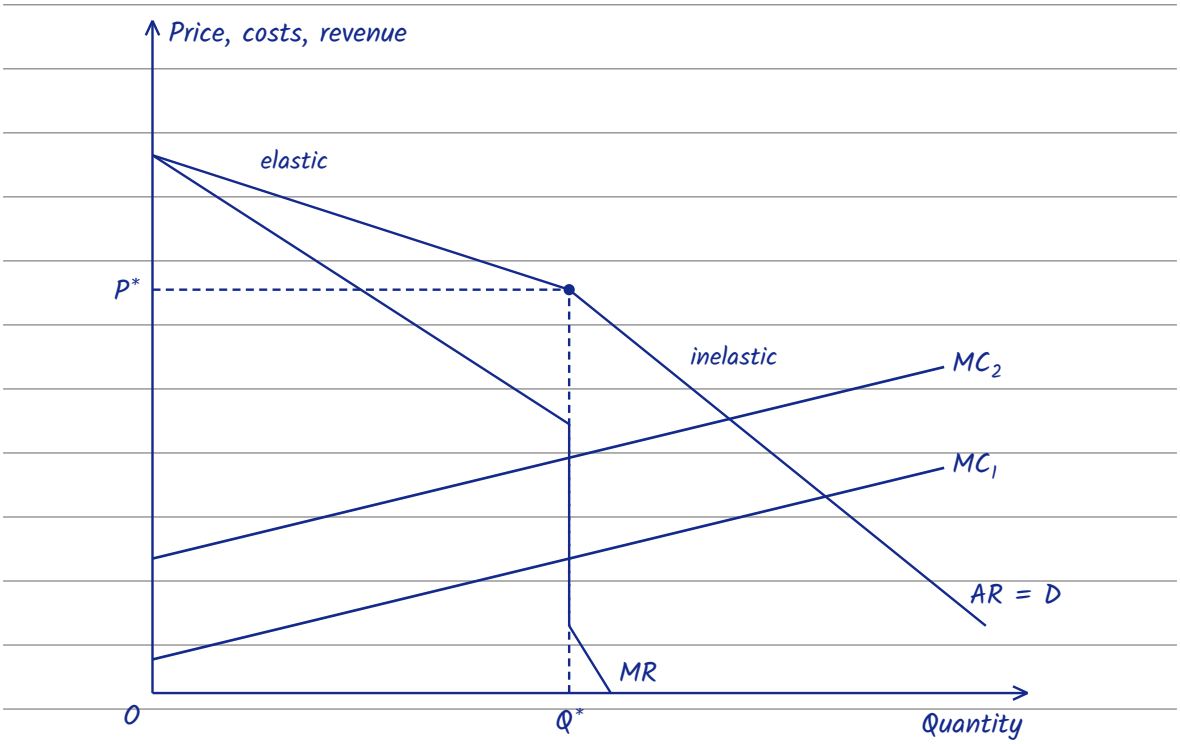
left until AR is tangent to AC, so P = AC and only normal profit is made at Qmc. But the tangency is on the falling part of AC, so output Qmc is below Q^*, the output at minimum AC: the firm has excess capacity and is not productively efficient at the optimum level of output. Price Pmc is above MC, so it is also allocatively inefficient. It may be productively efficient only in the narrow sense of producing Qmc at the lowest attainable cost for that output.

Neither type of firm is likely to be dynamically efficient, because with only normal profit and small firms there are few funds for R&D. However, monopolistic competition gives consumers variety and choice, which they value, and some of the extra cost is the price of this choice.

In conclusion, I disagree with the statement. Both earn normal profit in the long run, but the perfectly competitive firm is both allocatively and productively efficient while the monopolistically competitive firm is neither, so perfect competition is more efficient.

3(b) An oligopoly is a market dominated by a few large firms, with a high concentration ratio. Interdependence means that each firm's pricing and output decisions significantly affect the profits, market share and growth of its rivals, so each firm must consider how rivals will react before it acts.

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The kinked demand curve shows the problem. If a firm raises its price above P^*, rivals do not follow, so it loses many customers: demand is elastic and total revenue falls. If it cuts its price, rivals match it to protect their market share, so demand is inelastic and total revenue again falls. There is a discontinuity in MR, so MC can change between MC1 and MC2 without the price changing. Prices are sticky, and a price cut risks a price war in which all firms lose profit while consumers gain. Firms do not know how rivals will respond, so they find it hard to choose a price.

Game theory analyses these decisions by looking at the strategies of rivals and the payoffs. For example:

	Firm B: high price	Firm B: low price
Firm A: high price	A $10m, B $10m	A $4m, B $14m
Firm A: low price	A $14m, B $4m	A $6m, B $6m

If B charges a high price, A earns more with a low price ($14m against $10m); if B charges low, A again earns more with a low price ($6m against $4m). So low

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price is A's dominant strategy, and the same for B. A maximin strategy, choosing the best of the worst outcomes, also gives a low price. Both end at $6m each, a Nash equilibrium, although both would earn $10m with a high price. This is the prisoners' dilemma.

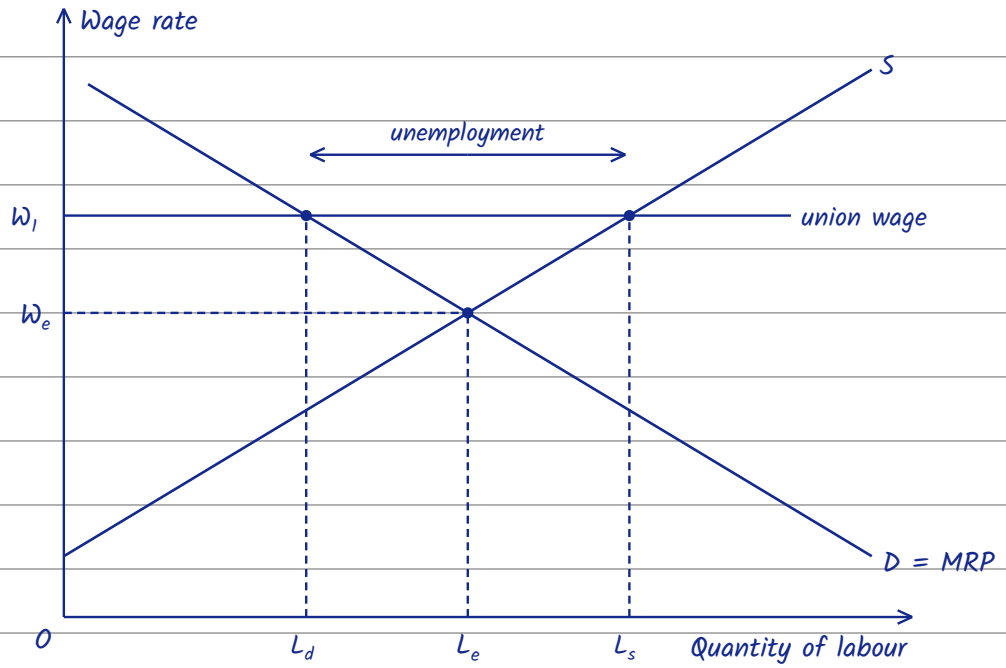
Game theory therefore helps to explain the problem and suggests a solution: firms can see that collusion, agreeing to charge a high price, maximises their joint profits. In a repeated game, firms may learn to cooperate, for example using a tit-for-tat strategy.

However, game theory has limits. Real markets have more than two firms and many strategies, payoffs are not known with certainty, and formal collusion is illegal in most countries. Collusive agreements also break down because each firm has an incentive to cheat. So other approaches are used: price leadership, where a dominant firm sets the price and the others follow, tacit collusion, and rules of thumb such as average cost pricing, or firms compete through non-price competition such as advertising instead.

In conclusion, interdependence does create a pricing problem, and game theory is very useful in explaining it and showing why cooperation pays, but it only partly solves it; in practice firms also rely on price leadership, tacit collusion and non-price competition.

4(a) A trade union is an organisation of workers that bargains collectively with employers over wages, working conditions and job security. Its effect depends on the type of labour market.

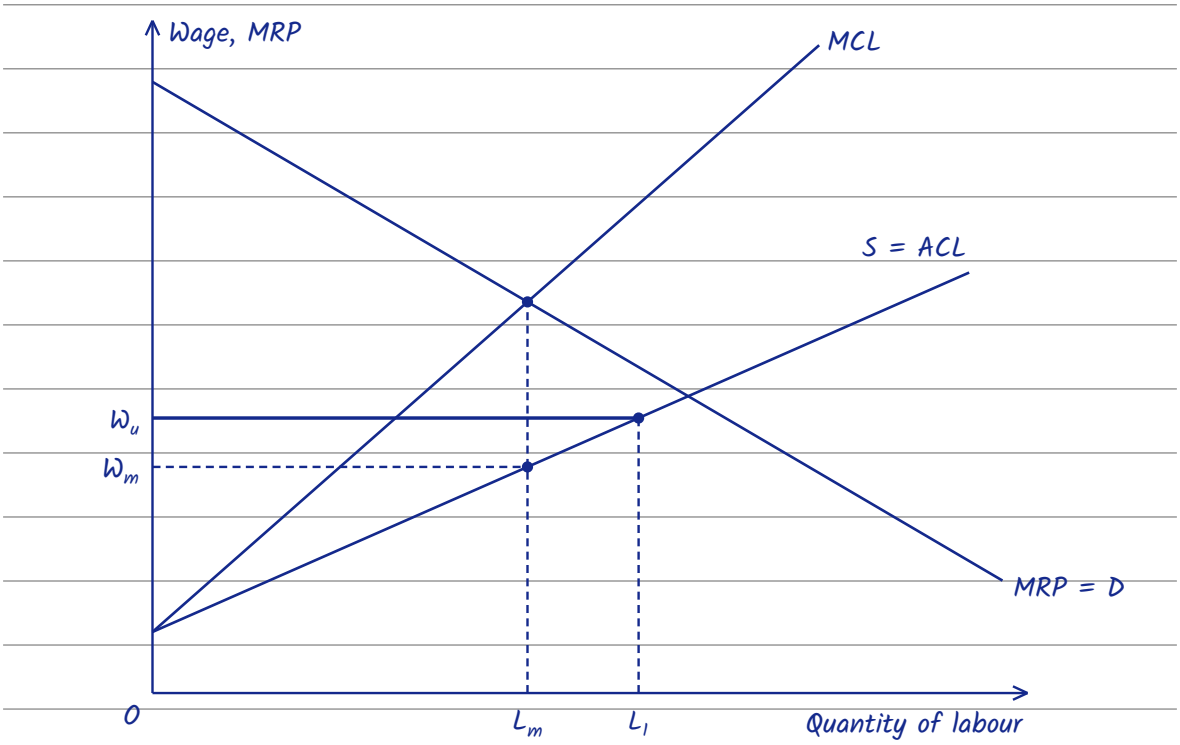
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In a competitive labour market the wage is set by supply and demand at We, with employment Le. If the union uses collective bargaining to raise the wage to Wl, the benefit is higher pay for those who keep their jobs. The cost is that employers demand only Ld while Ls want to work, so employment falls from Le to Ld and there is unemployment of Ls – Ld. The size of the job losses depends on the elasticity of demand for labour: if labour costs are a small share of total costs and the product has inelastic demand, few jobs are lost. Higher costs may also be passed on as higher prices.

A union can, however, raise wages without job losses if it helps to raise the MRP of labour, for example by supporting training and better working conditions, which shifts the demand for labour to the right. Union bargaining also reduces costs for firms of negotiating with each worker separately.

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In a monopsony labour market, where there is a single buyer of labour, the employer hires where MCL = MRP, at Lm, and pays only Wm, below MRP. If a union negotiates a wage of Wu, this becomes the marginal cost of labour up to the supply curve, so the employer hires L1. Here the union raises both wages and employment, which is a clear benefit. This is bilateral monopoly, and the outcome depends on the relative bargaining power of the union and the employer. If the union pushes the wage above the competitive level, jobs are lost.

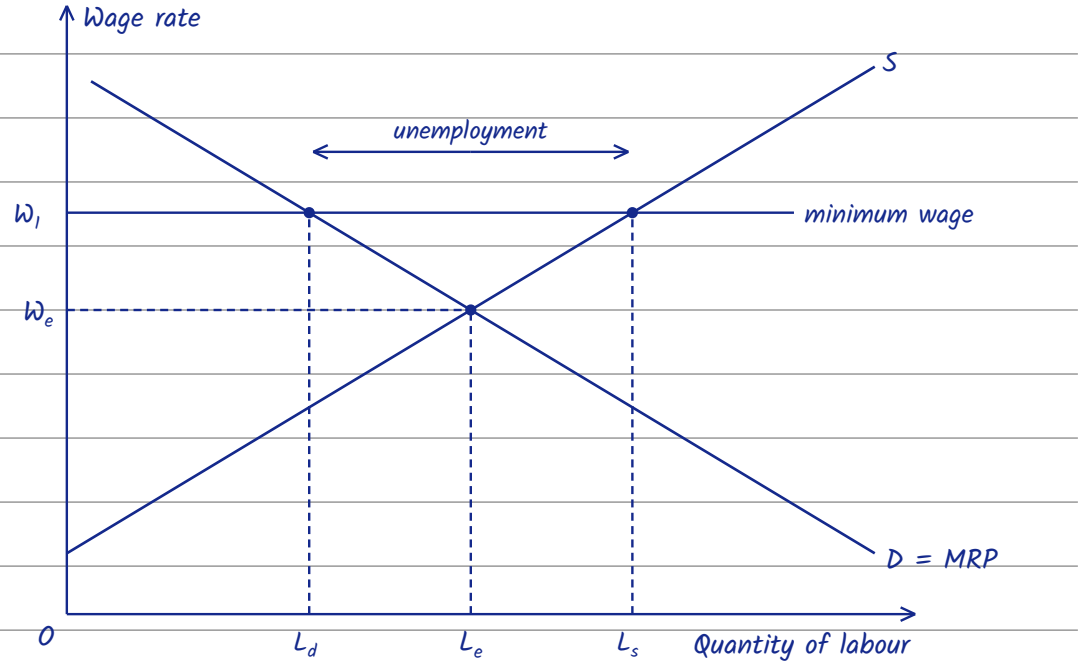
Other costs include strikes, which lose output and income, and possible restrictive practices that reduce productivity and make the firm less competitive, threatening job security in the long run.

In conclusion, in a monopsony a union is likely to give a net benefit, raising both wages and employment, whereas in a competitive labour market higher wages are likely to cost jobs unless productivity rises. So whether the benefits outweigh the costs depends on the market structure and the elasticity of demand for labour.

4(b) A national minimum wage is a legal minimum hourly wage that employers must

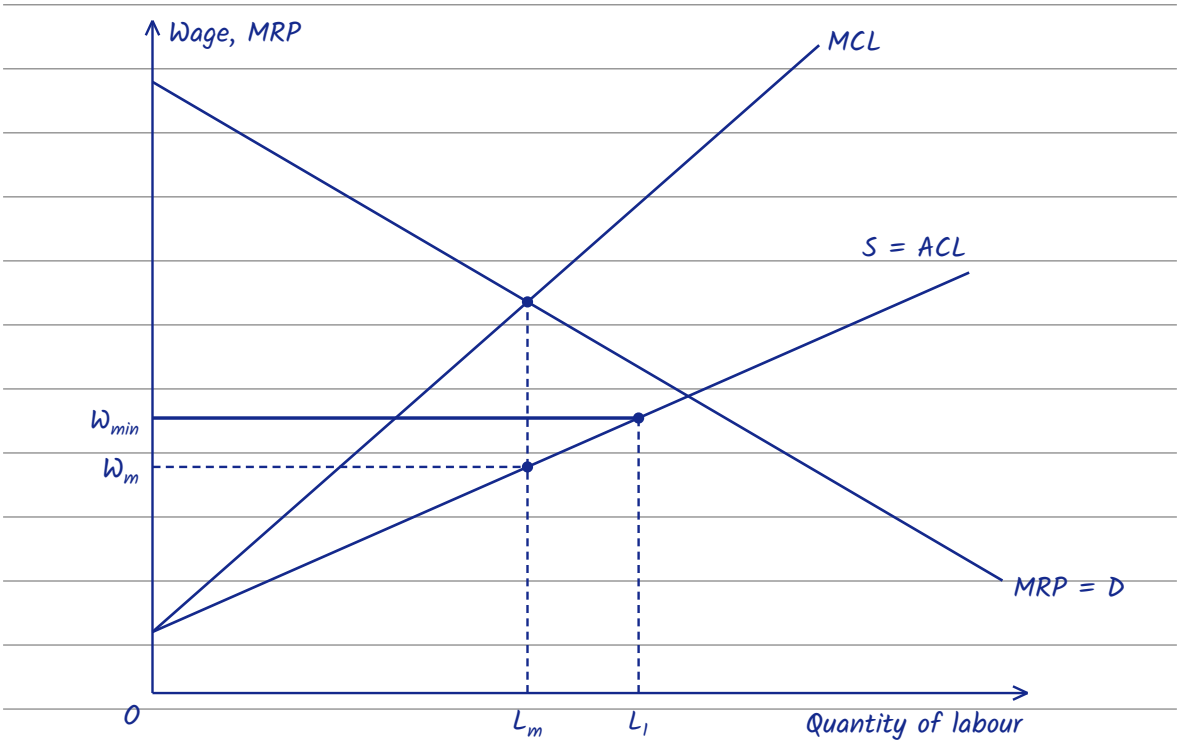
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pay. Governments introduce it to protect basic living standards, to make the distribution of income more equal, to encourage people to take jobs rather than rely on benefits, and to encourage labour productivity. To have any effect it must be set above the market equilibrium wage.



In a competitive labour market, a minimum wage at W1 above We benefits employees who keep their jobs, through higher incomes and less poverty, and the higher wage attracts more people into work (Ls). It is at the expense of employers, whose costs rise, reducing profits, so they cut employment to Ld. But not all employees benefit: Le – Ld workers lose their jobs, so the statement is not always true even for employees. The size of the effect depends on the wage elasticity of demand for labour: if demand is inelastic, few jobs are lost.

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In a monopsony, the employer pays Wm and employs only Lm. A minimum wage at Wmin makes the marginal cost of labour constant up to the supply curve, so employment rises to LI. Employees benefit from higher wages and more jobs, and the employer loses only some of its monopsony profit, while output rises.

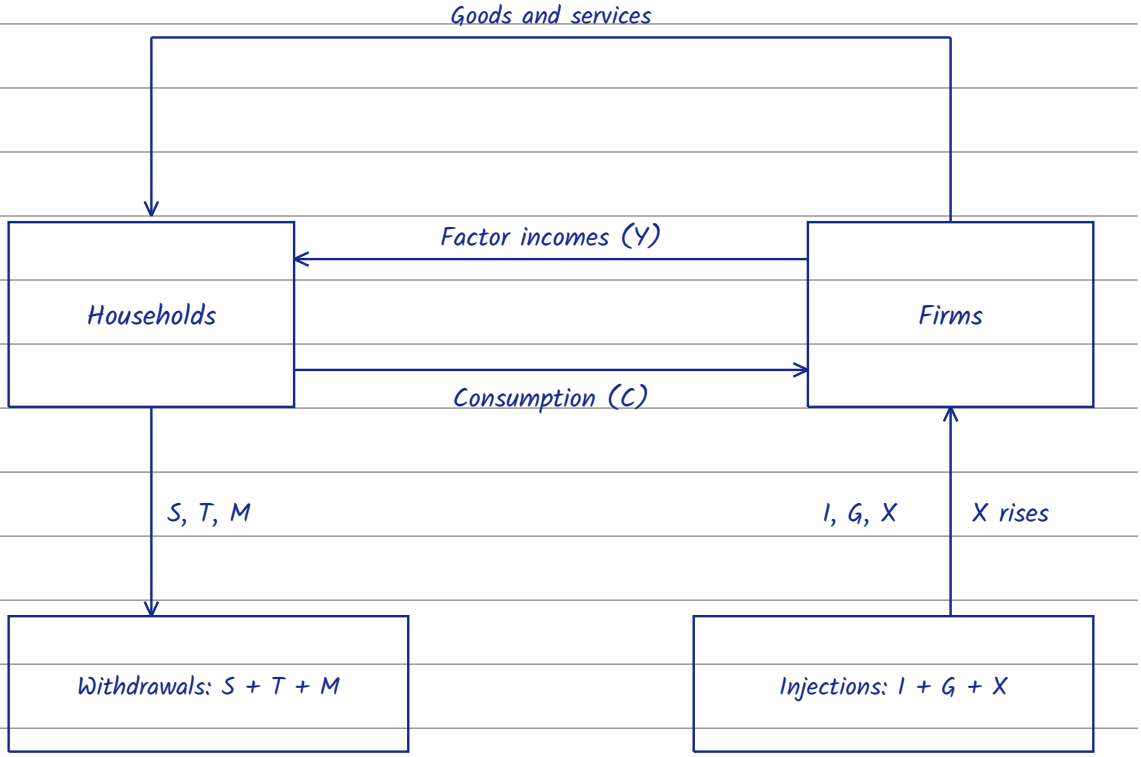
Employers can also benefit. Higher wages act as an incentive (an efficiency wage effect): workers are more motivated, labour turnover and recruitment costs fall and productivity rises, raising MRP. Higher incomes of low paid workers, who have a high marginal propensity to consume, raise aggregate demand and so the sales of firms. On the other hand, firms may pass higher costs on as higher prices, raising the cost of living, so the real gain to employees is smaller, and firms in competitive international markets may lose competitiveness.

In conclusion, I disagree with the statement. A minimum wage does not always benefit employees, because some may lose their jobs, and it is not always at the expense of employers, who may gain from higher productivity and demand. The outcome depends on the type of labour market, the level of the minimum wage relative to the equilibrium wage and the elasticity of demand for labour.

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5

Export-led growth is a strategy in which a country achieves economic growth by expanding its exports, relying on openness to international trade. The standard of living is the level of material and non-material well-being of the population, usually measured by real GDP per head and indicators such as the HDI.



The circular flow diagram shows households supplying factor services to firms in return for factor incomes, and spending these incomes on goods and services produced by firms. Some income is withdrawn from the flow as savings (S), taxation (T) and imports (M), and injections are added as investment (I), government spending (G) and exports (X). National income is in equilibrium when total withdrawals equal total injections.

Under export-led growth, exports rise, so injections exceed withdrawals. Firms receive more revenue from abroad, so they increase output and employ more workers, paying more factor incomes to households. Households then spend part of

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this extra income, which becomes income for other firms. This is the multiplier effect: the final increase in national income is a multiple of the initial rise in exports, $k = 1 \div (MPS + MPT + MPM)$. Income keeps rising until withdrawals have risen to equal the new higher level of injections, at a higher equilibrium level of income, output and employment.

Growth in real GDP, if it is faster than population growth, raises real GDP per head, so people can consume more goods and services, which improves the standard of living. Exports also earn foreign currency to pay for imports of capital goods and technology, which raises productivity, and the extra tax revenue lets the government spend more on education, health care and infrastructure. Firms producing for export may also gain economies of scale and attract foreign direct investment.

However, there are reasons why the benefits may be limited. A developing economy is likely to export mainly primary products, where it has a comparative advantage. World demand for these goods is income inelastic, so as world incomes grow demand rises only slowly, and the terms of trade may worsen over time. Supply is also volatile, depending on the weather, and prices fluctuate, so export earnings and growth are unstable.

The size of the effect depends on the multiplier. In many developing economies the marginal propensity to import is high, because consumer goods and inputs are imported, so much of the extra income leaks out and the multiplier is small. If export industries are owned by multinational companies, profits may be repatriated rather than spent in the domestic economy.

Even if GDP rises, the standard of living may not rise for most people. It depends on how the extra income is distributed: if the gains go to a small number of owners and workers in export industries, inequality increases. Workers may work longer hours in poor conditions, losing leisure time, and expanding mining or plantation agriculture may cause pollution and environmental damage, which reduce

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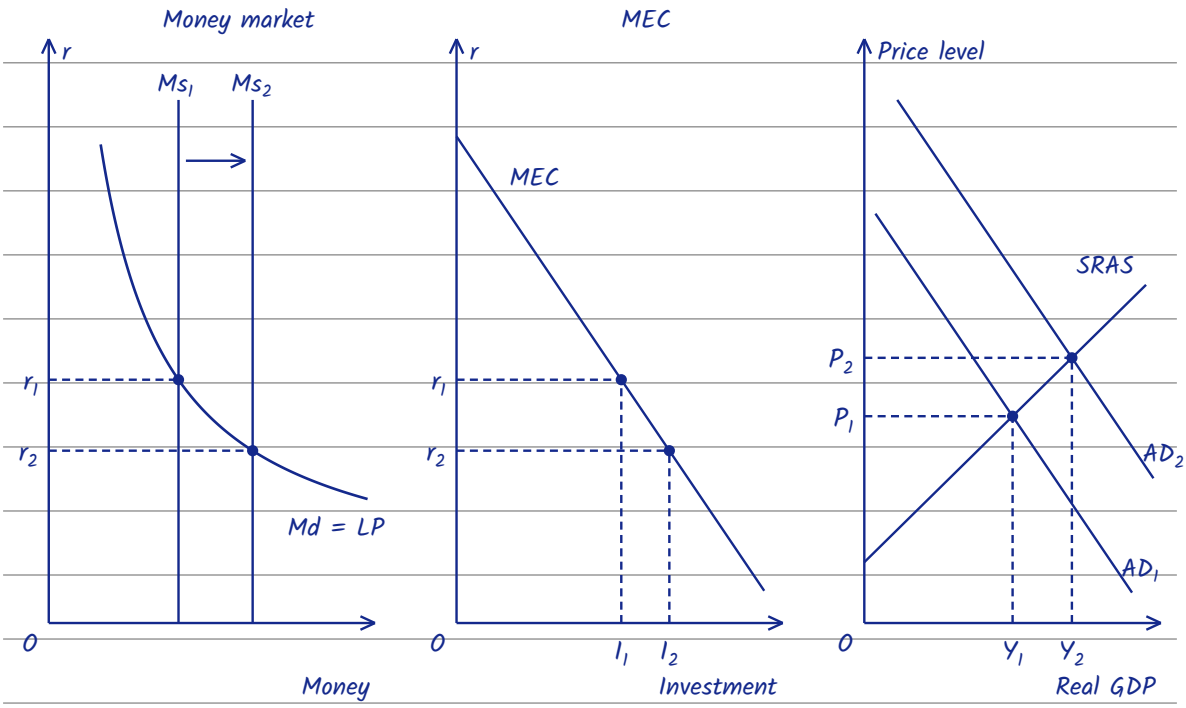
well-being but are not shown in GDP. Concentrating on primary products may also limit long-run growth and diversification. Finally, export-led growth depends on world demand: a global recession or protectionism by trading partners would reduce exports and reverse the multiplier.

On the other hand, countries such as South Korea and China show that export-led growth based on manufactured goods, with investment in education and diversification, can raise living standards substantially over time.

In conclusion, export-led growth increases injections into the circular flow and, through the multiplier, raises income, output and employment, giving the potential for a higher standard of living. Whether living standards actually rise depends on the type of exports, the size of the multiplier, how the extra income is distributed and spent, and the stability of world demand. It is most likely to succeed if the economy diversifies into manufactured goods and uses the export earnings to invest in human capital.

6(a) Monetary policy is the use of the money supply and interest rates by the central bank to influence the economy. The transmission mechanism of monetary policy explains how a change in monetary policy is passed on, through a series of links, to key macroeconomic variables such as aggregate demand, national income, output, employment and inflation.

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In the Keynesian model, an increase in the money supply from Ms1 to Ms2 creates an excess supply of money. People use the extra money to buy bonds, so bond prices rise and the rate of interest falls from r1 to r2. Because the cost of borrowing falls, investment rises along the marginal efficiency of capital (MEC) curve from I1 to I2. Higher investment raises aggregate demand from AD1 to AD2, and through the multiplier real output rises from Y1 to Y2, so employment rises. Similarly, a central bank can raise its base rate to reduce borrowing and spending, lowering AD and so controlling inflation.

However, each link in the chain may be weak. First, there may be a liquidity trap: when interest rates are already very low, people expect them to rise and hold any extra money, so the demand for money is perfectly elastic and the interest rate does not fall. Second, investment may be interest inelastic: firms' investment depends more on expectations and business confidence, so in a recession they may not invest even at low rates. Third, the multiplier may be small if the marginal propensities to save, tax and import are high. Fourth, as income rises the transactions demand for money rises, which pushes the interest rate back up and partly offsets the original fall. In addition, commercial banks may not pass on

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lower base rates, and there are long and variable time lags. If the economy is near full employment, higher AD may cause inflation rather than higher output.

In conclusion, the transmission mechanism explains how monetary policy can affect output and prices, but it works only if every link is strong. It is most likely to work when the economy has spare capacity, confidence is good and interest rates are not already close to zero, and is least effective in a deep recession.

6(b)

Commercial banks are profit-making financial institutions that accept deposits from and make loans to households and firms. Their main roles are: the safekeeping of funds by accepting deposits, providing loans and overdrafts to consumers and producers, acting as financial intermediaries between savers and borrowers, and providing a means of payment through cheques, cards and electronic transfers.

Safekeeping of deposits is important because it gives savers a secure place for their money and pays them interest, which encourages saving. These savings can then be lent to firms for investment, increasing the capital stock and promoting long-term economic growth. However, this depends on depositors' confidence; if a bank fails, as in the 2008 financial crisis, savers may lose money and the government may have to rescue the bank.

Lending to producers and consumers is important for aggregate demand. Loans allow firms to invest in new capital and consumers to buy durable goods, which raises AD, output and employment. However, profitability is one of the main aims of a bank, and it must balance it against liquidity and security. Banks may refuse loans to risky small firms or new businesses, so investment that the economy needs may not be financed, especially in a recession when banks become cautious.

Financial intermediation and payment services make transactions easier, quicker and cheaper, which promotes specialisation and exchange and encourages growth.

In a developed economy, almost all payments go through the banking system, so a

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failure of this system would cause great disruption.

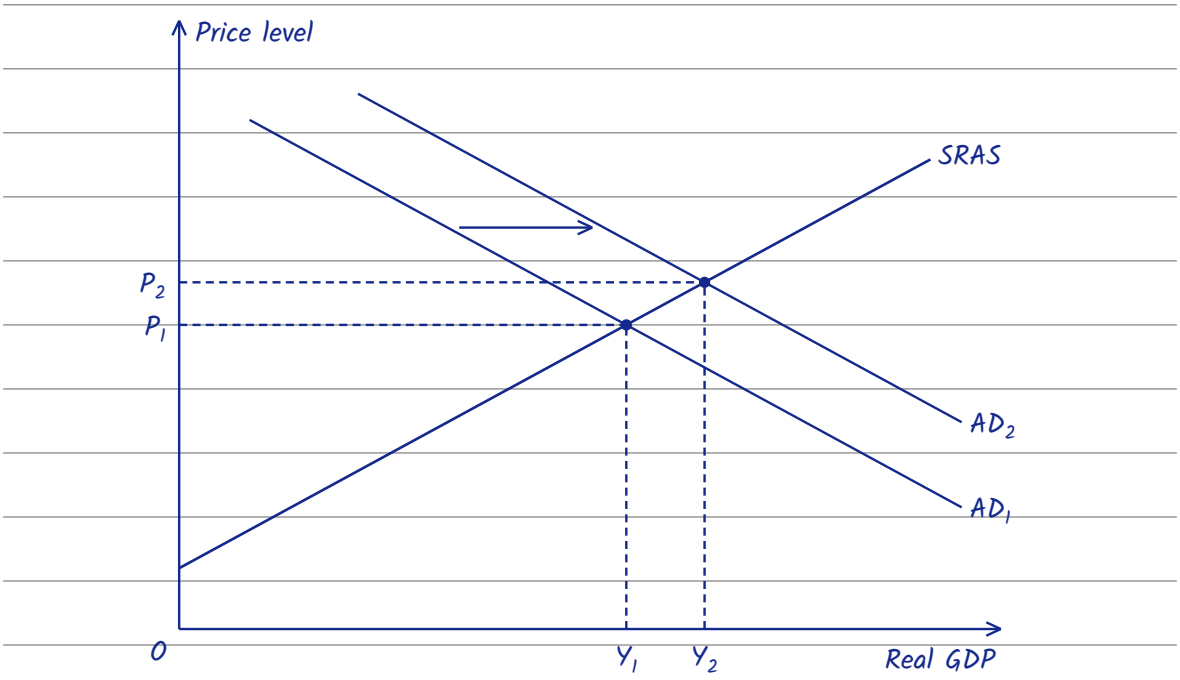
Banks also create credit. When a bank lends, it creates a new deposit, so bank lending increases the money supply through the credit multiplier. This is important for monetary policy, because the central bank works through commercial banks to influence interest rates and lending. However, rapid growth of bank lending when the economy is already near full employment can cause inflation and asset price bubbles, which makes it harder for the government to control the economy; this is why banks are regulated, for example with capital and liquidity requirements.

In conclusion, commercial banks are very important in a developed economy: they mobilise savings for investment, finance spending, provide the payment system and transmit monetary policy. But their pursuit of profit means they may lend too little in a recession and too much in a boom, so their contribution depends on effective regulation and supervision by the central bank.

7 A budget deficit occurs when government total expenditure is greater than its total revenue, mainly from taxation, in a year. Unemployment is when people who are willing and able to work at the current wage cannot find a job. It is a problem because it is a waste of scarce resources: the economy produces inside its production possibility curve, output and tax revenue are lost, spending on benefits rises, and the unemployed suffer a lower standard of living and loss of skills.

Keynesians argue that unemployment is mainly caused by a lack of aggregate demand (cyclical or demand-deficient unemployment), and that the economy can stay in equilibrium below full employment for a long time because wages are sticky downwards. So the government should increase its budget deficit, by raising government spending or cutting taxes.

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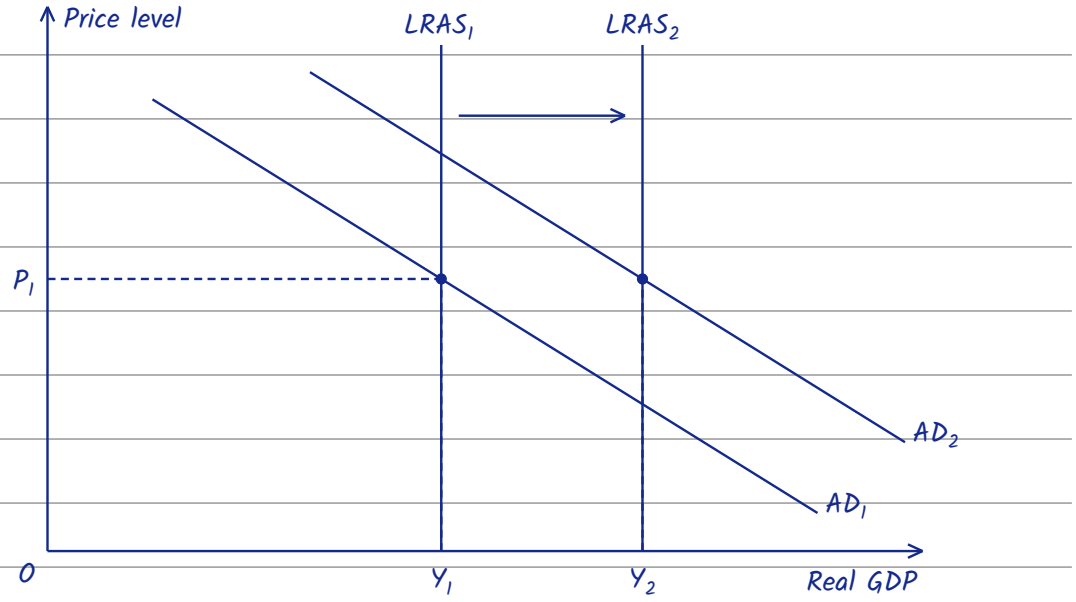
Higher government spending is an injection into the circular flow, and lower taxes raise disposable income and consumption, so AD shifts right from AD1 to AD2. Through the multiplier, real output rises from Y1 to Y2 by more than the initial increase in spending. Because firms need more workers to produce the extra output, the derived demand for labour rises and unemployment falls. When there is a large amount of spare capacity, the AS curve is relatively flat, so most of the increase in AD raises output rather than the price level.

Monetarists criticise this view. First, if the deficit is financed by borrowing, the government competes with the private sector for loanable funds, so interest rates rise and private investment is crowded out, which offsets the rise in AD. Second, if the deficit is financed by printing money, the money supply rises faster than output, and according to the quantity theory ($MV = PT$) this leads to inflation. Third, monetarists believe that in the long run the economy returns to the natural rate of unemployment, where the LRAS is vertical; raising AD reduces unemployment only temporarily, as workers adjust their inflation expectations (the expectations-augmented Phillips curve). Finally, a demand-side policy does not deal with structural or frictional unemployment, caused by changes in the pattern of

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demand, lack of skills or lack of information.

Monetarists therefore argue for supply-side policies, which aim to reduce the natural rate of unemployment and shift LRAS to the right.



Market-based policies include cutting income and corporation tax to increase the incentive to work and to invest, reducing unemployment benefits to encourage people to search for work, reducing trade union power, deregulation and privatisation to make markets more flexible. Interventionist policies include education and training, which help structurally unemployed workers gain new skills, and better job information, which reduces frictional unemployment. As LRAS shifts from LRAS1 to LRAS2, potential output rises from Y1 to Y2 without inflation.

However, supply-side policies also have weaknesses. They take a long time to work: training workers or improving infrastructure may take years, and they do little to help the cyclically unemployed in a recession, because a firm will not hire more workers if there is no demand for its products. Cutting benefits and union power may increase inequality and poverty, and tax cuts may increase, not reduce, the budget deficit. Also, many interventionist supply-side policies themselves require government spending.

Similarly, Keynesian policy has limits: crowding out is less likely in a recession,

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when interest rates are low and there is spare saving, but a large deficit increases the national debt and future interest payments, and there are time lags in implementing fiscal policy.

In conclusion, neither view is correct in all cases; it depends on the type of unemployment. When unemployment is cyclical, caused by a lack of demand in a recession, the Keynesian approach of increasing the budget deficit is more likely to work quickly. When unemployment is structural or frictional, or the economy is close to full capacity, the monetarist supply-side approach is more effective, especially in the long run. In practice, a combination of demand-side policies in the short run and supply-side policies in the long run is likely to be most successful.