Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/41**

Paper 4 Data Response and Essays **May/June 2020**

2 hours 15 minutes

2616564398

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 **In pursuit of well-being**

It has been said that the mark of success of a government is raising the quality of life or the well-being of the people in the country. This is sometimes measured by the Human Development Index (HDI). Table 1.1 shows the rank order of selected countries by the HDI and compares it with the rank by Gross Domestic Product (GDP) of that country.

In order to understand how people make decisions, governments in the United States (US), the United Kingdom (UK) and Australia established Behavioural Insights Teams. They came to be known as the Nudge Units as they used nudge theories from behavioural economics.

It was hoped that this approach would help to achieve an increase in well-being as well as in economic growth and GDP. Nudge policies were used, with some success, to get people back to work, encourage them to pay their taxes on time and give them good reasons to save for future pensions or to study for improved qualifications.

They were not, however, sufficient to eliminate government budget deficits which remained at a high level. There was an ever-rising demand for public services but this was not matched by an equal rise in tax revenues so the deficit increased.

Eliminating the government budget deficit continued to be a problem. One method of dealing with the problem was to increase taxation. However, tax rates were already high and even higher tax rates would not result in the increase in revenue that was needed. An alternative option was to increase government borrowing. There might be a strong case to support economic growth, but increasing the deficit in order to achieve this could risk causing another financial crisis.

A third option was to reduce government expenditure on public services. This could be achieved without causing a reduction in the quality of the service and a reduction in well-being if increases in productivity took place. Without continued increases in productivity, however, further cuts in spending could have serious long-term detrimental effects, especially in health provision and education.

Table 1.1 Rank of selected countries by HDI and GDP in 2017

	Rank	HDI		Rank	GDP (millions US$)	
Norway	1	0.89		29	391 959	
Australia	3	0.86		13	1 359 723	
Germany	5	0.85		4	3 423 287	
UK	13	0.83		5	2 496 757	
Thailand	70	0.58		26	432 898	
Botswana	103	0.43		115	15 564	
Pakistan	117	0.38		43	251 487	
Eswatini	121	0.36		157	3 938	

Sources: RSA Issue 1, 2017

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(a) What is meant by *nudge theory*? [2]

(b) Consider whether the information provides any evidence that nudge theory could increase an economy's GDP. [6]

(c) Distinguish between demand-side and supply-side policies and identify and explain **one** demand-side policy and **one** supply-side policy from the information. [6]

(d) The information is entitled 'In pursuit of well-being'. Discuss whether the information supports the idea that GDP is a good measure of well-being. [6]

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Section B

Answer **two** questions.

2 Discuss whether competitive markets in the private sector are the best way to achieve an efficient allocation of resources. [25]

3 **(a)** Explain what is meant by a 'consumer's equilibrium position' in indifference curve theory and how it can be used to form a demand curve. [12]

(b) One of the world's first filmed singing commercials advertised a soft drink. It stated that, for the same price, consumers would get twice as much of that drink than that of its major rival. This made it cheaper and was similar to a price reduction. Its rival responded by an advertising campaign stating that its own drink was superior to the first firm's inferior product.

Discuss whether it is possible to use diagrams from indifference curve theory to illustrate how a consumer might react to these two advertising campaigns. [13]

4 'A firm is fully aware of market conditions and its best rational interest would be achieved by pursuing the clearly defined objective of maximising profits.'

Consider whether this statement has any merit in different market structures. [25]

5 After negotiation, the workers in an industry obtained from employers higher wage rates. The employers' spokesperson said 'the cost of the deal would have to be met through improved productivity or by reductions in other costs'.

Analyse whether this deal can be incorporated into the economic theory of wages and consider the possible outcome for employment of such a deal. [25]

6 **(a)** Explain what economists mean by an inflationary gap and discuss why this is considered to be an economic problem. Use a diagram(s) to support your answer. [12]

(b) How far would you agree that the use of monetary policy is the most effective way to solve the problem of an inflationary gap? [13]

7 **(a)** 'Developing countries have low levels of productivity and a high dependency ratio.'

Explain the meaning of these **two** characteristics and consider whether they are linked. [12]

(b) Assess the view that foreign direct investment remains the key to economic growth in developing countries. [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 9708/41

1(a) Nudge theory comes from behavioural economics. It is the use of policies that influence people's behaviour by persuasion, example or the way choices are presented (for example a default option), rather than by laws, bans or large financial incentives, so that people choose in a way that helps achieve a government aim such as higher saving or paying taxes on time.

1(b) The information gives some evidence. Nudge policies were used "with some success" to get people back to work. More people in work reduces unemployment and raises output and incomes directly, and the extra spending has a multiplier effect, so GDP rises. Nudging people to pay their taxes on time raises tax revenue, which the government could spend on projects such as infrastructure that increase aggregate demand and productive capacity. Encouraging people to study for better qualifications raises skills and labour productivity, shifting LRAS to the right, and saving for pensions provides funds for investment, so long-run growth in GDP may rise.

However, the evidence is weak. The passage says only that the policies had "some success" and gives no figures, and Table 1.1 shows GDP for one year only, so there is no data on GDP before and after the nudge units were set up. Any rise in GDP could be due to other factors. The policies were "not sufficient" to reduce the budget deficit, and higher saving reduces consumption in the short run. So the information suggests nudge theory could increase GDP, but it does not prove it.

1(c) Demand-side policies (fiscal and monetary policy) change the level of aggregate

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	demand, so they mainly affect actual output, unemployment and inflation in the short run. Supply-side policies aim to increase the productive capacity and efficiency of the economy, shifting the LRAS curve to the right, so they raise potential output in the long run. Demand-side policy: increasing taxation to reduce the budget deficit. Higher taxes reduce disposable income and so consumption, which reduces aggregate demand (AD shifts left), while the deficit falls as revenue rises. (Higher government borrowing to support growth would instead raise AD.) Supply-side policy: encouraging people to study for improved qualifications. This raises the skills of the labour force, so labour productivity rises and the economy can produce more output from the same resources, shifting LRAS to the right. Higher productivity in public services is a similar supply-side effect.
1(d)	Well-being is measured here by the HDI, which combines income per head with life expectancy and education. There is some link with GDP: the two lowest countries by HDI, Botswana (103) and Eswatini (121), also have low GDP ranks (115 and 157), and Germany is ranked 5 by HDI and 4 by GDP. However, for most countries the ranks are very different. Norway has the highest HDI (rank 1, 0.89) but is only 29th by GDP ($391 959m), while the UK has a much larger GDP (5th) but is 13th by HDI. Thailand has a slightly larger GDP than Norway (26th) but an HDI rank of 70, and Pakistan is 43rd by GDP but 117th by HDI. So a high GDP does not mean high well-being. Also, the GDP figures are totals, not per head, and are not converted at purchasing power parity, so they mainly reflect the size of the population; Norway has a small population and a very high GDP per head. GDP also ignores income distribution, leisure, health and the environment. Overall the information does not support the idea that total GDP is a good measure of well-being, although GDP per head at PPP would be a better guide.

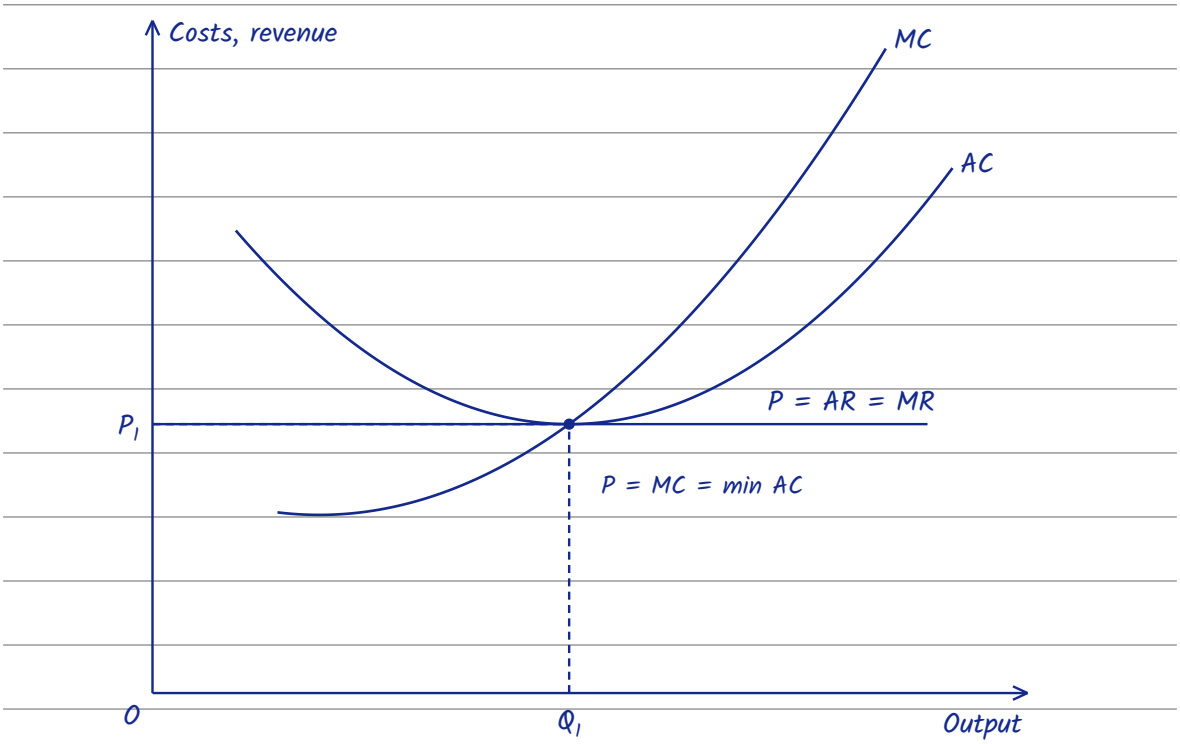
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An efficient allocation of resources means that resources are used to produce the goods and services society wants most, at the lowest possible cost. Productive efficiency is where output is produced at the minimum point of the average cost curve, so no resources are wasted. Allocative efficiency is where price equals marginal cost (P = MC), so the value consumers place on the last unit equals the cost of the resources used to produce it. When both are achieved in all markets the economy is Pareto optimal: no one can be made better off without making someone else worse off. Dynamic efficiency refers to improvements in efficiency over time through innovation and investment.

A competitive market in the private sector is one with many firms competing for customers, with low barriers to entry, where prices are set by supply and demand. The most competitive structure is perfect competition, with many small price-taking firms, a homogeneous product, perfect information and free entry and exit. Each firm maximises profit where MC = MR. If firms make supernormal profit, new firms enter, market supply rises and the price falls until only normal profit is earned; losses cause firms to leave. So in the long run P = MR = MC = minimum AC.

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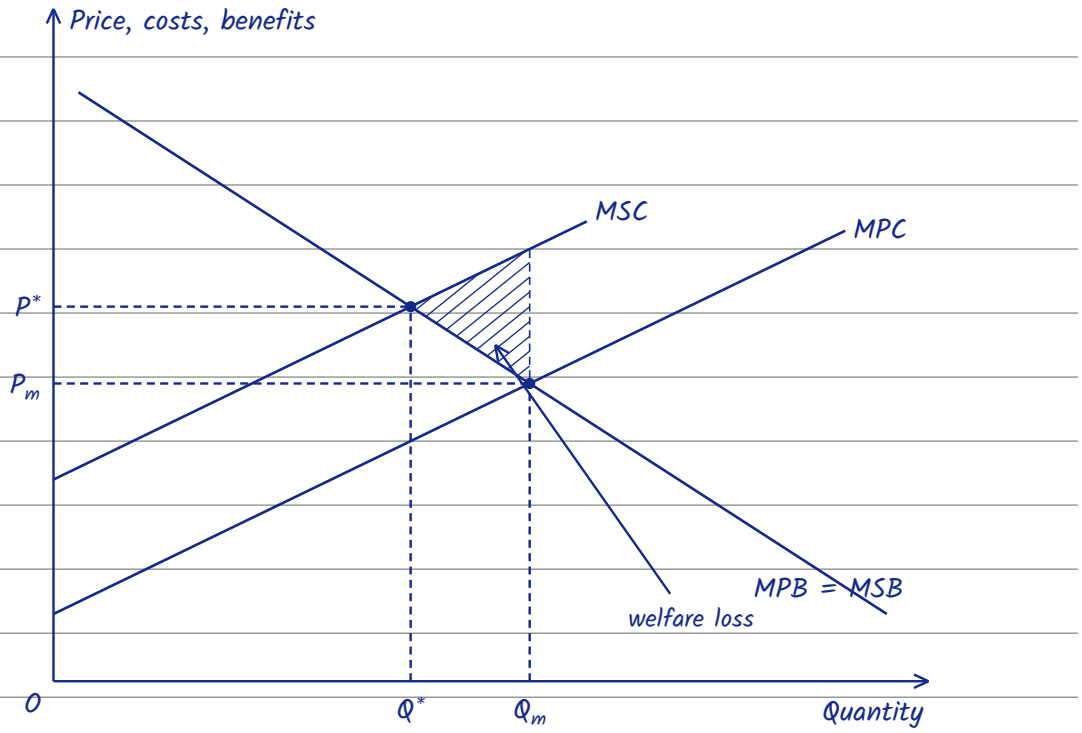
The diagram shows the perfectly competitive firm in long-run equilibrium at output Q1 and price P1. Because P = MC, the firm is allocatively efficient, and because it produces at the minimum of AC it is productively efficient. The price mechanism also signals where resources are wanted: a rise in demand raises the price and profit, attracting resources into that industry. This supports the view that competition, driven by self-interest and the profit motive, allocates resources efficiently without any government planning.

However, "competitive markets" do not always mean perfect competition. In monopolistic competition firms sell differentiated products and face a downward-sloping demand curve. In the long run free entry removes supernormal profit, so P = AC, but this is on the falling part of the AC curve, so firms have excess capacity and are not productively efficient, and P > MC, so they are not allocatively efficient. Spending on advertising and branding may also waste resources. Yet consumers benefit from variety and choice, which the efficiency rules ignore. Contestable market theory suggests that even a market with a few large firms can behave efficiently if entry and exit are free and costless, because

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the threat of hit-and-run entry keeps prices close to average cost.

Competitive markets also fail. If production creates external costs, such as pollution, firms produce where MPC = MPB at Qm, not where MSC = MSB at Q^*, so there is over-production and a welfare loss, shown by the shaded area below. Individual actions that are rational for each firm are not best for society as a whole.



Public goods such as street lighting and defence are non-excludable and non-rival, so the free-rider problem means private markets will not provide them at all. Merit goods such as education and healthcare are under-consumed because of information failure, and demerit goods are over-consumed. Markets also produce an unequal distribution of income, which may be efficient in the Pareto sense but not equitable. In these cases government intervention, through taxes on negative externalities, subsidies for merit goods, direct provision of public goods and regulation, is needed to move output towards the socially optimum level.

Evaluation: perfect competition is a theoretical benchmark; its assumptions, such as perfect information and identical products, rarely hold, so real competitive

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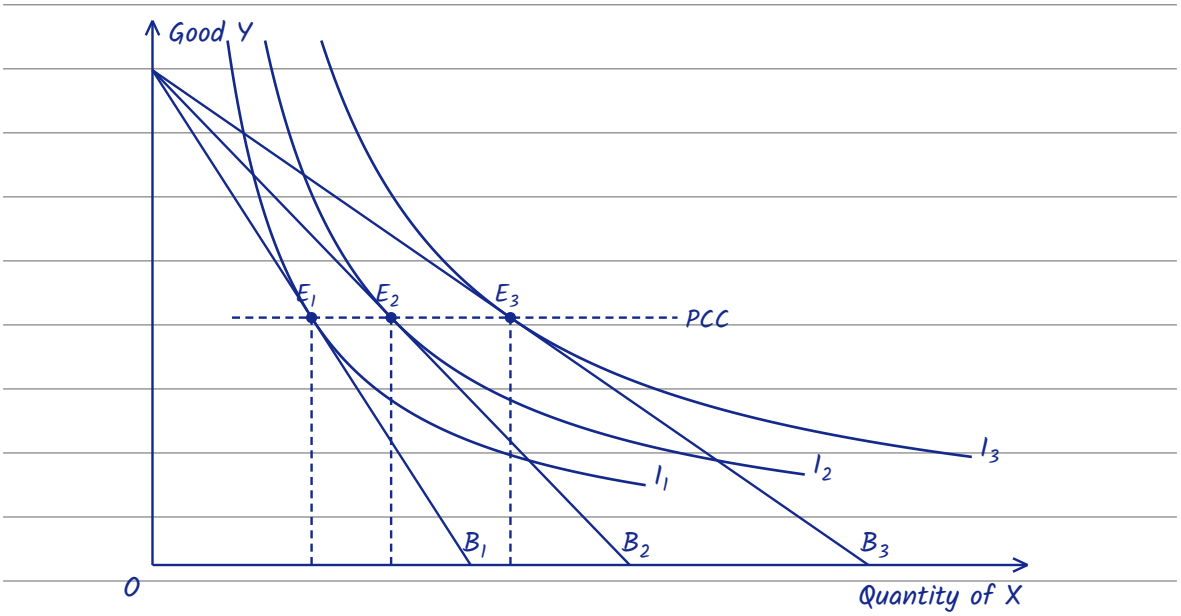
markets only approximate its efficiency. Its efficiency is also static: firms earning only normal profit have few funds for research and development, so a large firm with supernormal profit may be more dynamically efficient and gain economies of scale, giving lower costs and prices. Equally, government intervention is not always better, because of government failure: external costs are hard to measure, so a tax may be set at the wrong level, and state-run firms may lack the profit incentive to cut costs. The best outcome therefore depends on the market concerned.

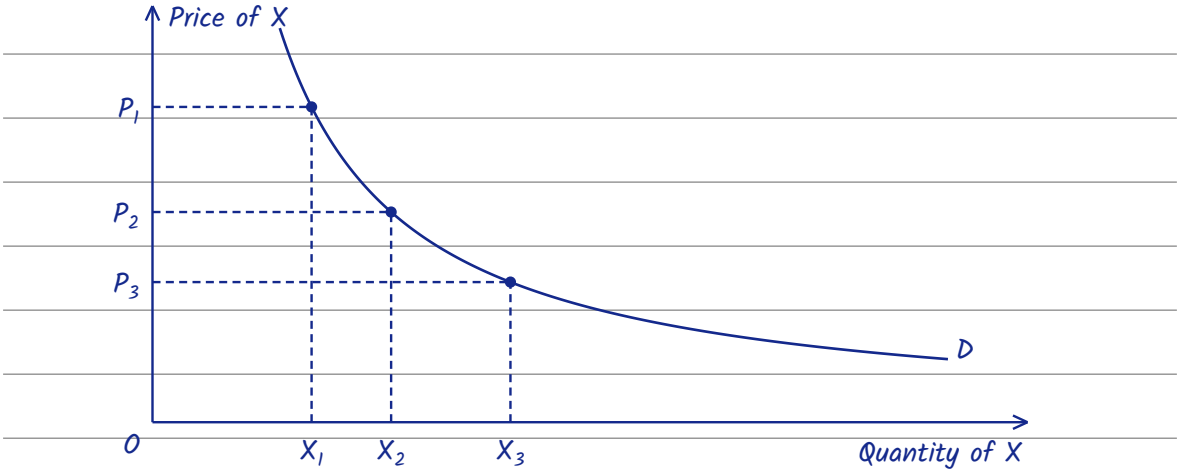
In conclusion, competitive private markets are the best way to achieve productive and allocative efficiency for most ordinary goods, where there are many firms, good information and no significant externalities. They are not the best way where there is market failure, such as public goods, merit goods and external costs; there, carefully designed government intervention working alongside competitive markets is needed to achieve an efficient allocation of resources.

3(a) An indifference curve shows all the combinations of two goods that give a consumer the same level of satisfaction. It slopes downwards and is convex to the origin because of the diminishing marginal rate of substitution (MRS): the more of good X the consumer has, the less of good Y they are willing to give up for one more unit of X. Higher curves represent higher satisfaction. The budget line shows all the combinations the consumer can just afford with a given income and prices; its slope equals the price ratio Px ÷ Py.

The consumer's equilibrium position is the combination that maximises satisfaction given the budget, which is where the budget line is tangent to the highest attainable indifference curve. At this point the MRS equals the price ratio, MRS = Px ÷ Py. Any other affordable point lies on a lower indifference curve. In the top diagram the consumer is initially in equilibrium at E1 on I1, buying X1 of good X with budget line B1.

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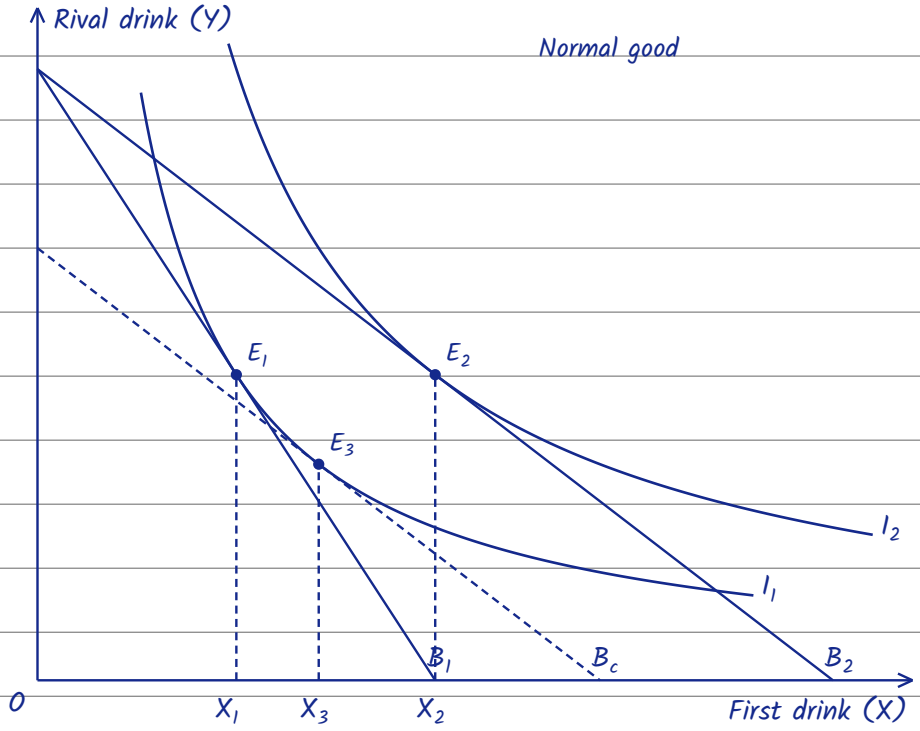


To form a demand curve, the price of X is lowered while income, the price of Y and tastes are held constant. The budget line pivots outwards about the Y intercept, from B1 to B2 and then B3, because the same income now buys more X. The consumer reaches new equilibria at E2 on I2 and E3 on I3, buying X2 and then X3. Joining these equilibria gives the price-consumption curve (PCC). Each equilibrium gives one price and the quantity demanded at that price: (P1, X1), (P2, X2) and (P3, X3). Plotting these pairs on a diagram with the price of X on the vertical axis, as in the lower diagram, gives the individual demand curve D. It slopes downwards for a normal good because a lower price leads to a higher quantity demanded. Adding the individual demand curves horizontally gives the

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market demand curve.

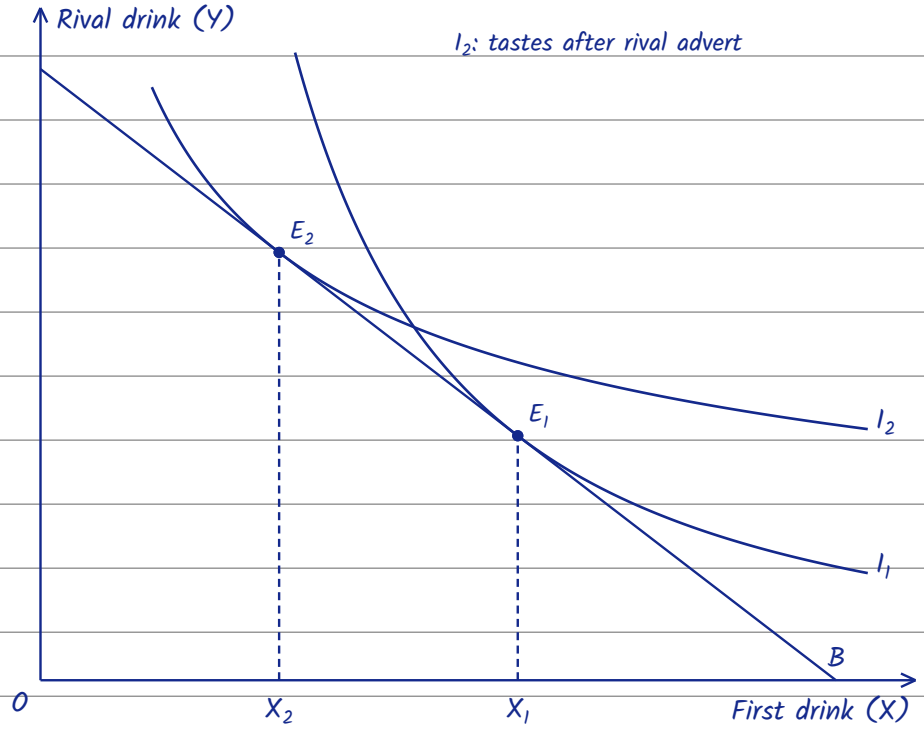
3(b) Yes, both campaigns can be shown. Let good X be the first firm's drink and good Y its rival. Offering twice as much drink for the same price halves the price per unit of X, so it is analysed exactly like a price fall: the budget line pivots outwards from B1 to B2 in the first diagram, and the consumer moves from E1 on I1 to E2 on the higher curve I2. The total effect can be split into two parts using the compensated budget line Bc, drawn parallel to B2 and tangent to the original curve I1.



The substitution effect, E1 to E3, is the change caused only by the change in relative prices: X is now relatively cheaper than the rival drink, so the consumer substitutes X for Y and buys more, from X1 to X3. The substitution effect of a price fall always increases the quantity demanded. The income effect, E3 to E2, is the change caused by the rise in real income. If the drink is a normal good, demand rises further, from X3 to X2, so the advert causes a large increase in sales.

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The rival's campaign does not change prices or income, so the budget line stays the same. Instead it tries to change the consumer's preferences by persuading them that X is inferior. This can be shown by a change in the shape of the indifference map. If the consumer now values the first drink less, the MRS of Y for X falls, so the indifference curves become flatter, as with I2 in the second diagram. With budget line B unchanged, the tangency moves from E1 to E2 and the consumer buys less of X (X1 to X2) and more of the rival drink.



The advert may also make consumers see X as an inferior good in the economic sense. Then the income effect of the price cut is negative: as real income rises the consumer switches towards the "superior" rival drink, which offsets part of the substitution effect, so sales of X rise by less than in the first diagram. Only if the negative income effect were larger than the substitution effect, as for a Giffen good, would sales fall, which is very unlikely for a soft drink that takes a tiny share of income.

Evaluation: there are limits to the diagrams. Indifference curve theory assumes given, stable preferences, so showing a change in tastes is an adjustment to the

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model rather than a result of it, and the size of the shift cannot be predicted. Indifference curves cannot be observed or measured, and the model assumes a rational consumer choosing between only two goods with perfect information, whereas advertising works partly by influencing emotions and habits. In reality the outcome depends on how persuasive each campaign is and on brand loyalty.

In conclusion, it is possible to use indifference curve diagrams: the first campaign is clearly shown as a price fall with substitution and income effects, and the second as a change in the shape of the indifference curves or a negative income effect. The diagrams show the direction of the reaction well, but not its size.

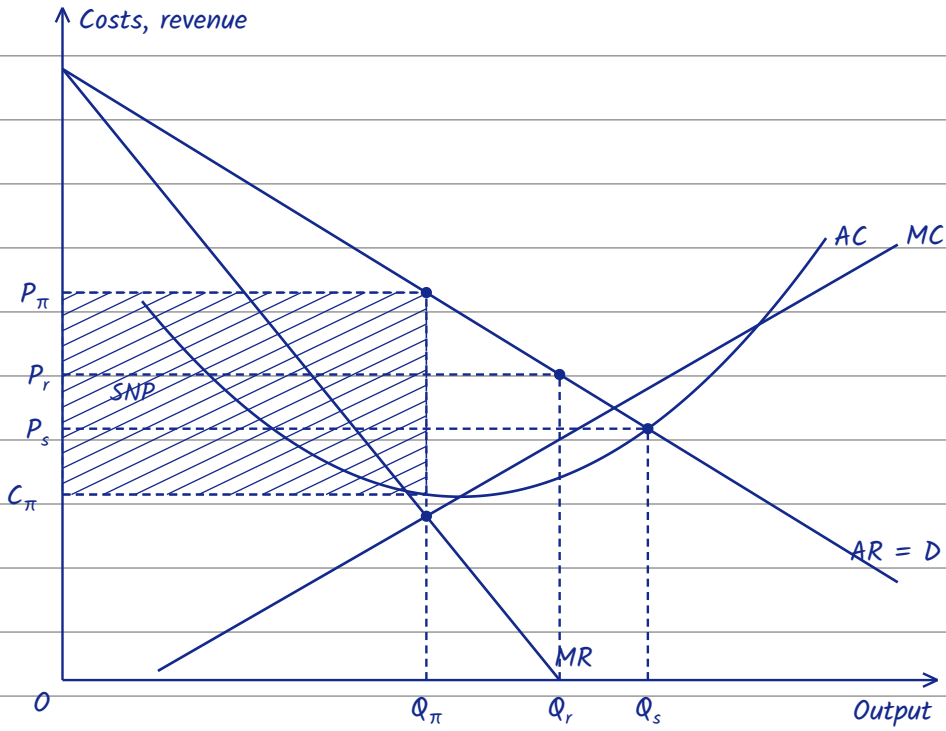
4 The statement makes two assumptions: that firms have full information about market conditions (demand, costs and rivals' behaviour) and that their best interest is to maximise profit. Profit maximisation occurs where marginal cost equals marginal revenue (MC = MR), with MC rising through MR. If MR > MC, producing one more unit adds more to revenue than to cost, so profit rises; if MC > MR, profit falls. Traditional theory assumes all firms aim for this.

In perfect competition the statement has most merit. There is perfect information, so the firm knows the market price, which it takes as given (P = AR = MR). It must maximise profit to survive: if it charges above the market price it sells nothing, and in the long run it earns only normal profit, so any firm that does not minimise costs and produce where MC = MR makes a loss and leaves the industry. Here profit maximisation is not just rational but necessary for survival.

In monopoly the firm faces the market demand curve and has barriers to entry. Profit is maximised at $Q\pi$, where MC = MR, with price $P\pi$ read from the AR curve, giving the supernormal profit shaded in the diagram. A monopolist with market power can choose its price and output, but this requires it to know its MC and MR curves accurately. In practice demand is uncertain and firms may not know their marginal costs, so they use rules of thumb such as cost-plus pricing

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(average cost plus a mark-up), which only approximates maximum profit.

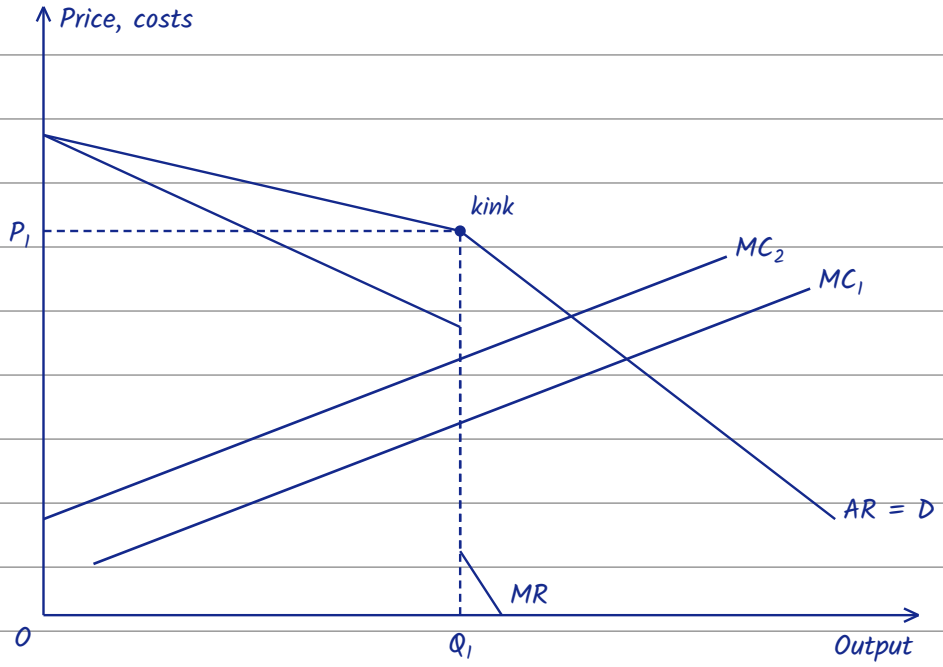


Because barriers protect a monopolist, it can also choose not to maximise profit. Where there is a divorce of ownership and control, managers may pursue their own aims, as in the principal-agent problem. Baumol suggested managers maximise sales revenue, producing where MR = 0 at Qr with a lower price Pr, because their pay and status are linked to the size of the firm. Others may maximise sales volume subject to a minimum profit, up to Qs where AR = AC, so only normal profit is made. Williamson's managerial theory suggests managers maximise their own utility (salaries, staff, perks), and behavioural theories suggest firms satisfice, aiming for a satisfactory level of profit that keeps shareholders content while meeting the aims of other stakeholders.

In oligopoly firms are interdependent, so a firm cannot be fully aware of market conditions, because the outcome depends on how rivals react. The kinked demand curve model assumes rivals will match a price cut but not a price rise, so demand is elastic above the price PI and inelastic below it, creating a gap in the MR curve. Costs can change from MC1 to MC2 with no change in the profit-maximising

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price, so prices are sticky and firms compete through advertising and branding instead. Firms may follow a price leader, collude, or use limit pricing, setting a price below the short-run profit-maximising level to deter entry. Game theory shows that a firm may choose a safe strategy rather than the most profitable one because it does not know what rivals will do.



In contestable markets, where entry and exit are free, the threat of entry means incumbents may keep prices low and earn only normal profit, so short-run profit maximisation is not in their long-run interest. Similarly, a monopolist may hold back from maximum profit to avoid investigation by the competition authorities. Monopolistic competition involves many firms and differentiated products; firms may try to maximise profit, but in the long run new entry leaves only normal profit. Some firms, such as social enterprises, have non-profit aims altogether. Evaluation: the statement has some merit, because in the long run any private firm must make at least normal profit to survive and keep its shareholders, and many firms do try to make as much profit as they can. It is also a useful simplifying assumption that predicts behaviour well in competitive markets. However, the claim that firms are "fully aware" of market conditions is unrealistic

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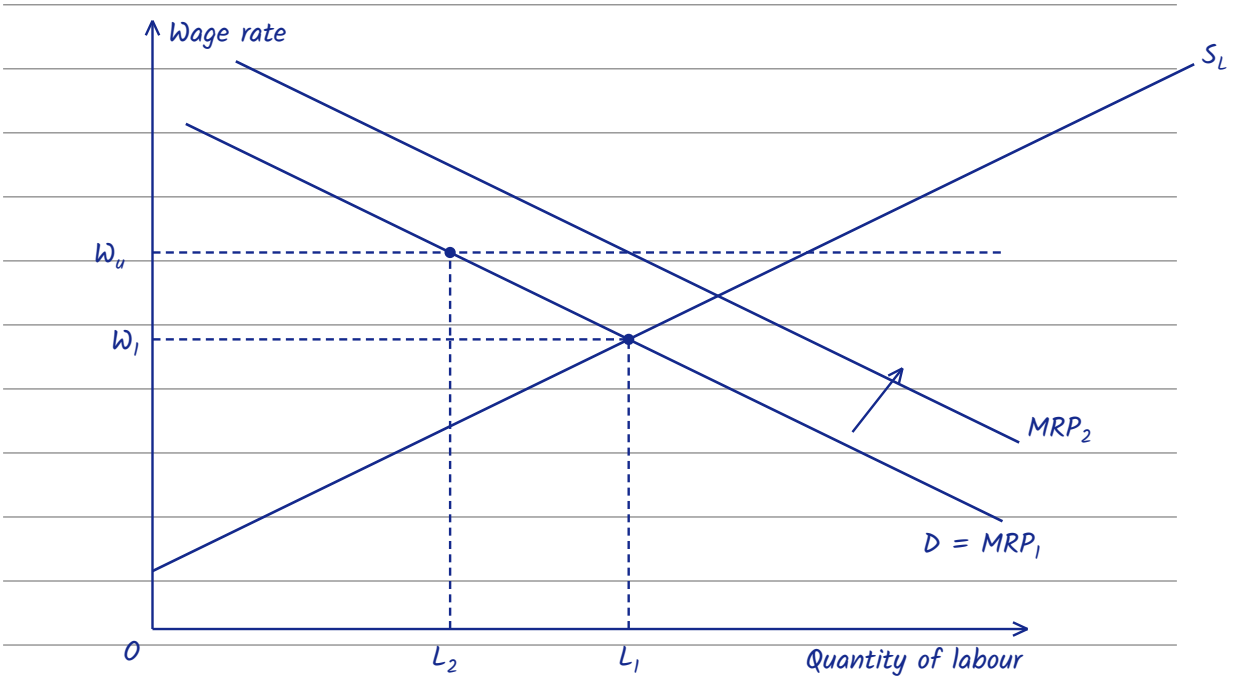
except in the theoretical model of perfect competition, and the claim that profit maximisation is "clearly defined" ignores the difficulty of measuring MC and MR and the choice between short-run and long-run profit.

In conclusion, the statement holds most strongly in perfect competition, where perfect information exists and firms must maximise profit to survive. The more market power and uncertainty there is, as in monopoly and especially oligopoly, the less merit it has, because firms lack full information and can afford to pursue other objectives such as growth, sales revenue, market share or satisficing.

5 The economic theory of wages is the marginal revenue product (MRP) theory. The demand for labour is a derived demand: it depends on the demand for the product. A profit-maximising firm employs workers up to the point where the marginal cost of labour equals the MRP of labour, where MRP = marginal physical product × marginal revenue. Because of diminishing returns, MRP falls as more workers are employed, so the MRP curve is the firm's demand curve for labour. In a competitive labour market the wage is set where the demand for labour equals the supply, at W1 and employment L1 in the first diagram.

A negotiated deal between a trade union and employers can be incorporated into this theory. Collective bargaining sets a wage floor Wu above the market wage W1. At Wu the firm will only employ L2 workers, where Wu = MRP1, while more workers want to work, so employment falls from L1 to L2 and there is unemployment. Costs rise and, unless the firm can pass them on as higher prices, profits fall. How large the fall in employment is depends on the elasticity of demand for labour: it is more elastic if labour costs are a large share of total costs, if capital is easily substituted for labour, and if demand for the product is price elastic.

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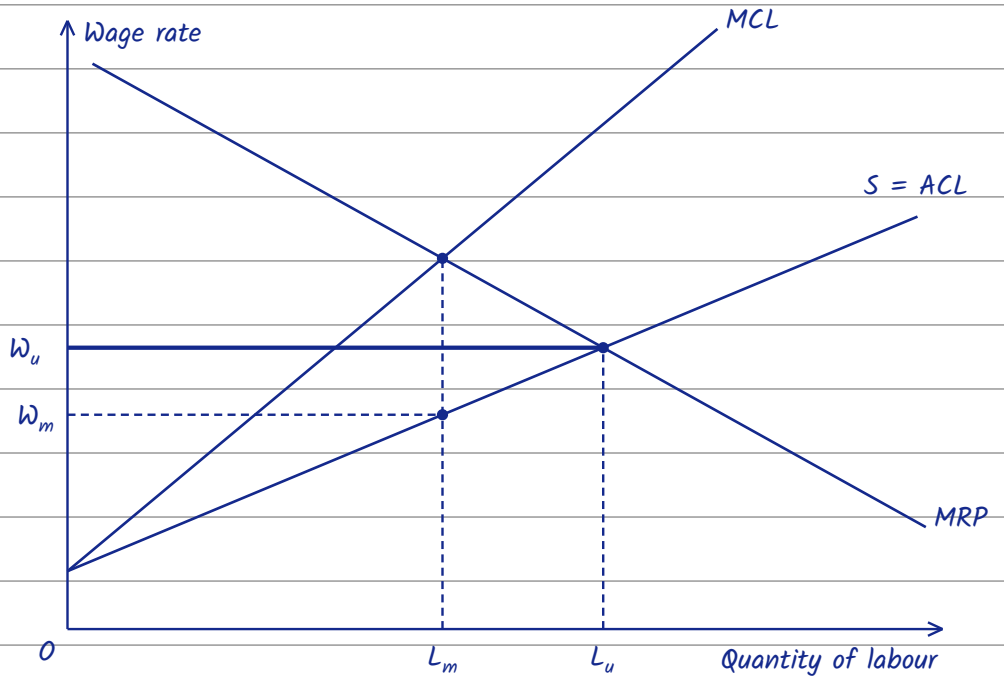
The employers' statement suggests two ways to meet the cost. First, improved productivity. If workers produce more per hour, for example through better training, new technology or changes in working practices agreed in the deal, the marginal physical product rises and the MRP curve shifts right from MRP1 to MRP2. At the higher wage Wu the firm can then employ L1 workers again, so there is no loss of jobs and unit labour costs do not rise. This is a productivity deal, and it means the higher wage is justified by higher MRP.

Second, reductions in other costs, such as raw materials, energy or overheads. These do not change the MRP of labour, so on its own the theory still predicts lower employment at the higher wage, but lower costs mean the firm's total costs and profits may be unchanged, so it may choose not to reduce its workforce. However, cutting other costs may involve replacing workers with machines, which would reduce employment further.

The theory can also be applied to imperfect labour markets. If the employer is a monopsonist (a single or dominant buyer of labour), it must raise the wage to attract more workers, so its marginal cost of labour (MCL) is above the average cost of labour (the supply curve). It employs Lm workers, where MCL = MRP, and

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pays only Wm, read from the supply curve, which is below the MRP of the last worker.



If the union negotiates a wage Wu above Wm, the MCL becomes horizontal at Wu up to the supply curve, because the firm can employ more workers without paying a higher wage. The firm now employs where Wu = MRP at Lu, so both wages and employment rise. In this case the deal increases employment, and the cost is met from the monopsony's supernormal profit. Employment is highest when Wu is set where MRP crosses the supply curve; a wage above this would reduce employment again, and only a wage above the MRP at Lm would make it fall below Lm.

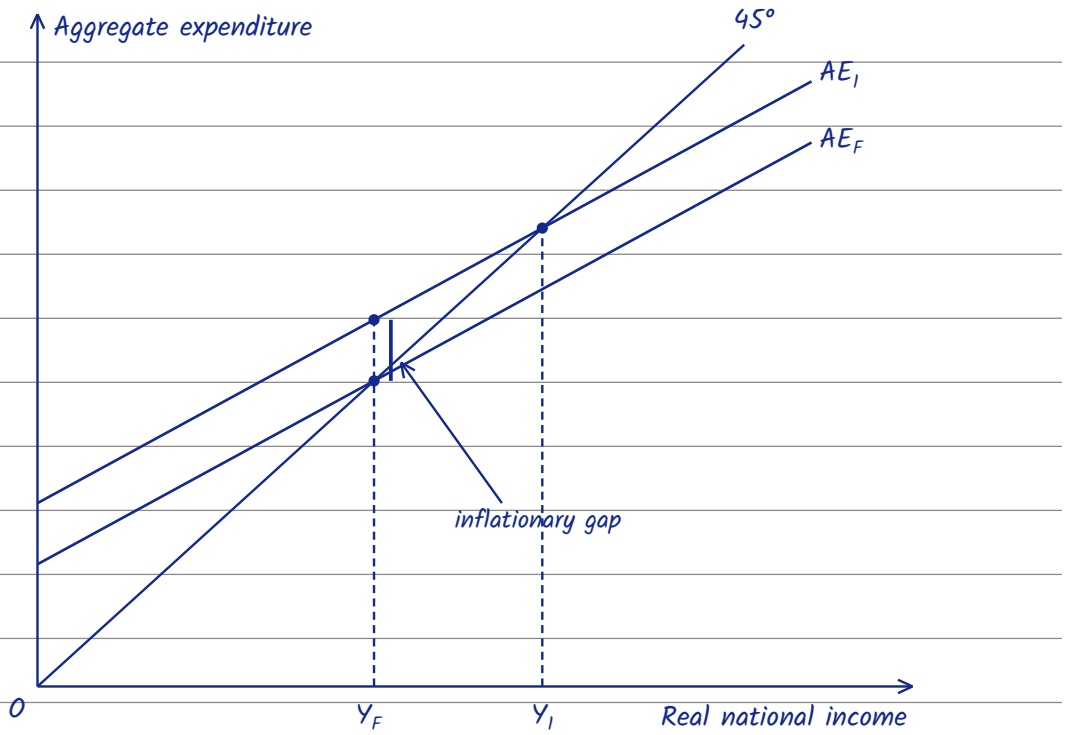
Evaluation: the theory assumes firms can measure the MRP of each worker, which is very difficult for many jobs, especially in services where output is hard to value. Wages are also affected by bargaining power, government minimum wages, discrimination and non-monetary factors, which the simple theory ignores. The outcome for employment depends on the time period: in the short run firms may keep workers because it is difficult to change production methods, but in the long run they may substitute capital for labour. It also depends on whether the productivity gains actually happen; if they do not, the firm may face higher costs,

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raise prices and lose sales.

In conclusion, the deal can be incorporated into the economic theory of wages. In a competitive labour market it is likely to reduce employment unless productivity rises enough to shift the MRP curve to the right. In a monopsony market, however, a negotiated wage can raise both wages and employment. The most likely outcome is little change in employment if the deal is genuinely linked to productivity improvements.

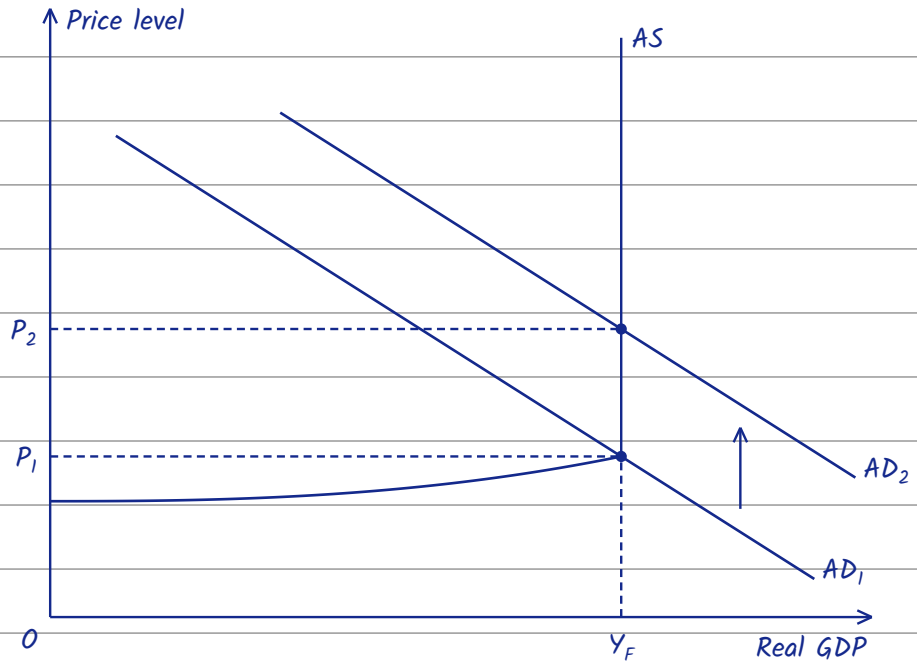
6(a) An inflationary gap exists when the level of aggregate expenditure (aggregate demand) at the full employment level of national income is greater than the full employment output. Since real output cannot rise much above full employment, the excess demand pulls up the price level rather than output. In the 45° line diagram the inflationary gap is the vertical distance between AE1 and the 45° line at YF, the full employment income. Equilibrium at Y1 is above YF in money terms only, as the extra spending causes inflation; to remove the gap AE must fall to AEF.



In the AD/AS diagram, AD rises from AD1 to AD2 when the economy is already at

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full employment YF, where AS is vertical, so the price level rises from P1 to P2 with no increase in real GDP. This is demand-pull inflation.



An inflationary gap is a problem for several reasons. First, it creates inflationary expectations: workers demand higher wages to protect their real incomes, raising firms' costs, so there may be a wage-price spiral that is hard to stop. Second, inflation creates uncertainty, which discourages private investment, reducing future growth. Third, if domestic inflation is higher than in other countries, exports become less price competitive and imports more attractive, worsening the current account and putting downward pressure on the exchange rate. Fourth, it redistributes income: savers lose if interest rates are below inflation, people on fixed incomes lose purchasing power, while debtors gain because the real value of their debts falls. There are also menu and shoe-leather costs.

The most important effect depends on the economy. For an open economy that relies on exports, the loss of international competitiveness is probably the most serious problem. Expectations matter most in the long run, because once inflation becomes built into wage bargaining it is costly to reduce. If inflation is mild and expected, its redistributive effects are small, since contracts and interest rates

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adjust.

6(b) Monetary policy is the use of interest rates, the money supply and the exchange rate by the central bank to influence aggregate demand. To close an inflationary gap, contractionary monetary policy is needed. The main tool is raising interest rates. This increases the cost of borrowing, so consumers buy fewer durable goods on credit and firms invest less; it rewards saving; it raises mortgage payments, reducing disposable income; and it may attract hot money inflows, causing the exchange rate to appreciate, which makes imports cheaper and exports dearer. All of these reduce aggregate demand, shifting AE down towards AEF, so the gap closes. A second tool is to reduce the money supply or the growth of credit, for example by selling government bonds (open market operations), raising banks' reserve requirements or reversing quantitative easing, which reduces bank lending.

Monetary policy has strengths. Interest rates can be changed quickly and in small steps by an independent central bank, which gives the policy credibility and helps control inflationary expectations; an inflation target anchors expectations. However, there are problems. There is a long time lag, often 18 months to two years, before the full effect is felt. If confidence is high, consumers and firms may keep borrowing despite higher rates, so demand is interest inelastic. A higher interest rate also hits investment, harming long-run growth, raises costs for mortgage holders, and an appreciation harms exporters. Controlling the money supply directly is difficult because banks create credit, and in an open economy capital flows limit control.

Fiscal policy is the main alternative. The government can raise direct taxes or cut government spending, reducing aggregate demand directly, and the effect is magnified by the multiplier. Higher income tax affects all households, not just borrowers. However, fiscal changes are slow to implement, are politically unpopular, and cuts to spending on public services such as health and education may reduce

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welfare and future productivity. Supply-side policies, such as training, deregulation and incentives to invest, increase productive capacity, shifting LRAS to the right so that the extra demand can be met without inflation. They tackle the cause of the gap in the long run, but they take many years to work and so cannot deal with an immediate inflationary gap.

In conclusion, I largely agree. Monetary policy, especially changes in interest rates, is usually the most effective way to close an inflationary gap in the short to medium term because it is flexible, quick to change and credible when set by an independent central bank. It works best when combined with tighter fiscal policy if the gap is caused by government spending, and with supply-side policies to raise capacity in the long run. Its effectiveness depends on how responsive spending is to interest rates and how openness to trade and capital affects the economy.

7(a) Productivity is output per unit of input over a period of time, usually labour productivity, output per worker per hour. Developing countries have low productivity because workers have little capital to work with, low levels of education, skills and health, and use old technology; many work in subsistence agriculture or the informal sector, where output per worker is very low. Poor infrastructure such as unreliable power and roads also reduces output.

The dependency ratio is the number of dependants (people aged under 15 and over 64) divided by the working-age population, usually expressed per 100 people of working age. Developing countries have a high dependency ratio mainly because of high birth rates, so there is a large proportion of young dependants, while life expectancy is lower so there are relatively few old people.

The two characteristics are linked in both directions. A high dependency ratio can cause low productivity. Income must be shared among more people, so households and the government have less to save, and with low savings there is little investment in capital. Government spending goes on supporting a large young

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population rather than on infrastructure. Children may be kept out of school to work, reducing future human capital. All of this keeps productivity low, creating a vicious circle of poverty.

In the other direction, low productivity means low incomes. Poor families have more children as a source of labour and security in old age, and with poor healthcare infant mortality is high, so birth rates stay high, keeping the dependency ratio high. If productivity rises, incomes and GDP rise; better health care and education, especially for women, reduce the death rate and then the birth rate, as in the demographic transition, so the dependency ratio falls. A falling ratio then gives a "demographic dividend", with a larger share of workers raising output per head.

However, the link is not automatic. Productivity depends on other factors such as technology, institutions and investment, and some developing countries with high dependency ratios have raised productivity through foreign investment. Developed countries such as Japan have rising dependency ratios because of ageing populations, yet high productivity. In conclusion, the two characteristics are linked and reinforce each other in many developing countries, but the relationship depends on the policies a country follows.

7(b) Economic growth is an increase in real GDP over a period of time; long-run growth is an increase in productive capacity. Foreign direct investment (FDI) is investment by a firm in one country in productive assets in another, usually by a multinational corporation (MNC) building factories, buying firms or setting up operations.

FDI can be key to growth. It is an injection that increases aggregate demand with a multiplier effect, and it adds to the capital stock, filling the savings gap that developing countries face because their low incomes mean low savings. MNCs bring new technology and management methods, train local workers so labour skills

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improve, and may fund research and development, so productivity rises and LRAS shifts right. They create jobs, pay taxes, and their exports earn foreign currency, improving the current account. Countries such as China and Vietnam grew rapidly with large inflows of FDI.

However, FDI has limits. Profits are often repatriated to the MNC's home country, so GNI rises less than GDP. MNCs may use capital-intensive methods creating few jobs, employ local people only in low-skilled roles, exploit cheap labour and natural resources, cause pollution, and use their bargaining power to win tax breaks. FDI is footloose and may leave if costs rise elsewhere, and it may crowd out local firms.

There are alternative routes to growth. Export-led growth, based on comparative advantage and access to world markets, allowed countries such as South Korea to grow. Direct government investment in infrastructure, education and health builds the human and physical capital needed for growth, and attracts FDI. Structural change from agriculture to manufacturing and services raises productivity. Domestic saving and investment, microfinance, aid and good institutions with low corruption also matter.

In conclusion, FDI is an important contributor to growth, especially where domestic savings are low and technology is lacking, but it is not "the key". Its benefits depend on government policy, such as requirements to train local workers and taxing profits fairly, and on the country already having infrastructure and skills. Sustained growth usually needs a combination of FDI, domestic investment in human capital and export growth.

Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/42**

Paper 4 Data Response and Essays **May/June 2020**

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. Blank pages are indicated.

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Section A

Answer this question.

1 The impact of economic concentration

By locating closely together manufacturers can often gain economic benefits. The makers of industrial machines save on transport and communication costs when they are close to the firms that supply their raw materials and components. A group of similar manufacturers attracts a large number of workers with similar skills. Educational and training facilities in the area will develop courses and research skills that support the local industry. Similar benefits also occur in service industries, for example with the concentration of information technology in Silicon Valley and finance in New York, Hong Kong and London, where groups of accountants, merchant bankers and specialist lawyers in mergers and acquisitions all exist in close proximity.

The scope for concentration depends on the size of the market. The recent trend towards globalisation has increased the size of the available market. This has allowed some internet retailing firms to overcome competition from other countries. But the overall impact has been the delivery of a wide range of goods and services at low prices that have benefited consumers everywhere. This suggests that globalisation has not been a 'zero-sum' game.

But concentration has not always been beneficial. Silicon Valley has significant traffic congestion and many local people are priced out of the housing market. Seven of the ten most polluted cities in China are in Hebei Province, a centre for the iron and steel industry. This concentration has caused large amounts of air, water and land pollution. The competing demand for a limited number of workers has also led to wage increases.

Geographical concentration of an industry can lead to problems when demand for the product changes. This has been evident in the United States (US) where the city of Detroit has experienced unemployment rates as high as 25% (see Fig. 1.1) and a fall in its population by over 60% because of the decline in Detroit's motor industry caused by vehicle imports and the movement of production to US states where trade unions are not as strong.

Source: The Economist, 21 October 2017

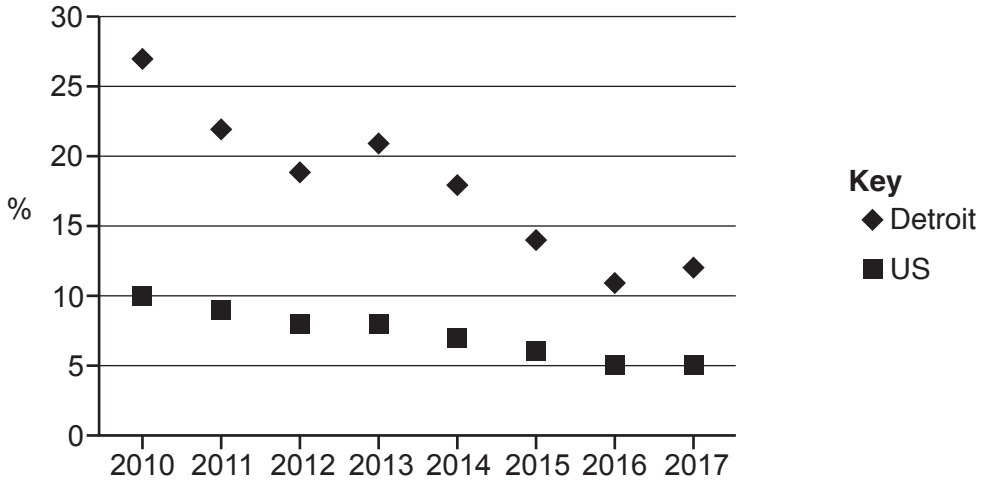


Fig. 1.1: Unemployment rates in the US and Detroit, 2010–2017

Source: US Bureau of Labor Statistics, accessed 12 May 2018

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(a) Explain the meaning of *zero-sum* in game theory. [2]

(b) Use the information to explain how external economies of scale develop. Show, with the aid of a diagram, how this would affect a firm's average costs. [5]

(c) There is a fall in demand for the product of a geographically concentrated industry. Analyse the economic implications of this for the area where the industry is located. [6]

(d) Consider how the negative externalities from concentrated industrial production can be reduced. [7]

Section B

Answer **two** questions.

2 **(a)** Use indifference curve analysis to explain the derivation of an individual demand curve for a normal good. [12]

(b) Discuss, using indifference curve analysis, whether the demand for a good always increases when its price falls. [13]

3 **(a)** Explain how the fixed and variable costs of a perfectly competitive firm affect its survival in the short and long run. [12]

(b) Explain what is meant by the principal-agent problem and consider its importance in relation to the objectives for a firm. [13]

4 'Government intervention in the microeconomy always improves efficiency.'

Discuss the validity of this claim. [25]

5 In January 2018 tax reductions were introduced in the US, and the Federal Reserve Bank (the US central bank) announced it would raise interest rates later in the year.

Discuss how these policies may cause conflicts for a government in trying to achieve its macroeconomic aims. [25]

6 **(a)** Compare the characteristics of developed and developing countries. [12]

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

7 **(a)** Explain the Keynesian theory of the determination of the rate of interest. [12]

(b) Discuss the impact on the economy of the introduction of quantitative easing (QE) by the central bank. [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

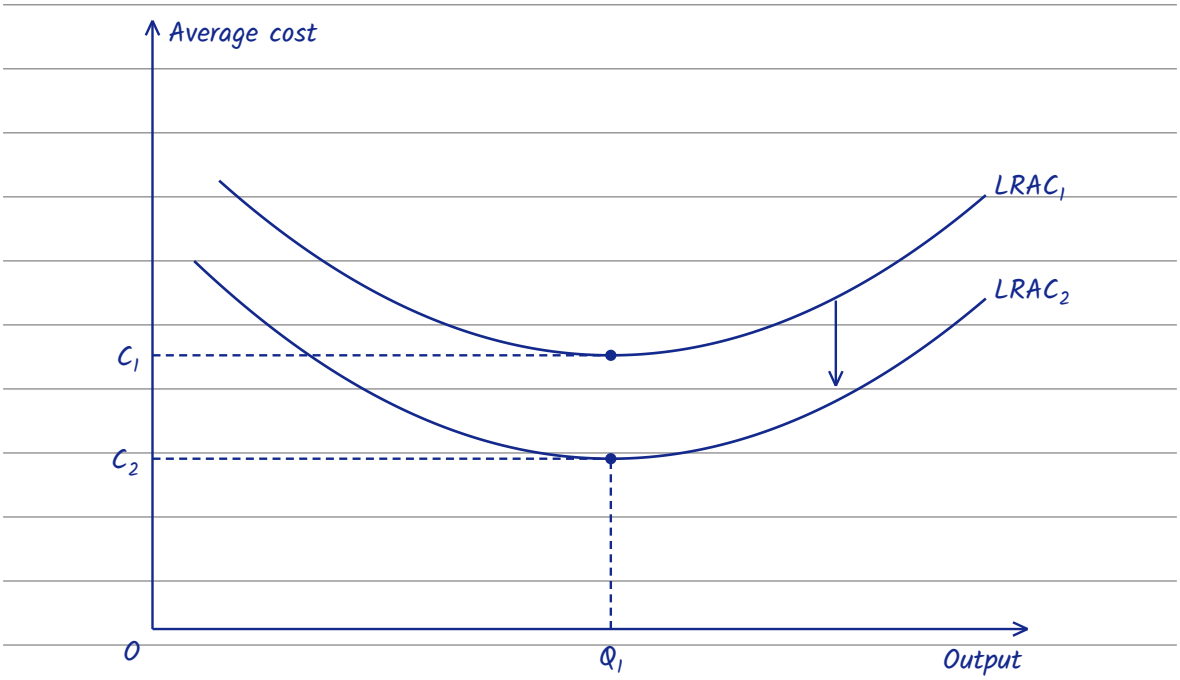
Answers for paper 9708/42

1(a) A zero-sum game is one where the total benefit (pay-off) to all players is fixed, so one party can only gain if another party loses by exactly the same amount; the gains and losses add up to zero.

1(b) External economies of scale are falls in long-run average cost that a firm gains because the whole industry grows in one area, not because the firm itself grows. As similar manufacturers locate close together, suppliers of raw materials and components move near them, cutting transport and communication costs. A large pool of workers with similar skills develops, so firms spend less on recruitment and training. Ancillary services develop too: local colleges run courses and research that support the industry, and specialist services such as accountants, merchant bankers and lawyers cluster nearby, as in Silicon Valley and the financial centres of New York and London.

These lower the costs of every firm in the area at every level of output, so the firm's LRAC curve shifts downwards from LRAC1 to LRAC2, and at output Q1 average cost falls from C1 to C2.

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1(c)

First, structural unemployment. Workers in the concentrated industry lose their jobs, and because their skills are specific to that industry and there are few other employers locally, they cannot easily find other work. In Detroit, the decline of the motor industry meant unemployment was about 27% in 2010, nearly three times the US rate of about 10%, and still about 12% in 2017, more than double the US rate of about 5%.

Second, a negative local multiplier. Unemployed workers and the firms' suppliers lose income, so they spend less in local shops and services, which then cut jobs too, so local income falls by more than the initial fall in demand. Tax revenue for the local government falls while spending on benefits rises, so public services decline.

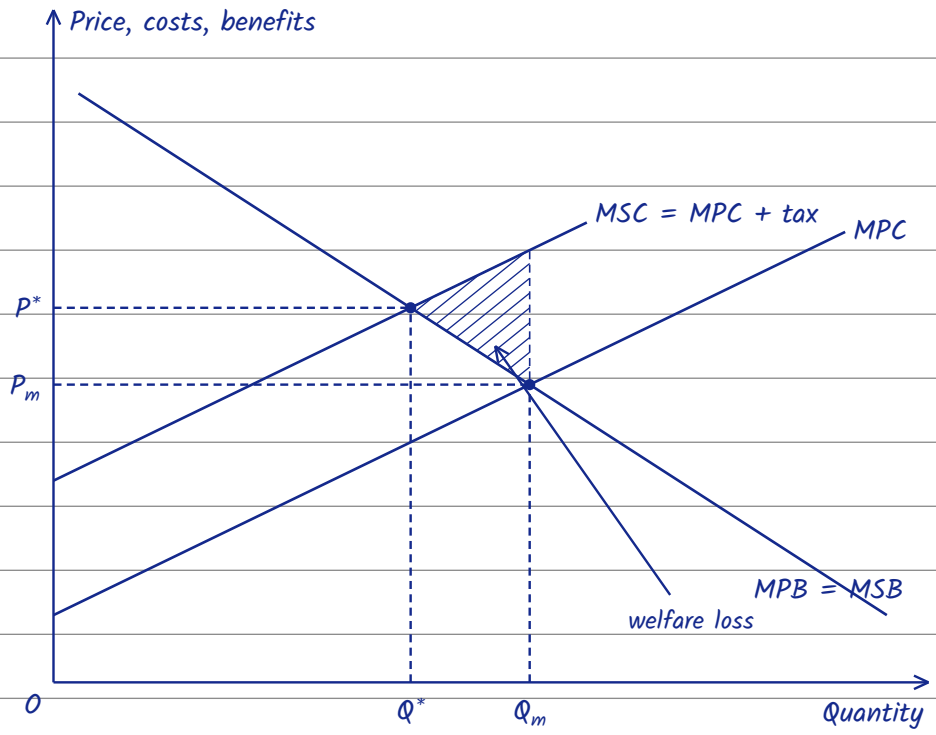
Third, outward migration and falling asset values. People leave the area to find work, as shown by Detroit's population falling by over 60%. This reduces demand for housing, so house prices fall, and the remaining workforce is older and less skilled, discouraging new firms from moving in, so the decline continues.

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1(d)

A negative externality is a cost of production suffered by third parties who are not involved in the transaction, so the marginal social cost is greater than the marginal private cost. In the information, concentrated production causes traffic congestion in Silicon Valley, and air, water and land pollution in Hebei Province. Firms ignore these costs, so output is above the socially optimum level.

One way is a tax on pollution equal to the marginal external cost. This raises the firm's private costs so MPC + tax = MSC, reducing output from Qm to the socially optimum Q^* and internalising the externality (diagram). However, the external cost is difficult to measure, so the tax may be set at the wrong level, and demand may be price inelastic, so output falls only a little. It could also make the steel industry uncompetitive internationally.



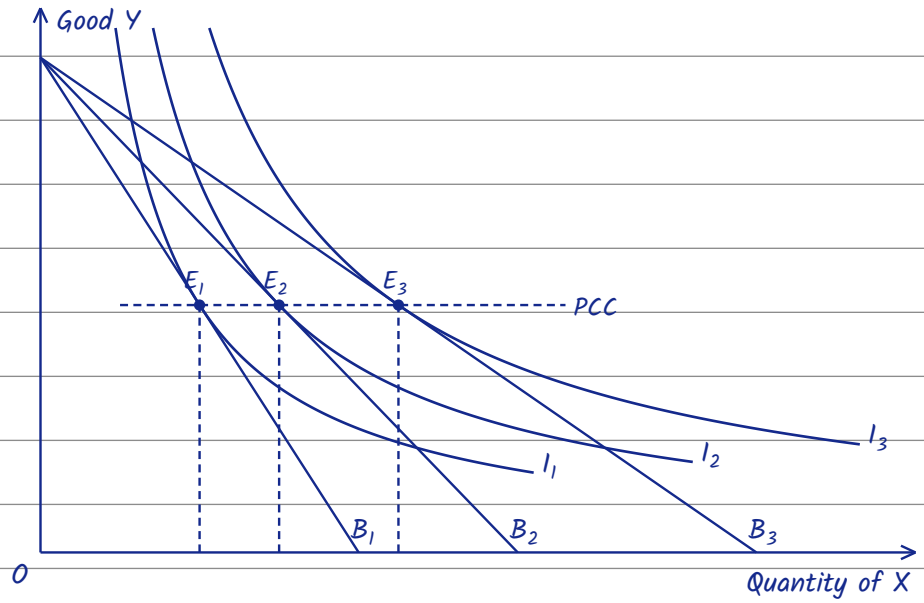
A second way is regulation, such as legal limits on emissions or requiring cleaner technology, enforced with fines. This is easy to understand and can reduce pollution quickly, but it needs monitoring, gives no incentive to cut pollution below the limit, and fines may be too low to deter firms. Tradable pollution permits combine both approaches. Congestion could be reduced by road pricing or

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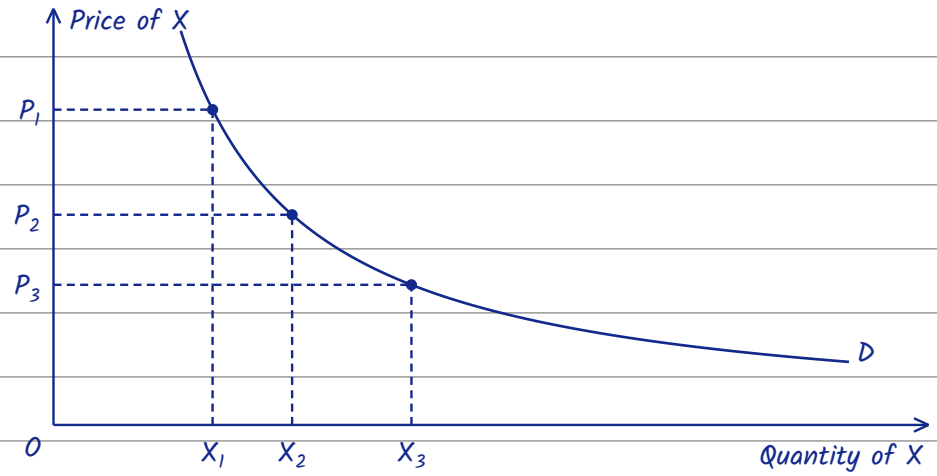
investment in public transport. Overall a tax or permits are probably most efficient, but in an area like Hebei strict regulation may be needed to reduce severe pollution quickly.

2(a) An indifference curve shows all the combinations of two goods, X and Y, that give a consumer the same level of satisfaction (utility). Indifference curves slope downwards, because to keep the same satisfaction the consumer must receive more of one good if they give up some of the other, and they are convex to the origin because of a diminishing marginal rate of substitution (MRS). Higher curves give more satisfaction and curves never cross. The budget line shows all the combinations the consumer can afford with a given money income and given prices; its slope is the price ratio Px ÷ Py.

The consumer maximises satisfaction where the budget line is tangent to the highest indifference curve it can reach. At this equilibrium MRS = Px ÷ Py. In the top diagram the consumer starts at E1 on I1, buying X1 of good X with budget line B1, when the price of X is P1.



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Now the price of X falls to P2 and then P3, with money income, the price of Y and tastes held constant. The budget line pivots outwards about the Y intercept, from B1 to B2 and B3, because the consumer can now buy more X. The new equilibrium points are E2 on I2 and E3 on I3, with quantities X2 and X3. The line joining the equilibria is the price-consumption curve (PCC).

To derive the demand curve, each price of X is plotted against the quantity bought at that price in the lower diagram, which has the price of X on the vertical axis and the same quantity axis. The points (P1, X1), (P2, X2) and (P3, X3) are joined to give the individual demand curve D. For a normal good it slopes downwards, because both the substitution effect and the income effect of a price fall increase the quantity demanded.

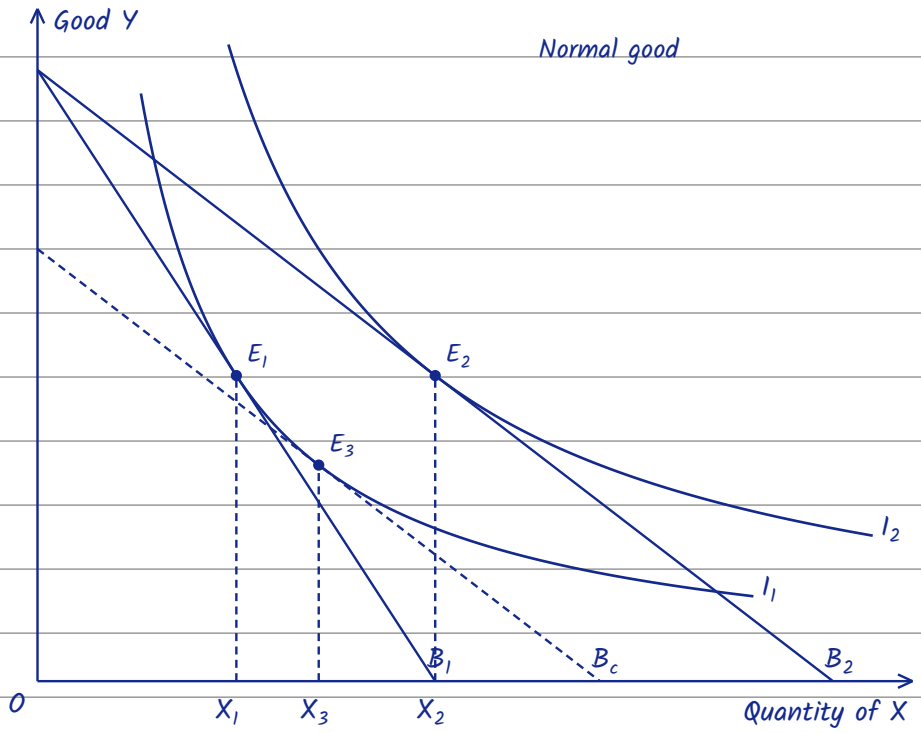
2(b)

When the price of a good falls, the total change in quantity demanded can be split into the substitution effect and the income effect. The substitution effect is the change caused by the change in relative prices alone, with real income held constant; it is shown by the compensated budget line Bc, parallel to the new budget line B2 but tangent to the original indifference curve I1. The income effect is the change caused by the rise in real income, the move from Bc to B2.

For a normal good, both effects increase demand. In the first diagram the price fall pivots the budget line from B1 to B2. The substitution effect, E1 to E3, raises

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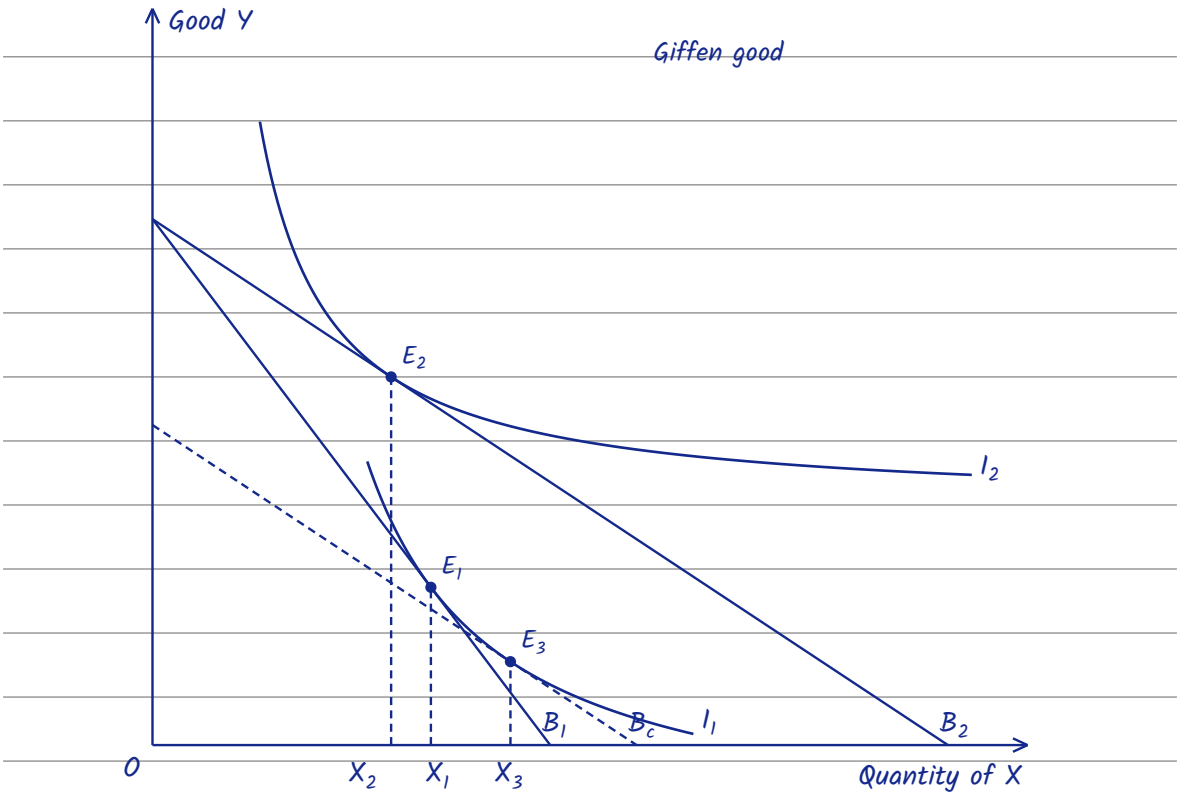
demand from X1 to X3 because X is relatively cheaper. Real income has risen, and demand for a normal good rises with income, so the income effect, E3 to E2, raises demand further to X2. The effects reinforce each other, so demand always increases.



For an inferior good, demand falls as real income rises, so the income effect is negative. The substitution effect is still positive. If the substitution effect is larger than the negative income effect, as for most inferior goods, demand still increases when the price falls, but by less than for a normal good, so the demand curve still slopes downwards but is steeper.

For a Giffen good, a strongly inferior good such as a staple food that takes a large share of a poor household's income, the negative income effect is larger than the substitution effect. In the second diagram the substitution effect, E1 to E3, raises demand from X1 to X3, but the rise in real income lets the household switch to better foods, so the income effect, E3 to E2, cuts demand to X2, which is below X1. So the quantity demanded falls when the price falls, and the demand curve slopes upwards.

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Evaluation: Giffen goods are extremely rare because the good must be inferior, have no close substitutes and take a large share of income; evidence has been found only among very poor households, such as rice consumers in parts of China. Other exceptions lie outside the model, such as Veblen (ostentatious) goods, whose demand may fall when their price falls because they become less exclusive, or goods where a falling price creates expectations of further falls, so consumers delay purchases. The analysis also assumes rational consumers, stable tastes and only two goods.

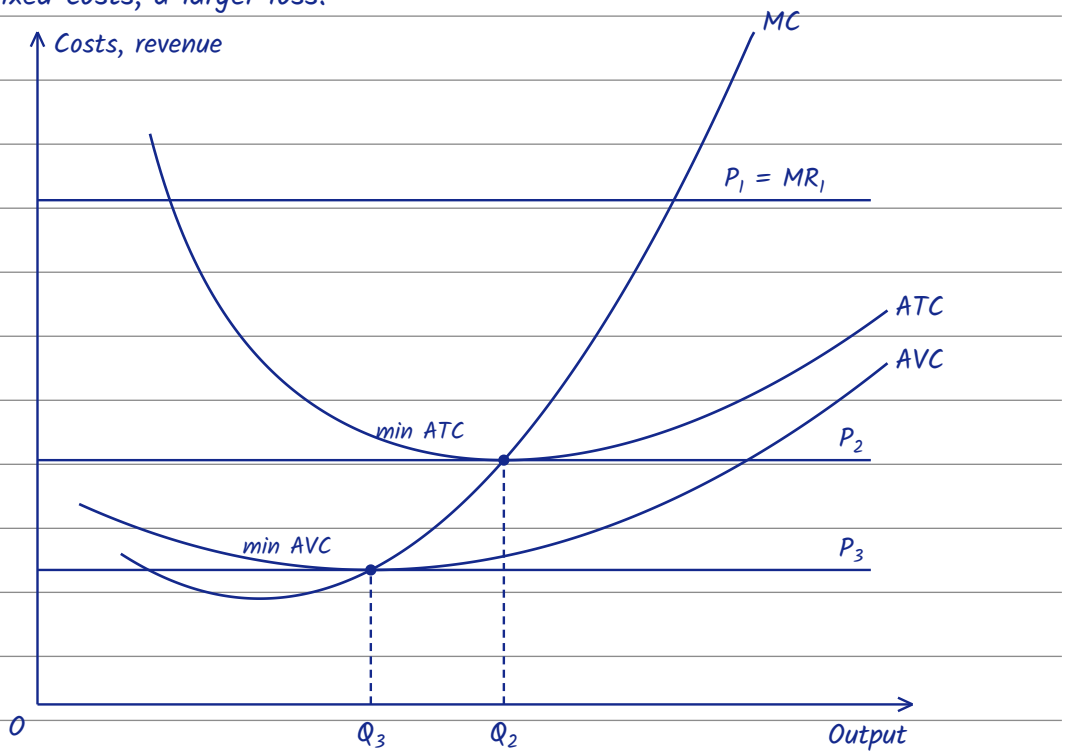
In conclusion, indifference curve analysis shows that the demand for a good does not always increase when its price falls, because of the Giffen case. However, since the substitution effect is always positive and the income effect is normally small or positive, demand increases for almost all goods, so the law of demand holds in nearly all cases.

3(a) Fixed costs are costs that do not change with output, such as rent and interest on

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loans; they must be paid even if the firm produces nothing. Variable costs change with output, such as raw materials and wages of hourly workers. The short run is the period in which at least one factor of production is fixed, so the firm has fixed costs; in the long run all factors are variable, so all costs are variable.

A perfectly competitive firm is a price taker, so P = AR = MR, and it produces where MC = MR. In the short run it compares price with average variable cost (AVC). If price is above average total cost (ATC), such as P1, it earns supernormal profit. If price is P2, at the minimum of ATC, it covers all costs and earns normal profit, so P2 is the break-even price. If price is between minimum ATC and minimum AVC, the firm makes a loss but should continue producing in the short run, because revenue covers all variable costs and contributes something towards the fixed costs, which would have to be paid anyway. If it shut down it would lose all its fixed costs, a larger loss.



If price falls below P3, the minimum of AVC, the firm cannot even cover its variable costs, so each unit produced adds to its losses. It should shut down at once, because its loss is then limited to its fixed costs. P3 is the shut-down price,

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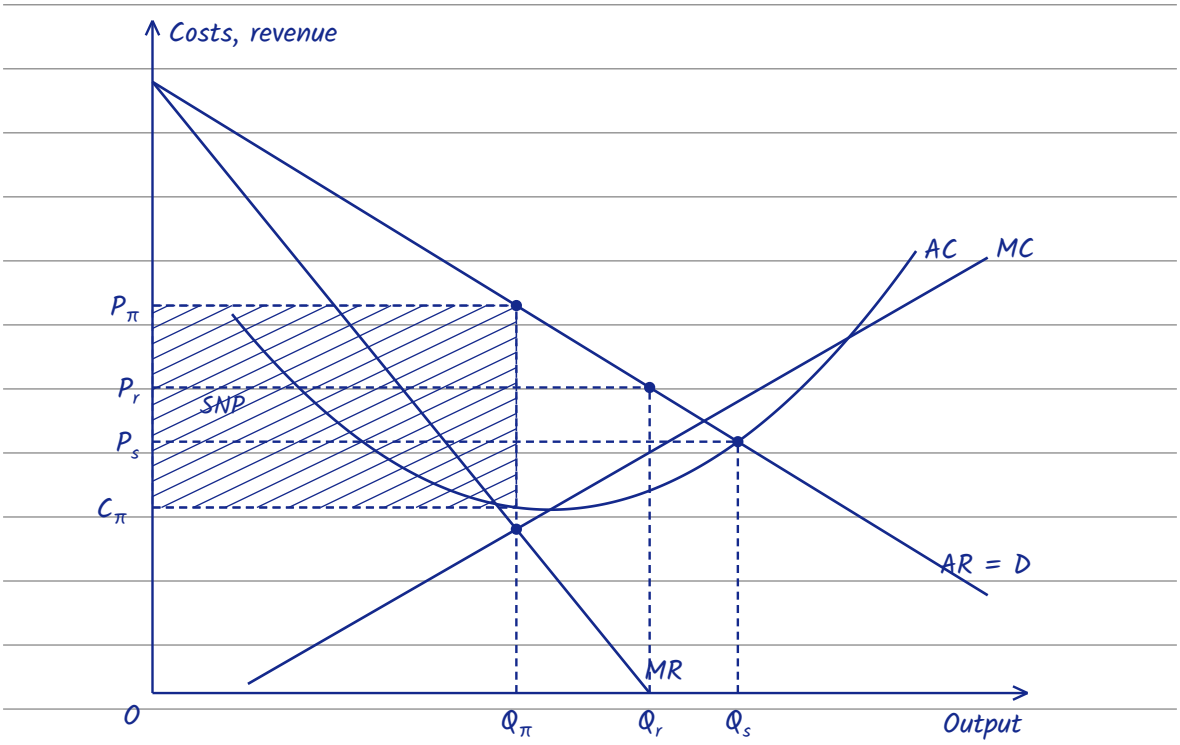
so the firm's short-run supply curve is its MC curve above minimum AVC.

In the long run there are no fixed costs, so the firm must cover all of its costs, that is total revenue must be at least total cost, or P ≥ ATC. If the price stays below the minimum of ATC, the firm makes a loss that it cannot avoid by staying, so it leaves the industry. As firms leave, market supply falls and the price rises until the remaining firms make normal profit at P2. If firms make supernormal profit, new firms enter until the price falls back to P2. So in the long run a firm survives only if price covers ATC, and the long-run equilibrium is at the minimum of ATC.

3(b) The principal-agent problem arises when one party (the agent) is employed to act on behalf of another (the principal) but has different objectives and more information, so the principal cannot fully check whether the agent is acting in their interests. In a public limited company the shareholders (principals) own the firm, but it is run by managers (agents); this is the divorce of ownership from control.

Shareholders want the firm to maximise profit, producing at Qπ where MC = MR, charging Pπ, and earning the largest supernormal profit (shaded). Managers may pursue other objectives. If managers' pay and status depend on the size of the firm, they may maximise sales revenue (Baumol), producing where MR = 0 at Qr, with a lower price Pr and lower profit. They may instead maximise sales volume or growth subject to earning normal profit, producing at Qs where AR = AC, with the lowest price Ps. Williamson suggested managers maximise their own utility through high salaries, large staff and perks, which raise costs and reduce profit.

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The impact is significant. For the firm and its shareholders, profit and dividends are lower and costs may be higher than necessary (X-inefficiency). For consumers, however, a revenue or sales-maximising firm charges a lower price and produces more output than a profit maximiser, so consumers may gain and the outcome may be closer to allocative efficiency. Managers may also take a short-term view, maximising this year's results to earn bonuses at the expense of long-run investment.

The importance of the problem depends on several factors. Shareholders can reduce it by linking managers' pay to profit through share options and bonuses, by voting at the AGM, and by monitoring performance. If managers make too little profit, the share price falls and the firm may be taken over, so the threat of takeover limits how far managers can depart from profit maximisation. In a small firm where the owner is also the manager there is no problem. It also matters more where firms have market power; in competitive markets firms must maximise profit to survive, so managers have little freedom.

In conclusion, the principal-agent problem is important in large firms with

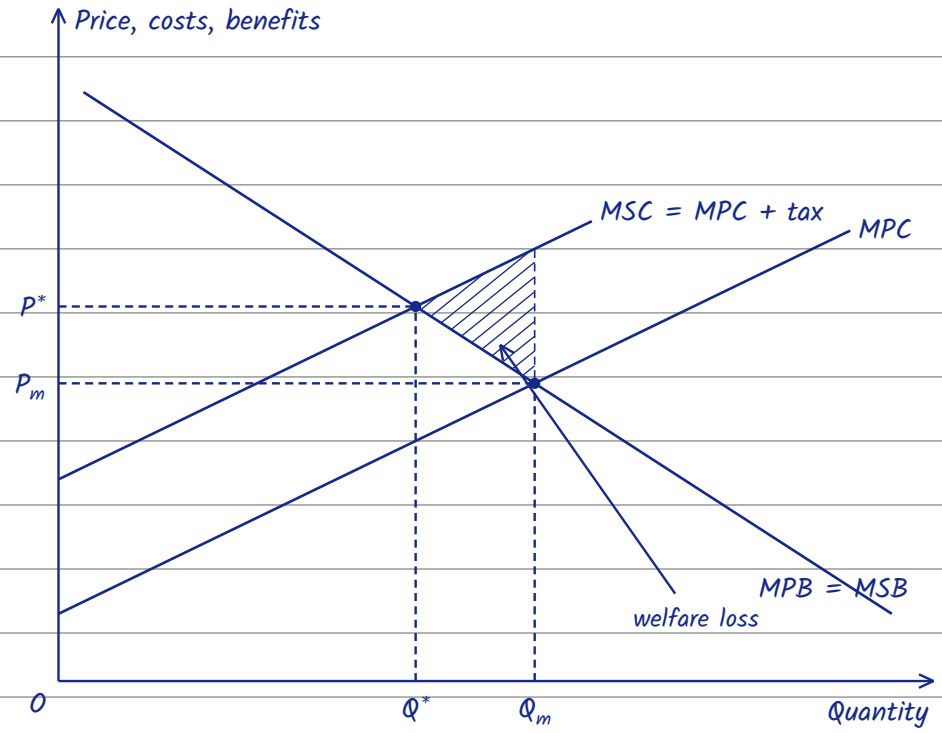
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dispersed shareholders and market power, because it explains why firms may pursue objectives other than profit maximisation, affecting price, output and profit. It is less important where incentives are well designed or competition is strong.

4 Efficiency is about how well scarce resources are used. Productive efficiency is producing at the lowest possible average cost, the minimum point of the AC curve. Allocative efficiency is producing the combination of goods consumers want most, where price equals marginal cost, or for society where marginal social benefit equals marginal social cost (MSB = MSC). Dynamic efficiency is the improvement in efficiency over time through innovation and investment. An economy is Pareto optimal when no one can be made better off without making someone else worse off.

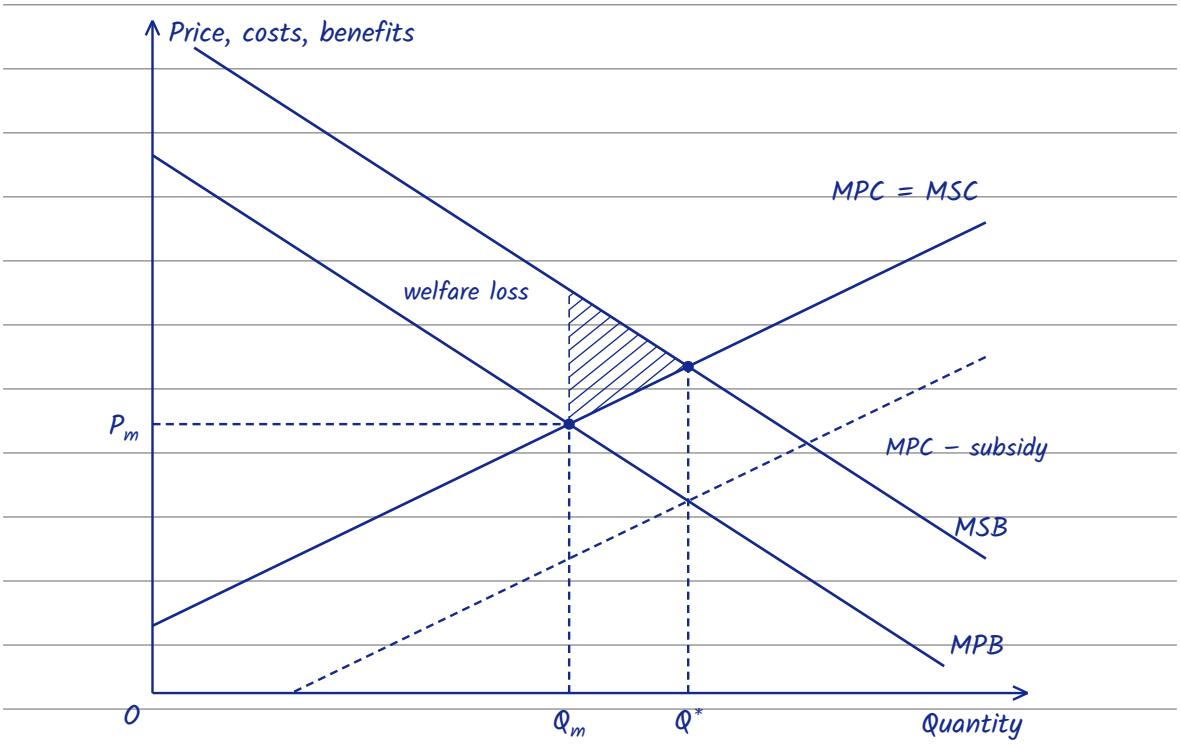
Government intervention in the microeconomy is justified when there is market failure, so the free market does not allocate resources efficiently. With a negative externality, such as pollution from a factory, the market produces at Qm where MPB = MPC, but the socially optimum output is Q^* where MSB = MSC, so there is over-production and a welfare loss (shaded). A tax equal to the marginal external cost raises the firm's costs to MPC + tax = MSC, so output falls to Q^* and allocative efficiency is restored; the polluter pays.

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With a positive externality, such as education or vaccination, the market under-produces at Qm, where MPB = MPC, because consumers ignore the external benefits to others. A subsidy lowers the cost to MPC – subsidy, raising output to the socially optimum level where MSB = MSC and removing the welfare loss (shaded).

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Other interventions can also improve efficiency. Public goods such as street lighting are non-excludable and non-rival, so the free-rider problem means the market will not provide them; direct provision financed by taxation improves allocative efficiency. Regulation of monopolies, through price caps such as RPI – X and competition policy that prevents mergers and collusion, can bring price closer to MC and force firms to cut costs. Providing information, for example health warnings on cigarettes, corrects information failure. Laws such as bans on harmful drugs or minimum standards can reduce consumption of demerit goods.

However, intervention does not always improve efficiency, because of government failure. Governments lack information: the size of external costs and benefits is hard to measure in money terms, so a tax or subsidy may be set too high or too low, under- or over-estimating the problem and creating a new misallocation. There are time lags in recognising problems and implementing policies, by which time conditions may have changed. Subsidies are a cost to taxpayers and have an opportunity cost, and firms receiving them may become inefficient. Price controls such as maximum prices create shortages and black markets, and minimum prices

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create surpluses. Regulation involves administrative and compliance costs, and regulators may suffer regulatory capture, acting in the interests of the firms they regulate.

State-owned enterprises may be productively inefficient because they lack the profit motive and the threat of competition or takeover, leading to X-inefficiency, and politicians may make decisions to win votes rather than to improve efficiency.

Intervention can also reduce dynamic efficiency: strict regulation may reduce the profits firms use for research and development. The theory of the second best also suggests that correcting one market failure when others remain may not raise overall welfare. In addition, some interventions, such as progressive taxes and benefits, are aimed at equity rather than efficiency, and may reduce incentives to work.

Evaluation: whether intervention improves efficiency depends on the type of market failure, the quality of the information the government has, and the policy chosen. Market-based policies such as taxes and tradable permits keep incentives and are usually more efficient than direct controls, while direct provision is the only solution for pure public goods. Intervention is most likely to improve efficiency where the market failure is large and clearly measurable, and least likely where it is small, so the cost of the intervention outweighs the gain.

In conclusion, the claim is not valid. Government intervention can improve productive, allocative and dynamic efficiency when markets fail, but it does not "always" do so, because government failure, poor information, time lags and unintended consequences can make the allocation of resources worse. Intervention should be used only where the expected benefit of correcting the market failure exceeds the cost of the intervention.

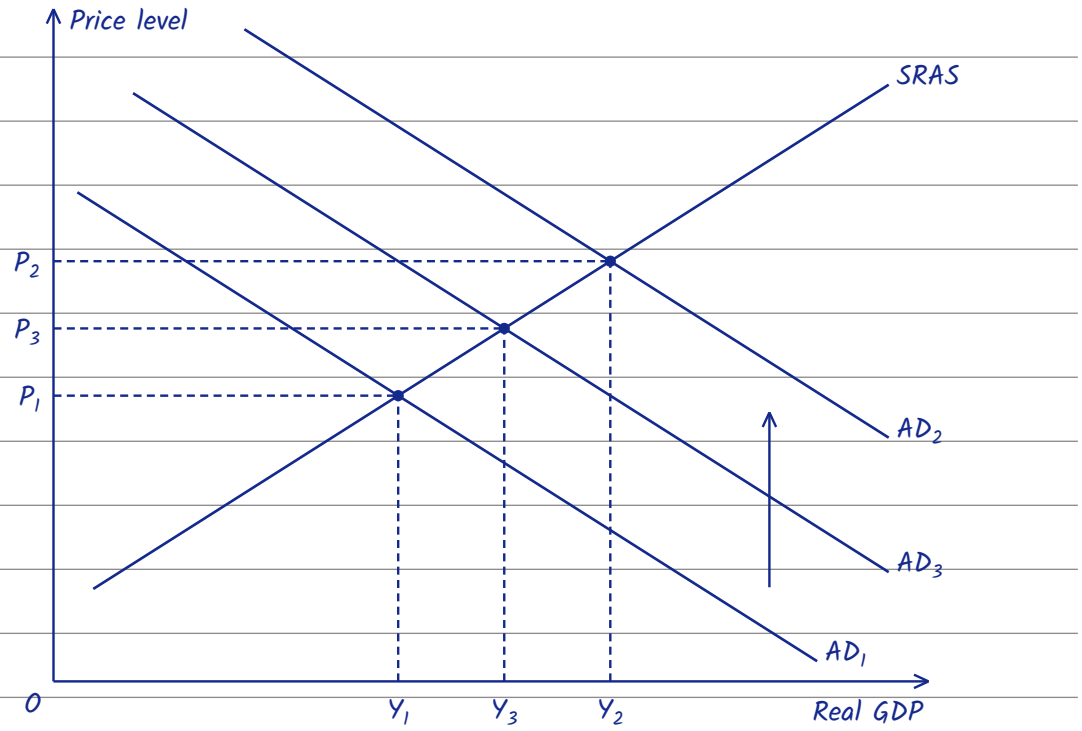
5

A government's main macroeconomic aims are steady economic growth (a rise in real GDP), low unemployment, low and stable inflation, and a satisfactory balance

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of payments on current account, together with long-term development. A tax reduction is expansionary fiscal policy, while a rise in interest rates by the Federal Reserve is contractionary monetary policy, so the two policies work in opposite directions on aggregate demand.

The tax cuts raise disposable income, so consumption rises; lower corporate taxes raise firms' post-tax profits, so investment rises. Aggregate demand shifts right from AD1 to AD2, and through the multiplier, real GDP rises from Y1 to Y2. The multiplier is 1 ÷ (1 – MPC), so if the MPC is 0.75, every $1 billion of extra spending raises national income by $4 billion. Higher output needs more workers, so unemployment falls, helping the growth and employment aims. Lower taxes on income and profits may also improve incentives to work and invest, shifting LRAS right.



However, the tax cut conflicts with other aims. As AD rises the price level rises from P1 to P2, so there is demand-pull inflation, especially when the US economy was already close to full employment in 2018. Higher incomes also raise spending on imports, worsening the current account deficit. Lower tax revenue increases the

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budget deficit and government borrowing.

The Federal Reserve raised interest rates to control this inflation. Higher rates increase the cost of borrowing and the reward for saving, so consumption of durable goods and investment fall, and higher mortgage payments reduce disposable income, so AD shifts back to AD3. The price level rises by less, to P3, helping the inflation aim. But higher interest rates reduce growth (Y3 rather than Y2), so unemployment falls by less. Higher rates also attract hot money inflows, so the dollar appreciates; exports become less price competitive and imports cheaper, which worsens the current account but further reduces inflation. Higher rates also raise the cost of the government's borrowing to finance the tax cuts, and may crowd out private investment.

So the policies illustrate the conflicts between aims. Growth and low unemployment conflict with low inflation, as the Phillips curve suggests: the tax cut favours growth and jobs, the interest rate rise favours price stability. Growth can also conflict with the balance of payments, as higher incomes pull in imports, and both policies may worsen the current account. Using fiscal and monetary policy in opposite directions makes the net effect uncertain and could send confusing signals to firms and consumers.

Evaluation: the size of the conflicts depends on several factors. If the economy has spare capacity, the tax cut raises output with little inflation, so the conflict is small; near full employment the conflict is greater. If the tax cuts mainly benefit high-income households with a low MPC, much of the cut is saved, so the effect on AD is small. The interest rate rise may be gradual and small, and there are time lags of up to two years before it takes full effect. If the tax cuts encourage investment and raise productivity, LRAS shifts right and growth can be achieved without inflation, reducing the conflict in the long run. The combination may in fact be deliberate: fiscal policy supports growth while monetary policy keeps inflation on target.

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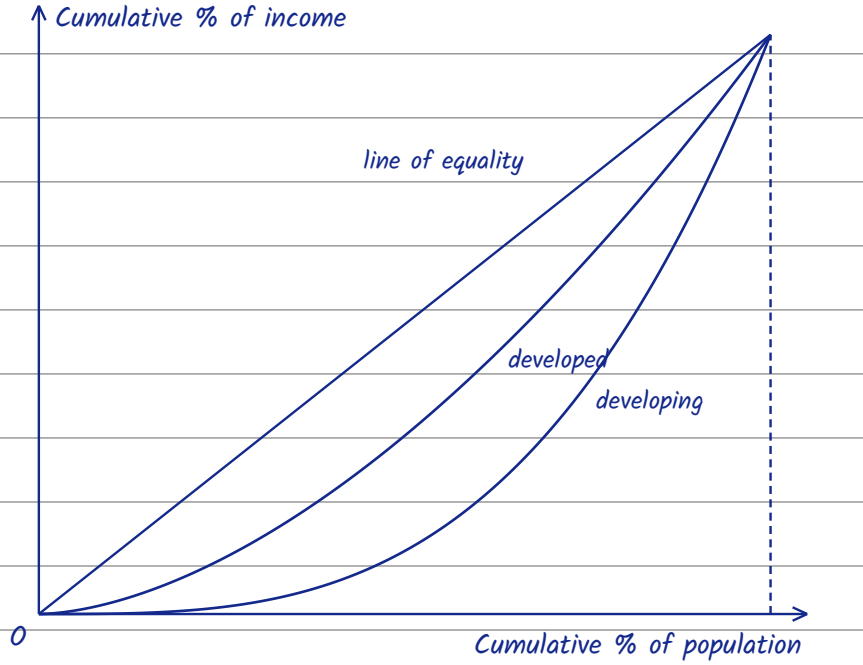
In conclusion, the policies may cause conflicts, mainly between economic growth and employment on one side and inflation and the current account on the other. Whether they do depends on the state of the economy and the size of the changes. The combination can achieve a balance if the tax cuts raise productive capacity, but in the short run the government is unlikely to achieve all its aims at the same time.

6(a) Developed countries have high real GDP per head, while developing countries have low incomes and lower living standards. They differ in several characteristics.

Population: developing countries usually have high birth rates and falling but still relatively high death rates, so population growth is rapid and the population pyramid has a wide base with many young dependants. Developed countries have low birth and death rates, slow or even negative population growth, and an ageing population, so their dependency problem is old-age dependants.

Income distribution: income is usually more unequally distributed in developing countries, with a small wealthy elite and many people in absolute poverty, so the Lorenz curve lies further from the line of equality and the Gini coefficient is higher. Developed countries have more progressive taxes and welfare systems, so incomes are more equal.

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Economic structure and employment: in developing countries a large share of output and employment is in the primary sector, especially agriculture, often at subsistence level, with a large informal sector and low productivity. Developed countries have most output and employment in the tertiary (service) sector, with high-productivity manufacturing and high levels of capital per worker.

External trade: developing countries often depend on exporting a few primary products, whose prices are volatile and income inelastic, and import manufactured goods, so they may have current account deficits and foreign debt. Developed countries export a wide range of manufactured goods and services.

Urbanisation and social indicators: developed countries are highly urbanised with good infrastructure, while developing countries have large rural populations but rapid migration to cities, causing slums. Developing countries also have lower life expectancy, literacy and access to healthcare, so a lower HDI. However, these are generalisations: emerging economies such as China and India share features of both groups.

6(b) The standard of living is the level of material and non-material well-being of the

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people in a country. GDP is the total value of goods and services produced in a country in a year. To use it as a measure of living standards it must be adjusted to real GDP, to remove the effect of inflation, and divided by the population to give real GDP per head; for international comparisons it should be converted using purchasing power parity (PPP) exchange rates.

Real GDP per head is widely used because higher income means people can, on average, buy more goods and services, and the data are collected regularly in most countries using standard methods, so comparisons over time and between countries are possible. It is closely correlated with health and education.

However, it has limitations. It is an average and ignores the distribution of income, so a rise may benefit only a rich minority. It excludes non-marketed output such as subsistence farming and housework, and the informal economy, so it understates living standards in developing countries. It ignores negative externalities such as pollution and resource depletion, and counts spending on defence or cleaning up disasters as output, though these do not raise welfare. It ignores leisure time, working conditions and political freedom.

Alternative measures try to overcome this. The Human Development Index (HDI) combines GNI per head at PPP with life expectancy and education (mean and expected years of schooling), so it includes non-material aspects. The Multidimensional Poverty Index (MPI) measures deprivation in health, education and living standards at household level. The Measure of Economic Welfare (MEW) adjusts GDP by adding leisure and non-market activity and subtracting "regrettables" such as pollution. But these measures have their own weaknesses: the HDI still includes income, its weights are a value judgement, it ignores inequality and the environment, and data for the MPI and MEW are harder to collect, and the MEW involves putting a money value on leisure and pollution.

In conclusion, real GDP per head at PPP is a useful and easily available indicator of material living standards, but it is not the best measure on its own. A

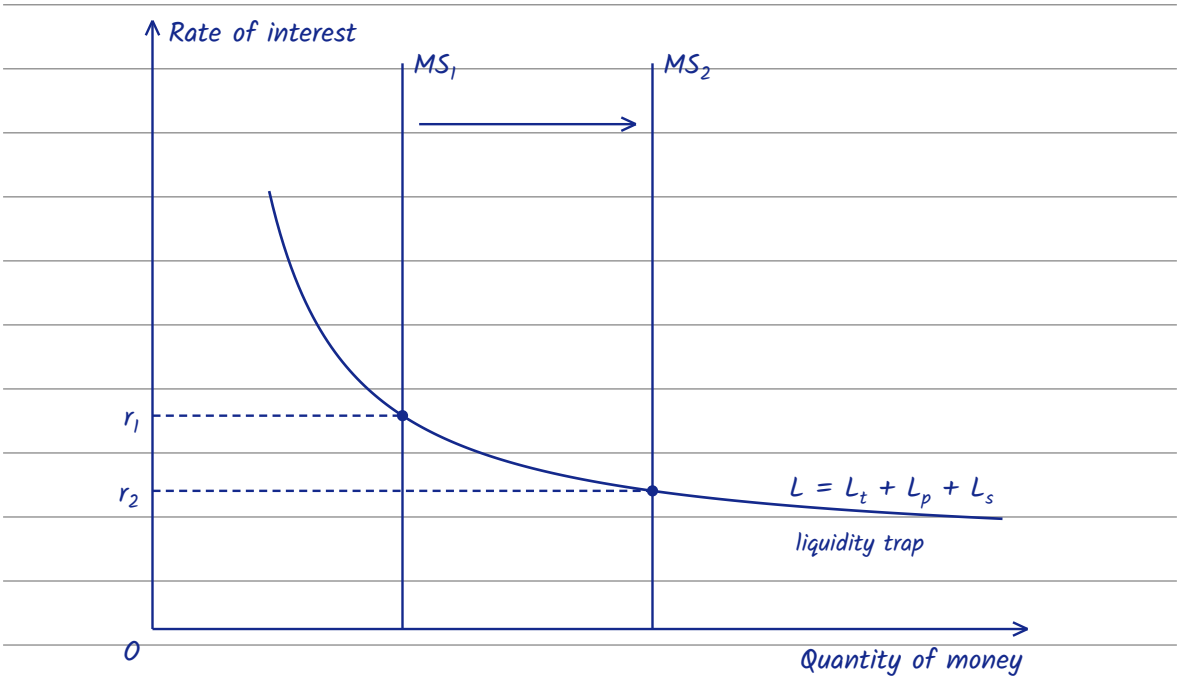
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composite measure such as the HDI gives a broader picture, so the best approach is to use real GDP per head together with the HDI and data on income distribution.

7(a) Keynes' liquidity preference theory explains the rate of interest as the price of money, determined by the demand for money (liquidity preference) and the supply of money. Liquidity preference is the desire to hold wealth in the form of money rather than interest-earning assets such as bonds. Keynes identified three motives. The transactions motive (Lt): people and firms hold money to pay for everyday purchases between receiving income. It depends mainly on the level of income: the higher the national income, the more money is needed. The precautionary motive (Lp): money is held to meet unexpected expenses, such as illness or repairs; this also depends mainly on income. Both are interest inelastic, so on their own they would give a vertical demand for money.

The speculative motive (Ls): people hold money instead of bonds when they expect bond prices to fall. Bond prices and interest rates move inversely. When interest rates are high, bond prices are low and people expect them to rise, so they buy bonds and hold little speculative money; the opportunity cost of holding money (the interest forgone) is also high. When interest rates are low, bond prices are high and people expect them to fall, so they hold money. So the speculative demand for money is inversely related to the rate of interest, and the total demand for money, L = Lt + Lp + Ls, slopes downwards.

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The money supply is set by the central bank and is assumed to be independent of the interest rate, so it is vertical. The equilibrium rate of interest is where the demand for money equals the supply, at r1 with MS1. If the interest rate were above r1, there would be an excess supply of money, so people would buy bonds, raising bond prices and lowering the interest rate until equilibrium is restored.

An increase in the money supply from MS1 to MS2 lowers the rate of interest to r2. A rise in income increases the transactions and precautionary demand, shifting L to the right and raising the interest rate. At very low interest rates the demand for money becomes perfectly elastic, the liquidity trap, because everyone expects bond prices to fall, so further increases in the money supply cannot reduce the interest rate.

7(b)

Quantitative easing (QE) is a monetary policy in which the central bank creates new money electronically and uses it to buy financial assets, mainly government bonds, from banks and other financial institutions. It is normally used when interest rates are already close to zero, so they cannot be cut further.

QE affects the economy through the transmission mechanism. The purchases raise

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the demand for bonds, so bond prices rise and long-term interest rates fall. Banks have more reserves and so can increase lending, and borrowing becomes cheaper, so consumption and investment increase. Sellers of bonds use the money to buy other assets such as shares and property, so asset prices rise, creating a wealth effect: households feel richer and spend more. Lower interest rates may also lead to an outflow of hot money, so the exchange rate depreciates, making exports cheaper and imports dearer, which helps net exports. All these increase aggregate demand, and through the multiplier real GDP rises and unemployment falls. However, the size of the multiplier depends on leakages: some of the extra spending goes on imports and taxes and some is saved, so the impact may be smaller than expected. Higher incomes may raise imports and worsen the current account, and investment may rise by more than expected through the accelerator if firms are confident.

There are other limitations. If confidence is low, as in a recession, banks may keep the extra reserves instead of lending, and firms and households may not want to borrow, so the money does not reach the real economy; this is similar to the liquidity trap. QE raises asset prices, which benefits wealthy people who own shares and property, so it increases inequality, and it can create asset price bubbles. If the economy is close to full capacity, the extra money mainly causes inflation, as the quantity theory of money ($MV = PT$) would suggest. Low interest rates also reduce the income of savers and pensioners, and reversing QE later may be difficult.

In conclusion, the impact of QE depends on the state of the economy. In a deep recession with spare capacity and near-zero interest rates, QE can raise asset prices, lower long-term interest rates and support aggregate demand, growth and employment, as after the 2008 financial crisis. But its effect on output may be weak if banks and consumers lack confidence, and its side effects on inequality and inflation mean it should be used only for a limited period.

Question number

Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/43**

Paper 4 Data Response and Essays **May/June 2020**

2 hours 15 minutes

0646138625

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. Blank pages are indicated.

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Section A

Answer this question.

1 **In pursuit of well-being**

It has been said that the mark of success of a government is raising the quality of life or the well-being of the people in the country. This is sometimes measured by the Human Development Index (HDI). Table 1.1 shows the rank order of selected countries by the HDI and compares it with the rank by Gross Domestic Product (GDP) of that country.

In order to understand how people make decisions, governments in the United States (US), the United Kingdom (UK) and Australia established Behavioural Insights Teams. They came to be known as the Nudge Units as they used nudge theories from behavioural economics.

It was hoped that this approach would help to achieve an increase in well-being as well as in economic growth and GDP. Nudge policies were used, with some success, to get people back to work, encourage them to pay their taxes on time and give them good reasons to save for future pensions or to study for improved qualifications.

They were not, however, sufficient to eliminate government budget deficits which remained at a high level. There was an ever-rising demand for public services but this was not matched by an equal rise in tax revenues so the deficit increased.

Eliminating the government budget deficit continued to be a problem. One method of dealing with the problem was to increase taxation. However, tax rates were already high and even higher tax rates would not result in the increase in revenue that was needed. An alternative option was to increase government borrowing. There might be a strong case to support economic growth, but increasing the deficit in order to achieve this could risk causing another financial crisis.

A third option was to reduce government expenditure on public services. This could be achieved without causing a reduction in the quality of the service and a reduction in well-being if increases in productivity took place. Without continued increases in productivity, however, further cuts in spending could have serious long-term detrimental effects, especially in health provision and education.

Table 1.1 Rank of selected countries by HDI and GDP in 2017

	Rank	HDI		Rank	GDP (millions US$)	
Norway	1	0.89		29	391 959	
Australia	3	0.86		13	1 359 723	
Germany	5	0.85		4	3 423 287	
UK	13	0.83		5	2 496 757	
Thailand	70	0.58		26	432 898	
Botswana	103	0.43		115	15 564	
Pakistan	117	0.38		43	251 487	
Eswatini	121	0.36		157	3 938	

Sources: RSA Issue 1, 2017

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(a) What is meant by *nudge theory*? [2]

(b) Consider whether the information provides any evidence that nudge theory could increase an economy's GDP. [6]

(c) Distinguish between demand-side and supply-side policies and identify and explain **one** demand-side policy and **one** supply-side policy from the information. [6]

(d) The information is entitled 'In pursuit of well-being'. Discuss whether the information supports the idea that GDP is a good measure of well-being. [6]

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Section B

Answer **two** questions.

2 Discuss whether competitive markets in the private sector are the best way to achieve an efficient allocation of resources. [25]

3 **(a)** Explain what is meant by a 'consumer's equilibrium position' in indifference curve theory and how it can be used to form a demand curve. [12]

(b) One of the world's first filmed singing commercials advertised a soft drink. It stated that, for the same price, consumers would get twice as much of that drink than that of its major rival. This made it cheaper and was similar to a price reduction. Its rival responded by an advertising campaign stating that its own drink was superior to the first firm's inferior product.

Discuss whether it is possible to use diagrams from indifference curve theory to illustrate how a consumer might react to these two advertising campaigns. [13]

4 'A firm is fully aware of market conditions and its best rational interest would be achieved by pursuing the clearly defined objective of maximising profits.'

Consider whether this statement has any merit in different market structures. [25]

5 After negotiation, the workers in an industry obtained from employers higher wage rates. The employers' spokesperson said 'the cost of the deal would have to be met through improved productivity or by reductions in other costs'.

Analyse whether this deal can be incorporated into the economic theory of wages and consider the possible outcome for employment of such a deal. [25]

6 **(a)** Explain what economists mean by an inflationary gap and discuss why this is considered to be an economic problem. Use a diagram(s) to support your answer. [12]

(b) How far would you agree that the use of monetary policy is the most effective way to solve the problem of an inflationary gap? [13]

7 **(a)** 'Developing countries have low levels of productivity and a high dependency ratio.'

Explain the meaning of these **two** characteristics and consider whether they are linked. [12]

(b) Assess the view that foreign direct investment remains the key to economic growth in developing countries. [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 9708/43

1(a) Nudge theory comes from behavioural economics. It is the use of policies that influence people's behaviour by persuasion, example or the way choices are presented (for example a default option), rather than by laws, bans or large financial incentives, so that people choose in a way that helps achieve a government aim such as higher saving or paying taxes on time.

1(b) The information gives some evidence. Nudge policies were used "with some success" to get people back to work. More people in work reduces unemployment and raises output and incomes directly, and the extra spending has a multiplier effect, so GDP rises. Nudging people to pay their taxes on time raises tax revenue, which the government could spend on projects such as infrastructure that increase aggregate demand and productive capacity. Encouraging people to study for better qualifications raises skills and labour productivity, shifting LRAS to the right, and saving for pensions provides funds for investment, so long-run growth in GDP may rise.

However, the evidence is weak. The passage says only that the policies had "some success" and gives no figures, and Table 1.1 shows GDP for one year only, so there is no data on GDP before and after the nudge units were set up. Any rise in GDP could be due to other factors. The policies were "not sufficient" to reduce the budget deficit, and higher saving reduces consumption in the short run. So the information suggests nudge theory could increase GDP, but it does not prove it.

1(c) Demand-side policies (fiscal and monetary policy) change the level of aggregate

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demand, so they mainly affect actual output, unemployment and inflation in the short run. Supply-side policies aim to increase the productive capacity and efficiency of the economy, shifting the LRAS curve to the right, so they raise potential output in the long run.

Demand-side policy: increasing taxation to reduce the budget deficit. Higher taxes reduce disposable income and so consumption, which reduces aggregate demand (AD shifts left), while the deficit falls as revenue rises. (Higher government borrowing to support growth would instead raise AD.)

Supply-side policy: encouraging people to study for improved qualifications. This raises the skills of the labour force, so labour productivity rises and the economy can produce more output from the same resources, shifting LRAS to the right. Higher productivity in public services is a similar supply-side effect.

1(d) Well-being is measured here by the HDI, which combines income per head with life expectancy and education. There is some link with GDP: the two lowest countries by HDI, Botswana (103) and Eswatini (121), also have low GDP ranks (115 and 157), and Germany is ranked 5 by HDI and 4 by GDP.

However, for most countries the ranks are very different. Norway has the highest HDI (rank 1, 0.89) but is only 29th by GDP ($391 959m), while the UK has a much larger GDP (5th) but is 13th by HDI. Thailand has a slightly larger GDP than Norway (26th) but an HDI rank of 70, and Pakistan is 43rd by GDP but 117th by HDI. So a high GDP does not mean high well-being.

Also, the GDP figures are totals, not per head, and are not converted at purchasing power parity, so they mainly reflect the size of the population; Norway has a small population and a very high GDP per head. GDP also ignores income distribution, leisure, health and the environment. Overall the information does not support the idea that total GDP is a good measure of well-being, although GDP per head at PPP would be a better guide.

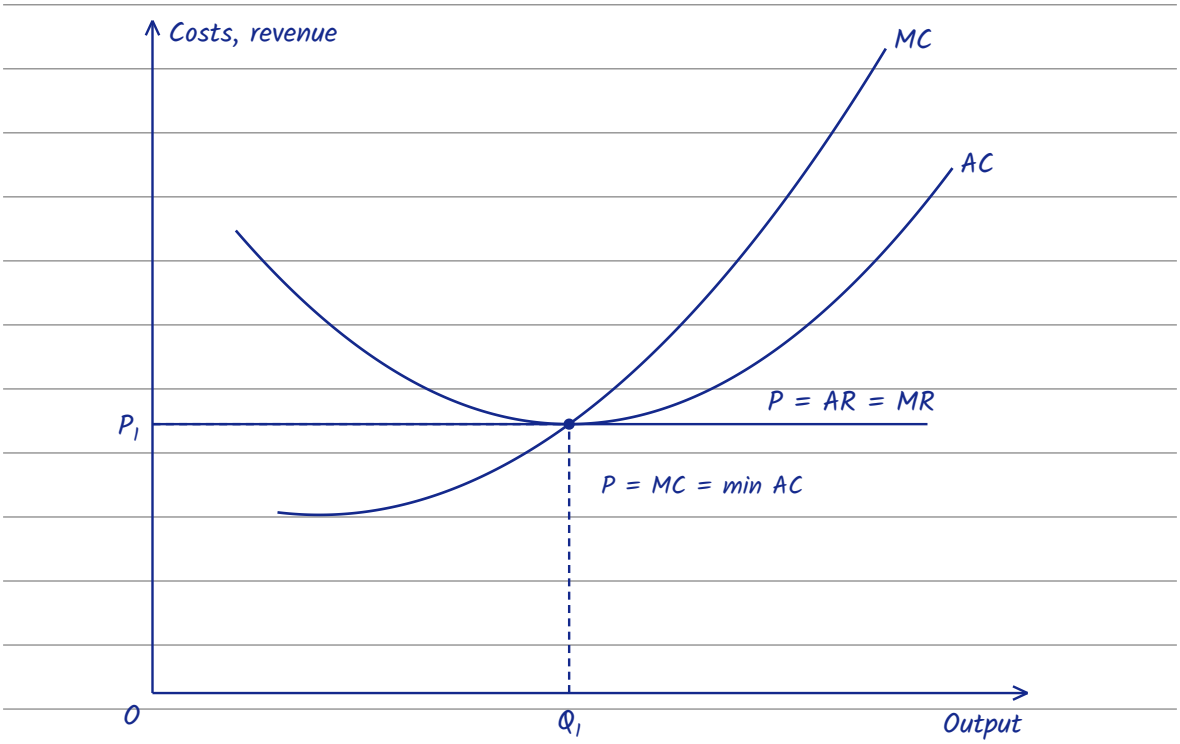
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An efficient allocation of resources means that resources are used to produce the goods and services society wants most, at the lowest possible cost. Productive efficiency is where output is produced at the minimum point of the average cost curve, so no resources are wasted. Allocative efficiency is where price equals marginal cost (P = MC), so the value consumers place on the last unit equals the cost of the resources used to produce it. When both are achieved in all markets the economy is Pareto optimal: no one can be made better off without making someone else worse off. Dynamic efficiency refers to improvements in efficiency over time through innovation and investment.

A competitive market in the private sector is one with many firms competing for customers, with low barriers to entry, where prices are set by supply and demand. The most competitive structure is perfect competition, with many small price-taking firms, a homogeneous product, perfect information and free entry and exit. Each firm maximises profit where MC = MR. If firms make supernormal profit, new firms enter, market supply rises and the price falls until only normal profit is earned; losses cause firms to leave. So in the long run P = MR = MC = minimum AC.

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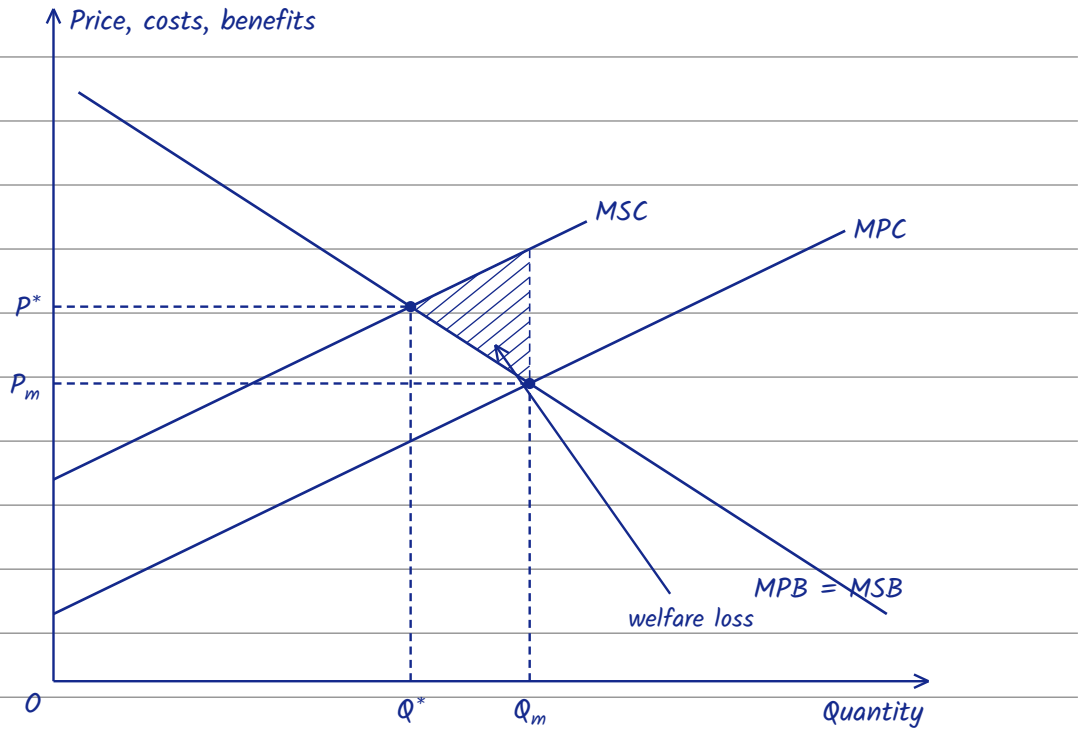
The diagram shows the perfectly competitive firm in long-run equilibrium at output QI and price PI. Because P = MC, the firm is allocatively efficient, and because it produces at the minimum of AC it is productively efficient. The price mechanism also signals where resources are wanted: a rise in demand raises the price and profit, attracting resources into that industry. This supports the view that competition, driven by self-interest and the profit motive, allocates resources efficiently without any government planning.

However, "competitive markets" do not always mean perfect competition. In monopolistic competition firms sell differentiated products and face a downward-sloping demand curve. In the long run free entry removes supernormal profit, so P = AC, but this is on the falling part of the AC curve, so firms have excess capacity and are not productively efficient, and P > MC, so they are not allocatively efficient. Spending on advertising and branding may also waste resources. Yet consumers benefit from variety and choice, which the efficiency rules ignore. Contestable market theory suggests that even a market with a few large firms can behave efficiently if entry and exit are free and costless, because

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the threat of hit-and-run entry keeps prices close to average cost.

Competitive markets also fail. If production creates external costs, such as pollution, firms produce where MPC = MPB at Qm, not where MSC = MSB at Q^*, so there is over-production and a welfare loss, shown by the shaded area below. Individual actions that are rational for each firm are not best for society as a whole.



Public goods such as street lighting and defence are non-excludable and non-rival, so the free-rider problem means private markets will not provide them at all. Merit goods such as education and healthcare are under-consumed because of information failure, and demerit goods are over-consumed. Markets also produce an unequal distribution of income, which may be efficient in the Pareto sense but not equitable. In these cases government intervention, through taxes on negative externalities, subsidies for merit goods, direct provision of public goods and regulation, is needed to move output towards the socially optimum level.

Evaluation: perfect competition is a theoretical benchmark; its assumptions, such as perfect information and identical products, rarely hold, so real competitive

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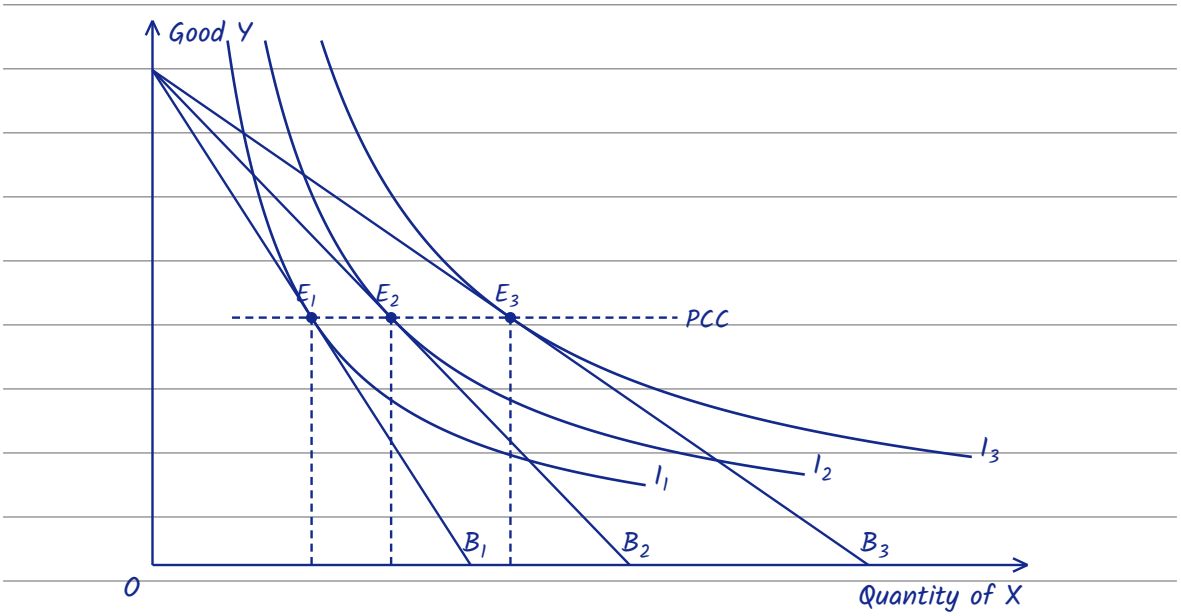
markets only approximate its efficiency. Its efficiency is also static: firms earning only normal profit have few funds for research and development, so a large firm with supernormal profit may be more dynamically efficient and gain economies of scale, giving lower costs and prices. Equally, government intervention is not always better, because of government failure: external costs are hard to measure, so a tax may be set at the wrong level, and state-run firms may lack the profit incentive to cut costs. The best outcome therefore depends on the market concerned.

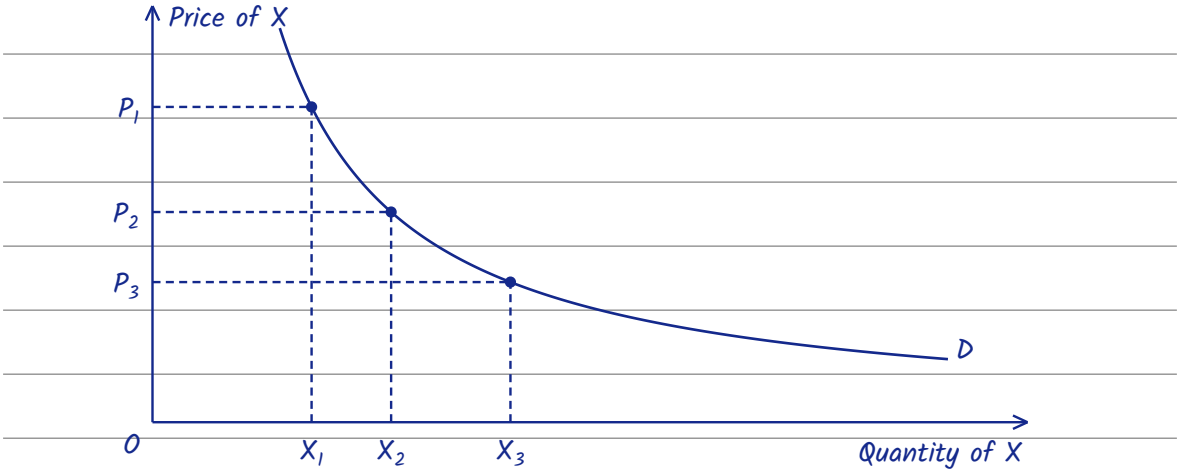
In conclusion, competitive private markets are the best way to achieve productive and allocative efficiency for most ordinary goods, where there are many firms, good information and no significant externalities. They are not the best way where there is market failure, such as public goods, merit goods and external costs; there, carefully designed government intervention working alongside competitive markets is needed to achieve an efficient allocation of resources.

3(a) An indifference curve shows all the combinations of two goods that give a consumer the same level of satisfaction. It slopes downwards and is convex to the origin because of the diminishing marginal rate of substitution (MRS): the more of good X the consumer has, the less of good Y they are willing to give up for one more unit of X. Higher curves represent higher satisfaction. The budget line shows all the combinations the consumer can just afford with a given income and prices; its slope equals the price ratio Px ÷ Py.

The consumer's equilibrium position is the combination that maximises satisfaction given the budget, which is where the budget line is tangent to the highest attainable indifference curve. At this point the MRS equals the price ratio, MRS = Px ÷ Py. Any other affordable point lies on a lower indifference curve. In the top diagram the consumer is initially in equilibrium at E1 on I1, buying X1 of good X with budget line B1.

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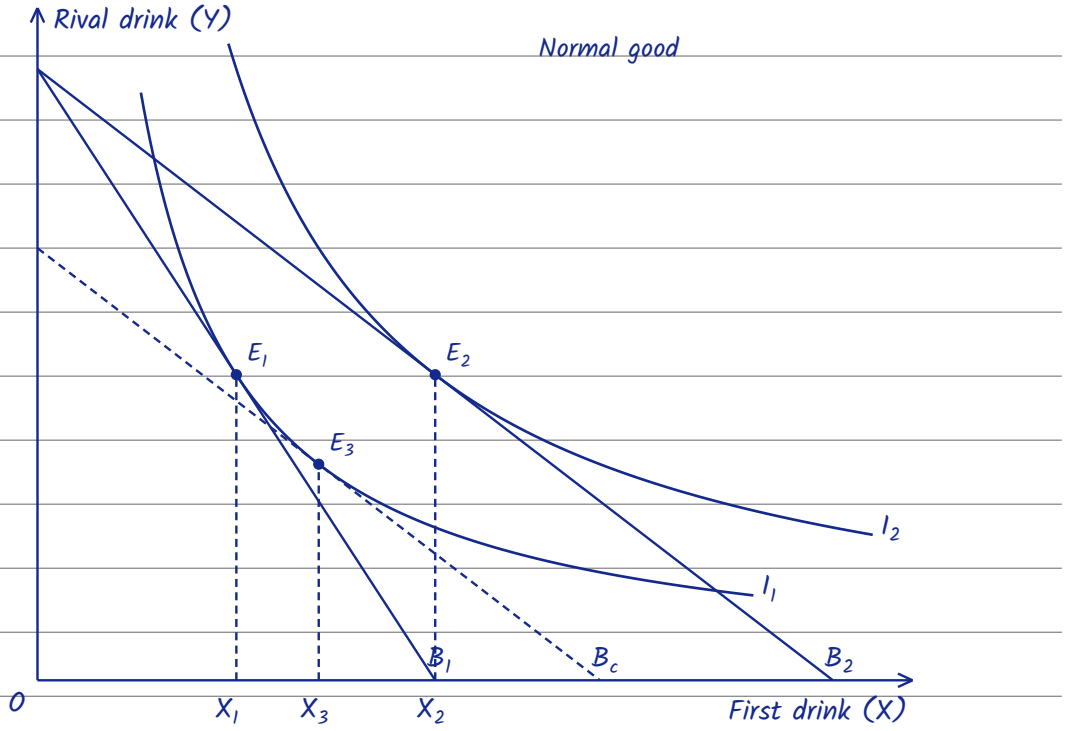


To form a demand curve, the price of X is lowered while income, the price of Y and tastes are held constant. The budget line pivots outwards about the Y intercept, from B1 to B2 and then B3, because the same income now buys more X. The consumer reaches new equilibria at E2 on I2 and E3 on I3, buying X2 and then X3. Joining these equilibria gives the price-consumption curve (PCC). Each equilibrium gives one price and the quantity demanded at that price: (P1, X1), (P2, X2) and (P3, X3). Plotting these pairs on a diagram with the price of X on the vertical axis, as in the lower diagram, gives the individual demand curve D. It slopes downwards for a normal good because a lower price leads to a higher quantity demanded. Adding the individual demand curves horizontally gives the

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market demand curve.

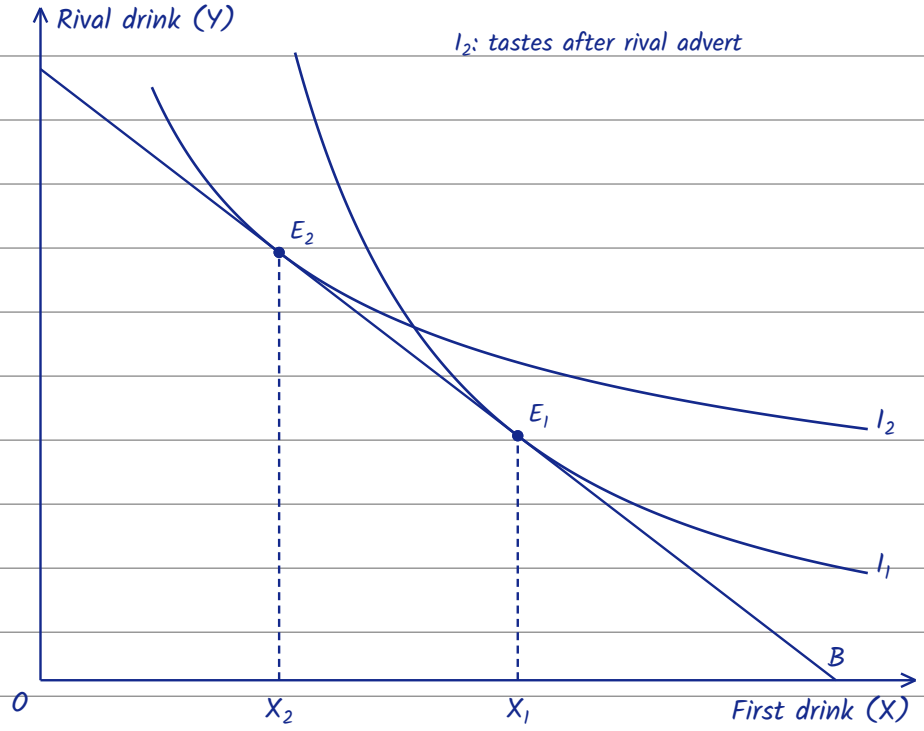
3(b) Yes, both campaigns can be shown. Let good X be the first firm's drink and good Y its rival. Offering twice as much drink for the same price halves the price per unit of X, so it is analysed exactly like a price fall: the budget line pivots outwards from B1 to B2 in the first diagram, and the consumer moves from E1 on I1 to E2 on the higher curve I2. The total effect can be split into two parts using the compensated budget line Bc, drawn parallel to B2 and tangent to the original curve I1.



The substitution effect, E1 to E3, is the change caused only by the change in relative prices: X is now relatively cheaper than the rival drink, so the consumer substitutes X for Y and buys more, from X1 to X3. The substitution effect of a price fall always increases the quantity demanded. The income effect, E3 to E2, is the change caused by the rise in real income. If the drink is a normal good, demand rises further, from X3 to X2, so the advert causes a large increase in sales.

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The rival's campaign does not change prices or income, so the budget line stays the same. Instead it tries to change the consumer's preferences by persuading them that X is inferior. This can be shown by a change in the shape of the indifference map. If the consumer now values the first drink less, the MRS of Y for X falls, so the indifference curves become flatter, as with I2 in the second diagram. With budget line B unchanged, the tangency moves from E1 to E2 and the consumer buys less of X (X1 to X2) and more of the rival drink.



The advert may also make consumers see X as an inferior good in the economic sense. Then the income effect of the price cut is negative: as real income rises the consumer switches towards the "superior" rival drink, which offsets part of the substitution effect, so sales of X rise by less than in the first diagram. Only if the negative income effect were larger than the substitution effect, as for a Giffen good, would sales fall, which is very unlikely for a soft drink that takes a tiny share of income.

Evaluation: there are limits to the diagrams. Indifference curve theory assumes given, stable preferences, so showing a change in tastes is an adjustment to the

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model rather than a result of it, and the size of the shift cannot be predicted. Indifference curves cannot be observed or measured, and the model assumes a rational consumer choosing between only two goods with perfect information, whereas advertising works partly by influencing emotions and habits. In reality the outcome depends on how persuasive each campaign is and on brand loyalty.

In conclusion, it is possible to use indifference curve diagrams: the first campaign is clearly shown as a price fall with substitution and income effects, and the second as a change in the shape of the indifference curves or a negative income effect. The diagrams show the direction of the reaction well, but not its size.

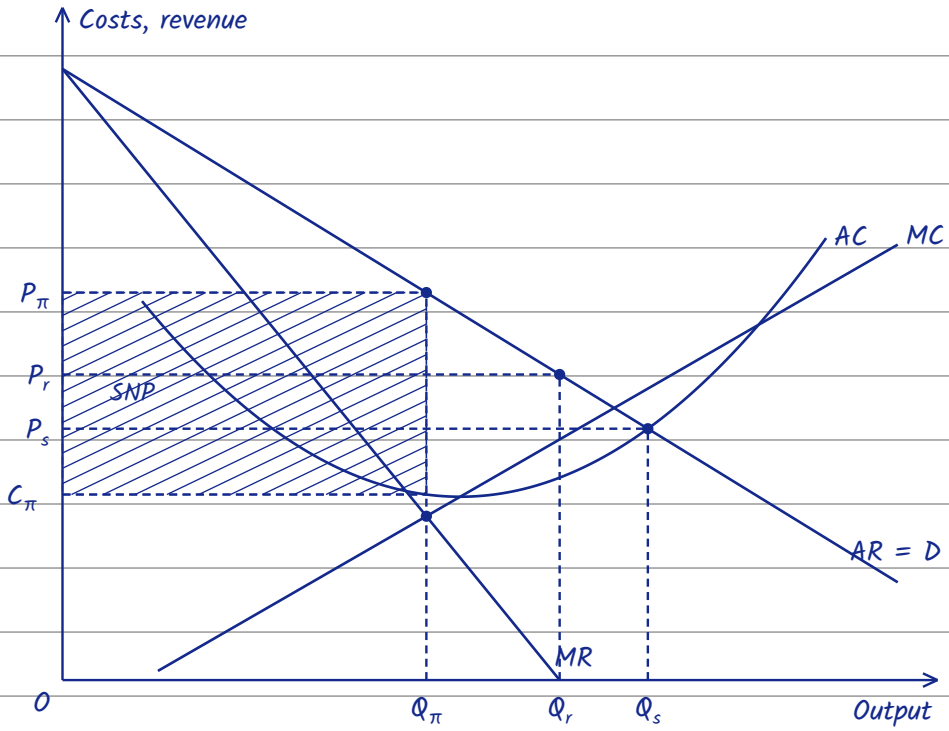
4 The statement makes two assumptions: that firms have full information about market conditions (demand, costs and rivals' behaviour) and that their best interest is to maximise profit. Profit maximisation occurs where marginal cost equals marginal revenue (MC = MR), with MC rising through MR. If MR > MC, producing one more unit adds more to revenue than to cost, so profit rises; if MC > MR, profit falls. Traditional theory assumes all firms aim for this.

In perfect competition the statement has most merit. There is perfect information, so the firm knows the market price, which it takes as given (P = AR = MR). It must maximise profit to survive: if it charges above the market price it sells nothing, and in the long run it earns only normal profit, so any firm that does not minimise costs and produce where MC = MR makes a loss and leaves the industry. Here profit maximisation is not just rational but necessary for survival.

In monopoly the firm faces the market demand curve and has barriers to entry. Profit is maximised at $Q\pi$, where MC = MR, with price $P\pi$ read from the AR curve, giving the supernormal profit shaded in the diagram. A monopolist with market power can choose its price and output, but this requires it to know its MC and MR curves accurately. In practice demand is uncertain and firms may not know their marginal costs, so they use rules of thumb such as cost-plus pricing

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(average cost plus a mark-up), which only approximates maximum profit.

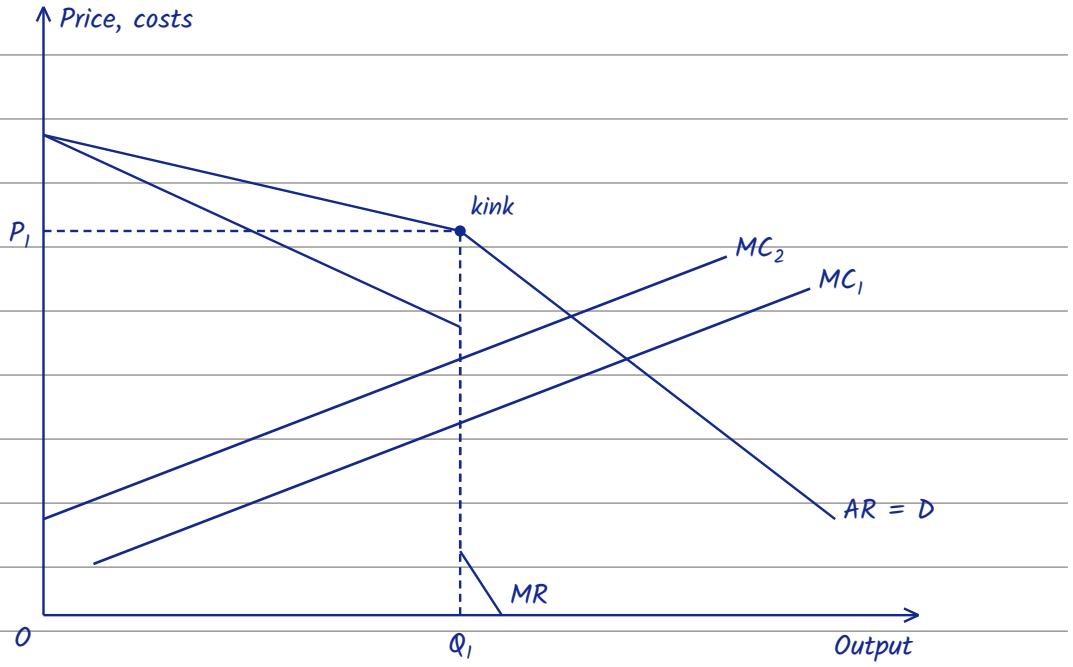


Because barriers protect a monopolist, it can also choose not to maximise profit. Where there is a divorce of ownership and control, managers may pursue their own aims, as in the principal-agent problem. Baumol suggested managers maximise sales revenue, producing where MR = 0 at Qr with a lower price Pr, because their pay and status are linked to the size of the firm. Others may maximise sales volume subject to a minimum profit, up to Qs where AR = AC, so only normal profit is made. Williamson's managerial theory suggests managers maximise their own utility (salaries, staff, perks), and behavioural theories suggest firms satisfice, aiming for a satisfactory level of profit that keeps shareholders content while meeting the aims of other stakeholders.

In oligopoly firms are interdependent, so a firm cannot be fully aware of market conditions, because the outcome depends on how rivals react. The kinked demand curve model assumes rivals will match a price cut but not a price rise, so demand is elastic above the price PI and inelastic below it, creating a gap in the MR curve. Costs can change from MC1 to MC2 with no change in the profit-maximising

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price, so prices are sticky and firms compete through advertising and branding instead. Firms may follow a price leader, collude, or use limit pricing, setting a price below the short-run profit-maximising level to deter entry. Game theory shows that a firm may choose a safe strategy rather than the most profitable one because it does not know what rivals will do.



In contestable markets, where entry and exit are free, the threat of entry means incumbents may keep prices low and earn only normal profit, so short-run profit maximisation is not in their long-run interest. Similarly, a monopolist may hold back from maximum profit to avoid investigation by the competition authorities. Monopolistic competition involves many firms and differentiated products; firms may try to maximise profit, but in the long run new entry leaves only normal profit. Some firms, such as social enterprises, have non-profit aims altogether. Evaluation: the statement has some merit, because in the long run any private firm must make at least normal profit to survive and keep its shareholders, and many firms do try to make as much profit as they can. It is also a useful simplifying assumption that predicts behaviour well in competitive markets. However, the claim that firms are "fully aware" of market conditions is unrealistic

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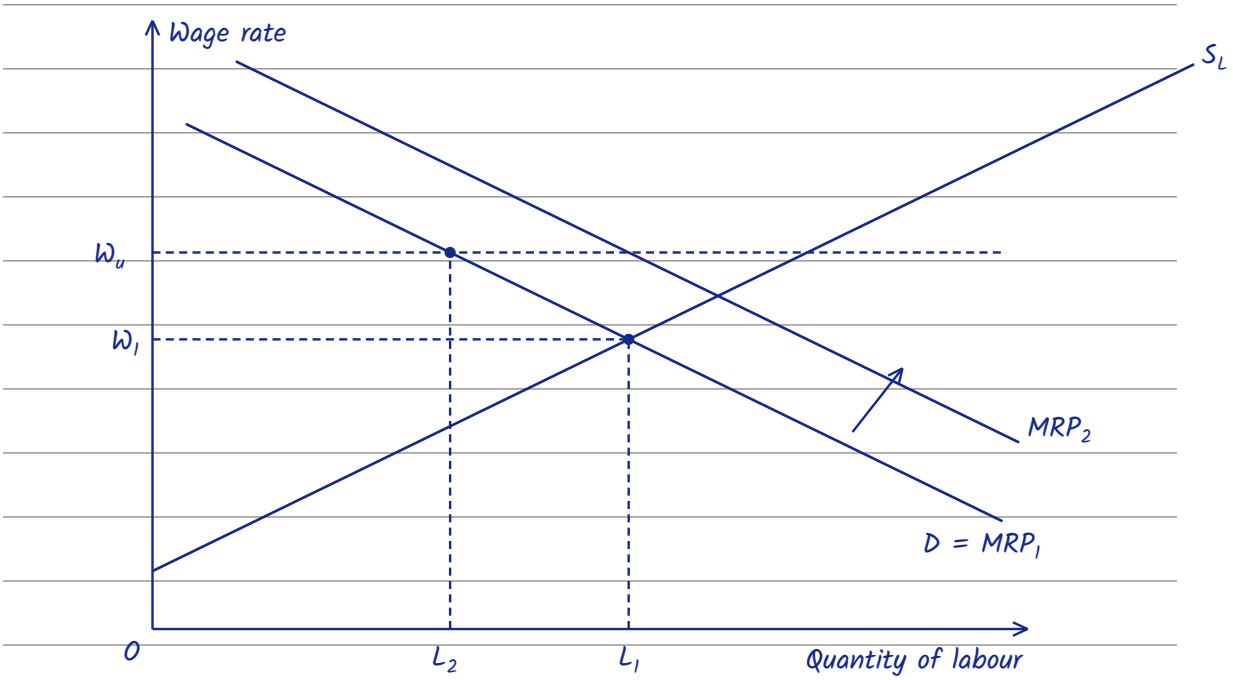
except in the theoretical model of perfect competition, and the claim that profit maximisation is "clearly defined" ignores the difficulty of measuring MC and MR and the choice between short-run and long-run profit.

In conclusion, the statement holds most strongly in perfect competition, where perfect information exists and firms must maximise profit to survive. The more market power and uncertainty there is, as in monopoly and especially oligopoly, the less merit it has, because firms lack full information and can afford to pursue other objectives such as growth, sales revenue, market share or satisficing.

5 The economic theory of wages is the marginal revenue product (MRP) theory. The demand for labour is a derived demand: it depends on the demand for the product. A profit-maximising firm employs workers up to the point where the marginal cost of labour equals the MRP of labour, where MRP = marginal physical product × marginal revenue. Because of diminishing returns, MRP falls as more workers are employed, so the MRP curve is the firm's demand curve for labour. In a competitive labour market the wage is set where the demand for labour equals the supply, at W1 and employment L1 in the first diagram.

A negotiated deal between a trade union and employers can be incorporated into this theory. Collective bargaining sets a wage floor Wu above the market wage W1. At Wu the firm will only employ L2 workers, where Wu = MRP1, while more workers want to work, so employment falls from L1 to L2 and there is unemployment. Costs rise and, unless the firm can pass them on as higher prices, profits fall. How large the fall in employment is depends on the elasticity of demand for labour: it is more elastic if labour costs are a large share of total costs, if capital is easily substituted for labour, and if demand for the product is price elastic.

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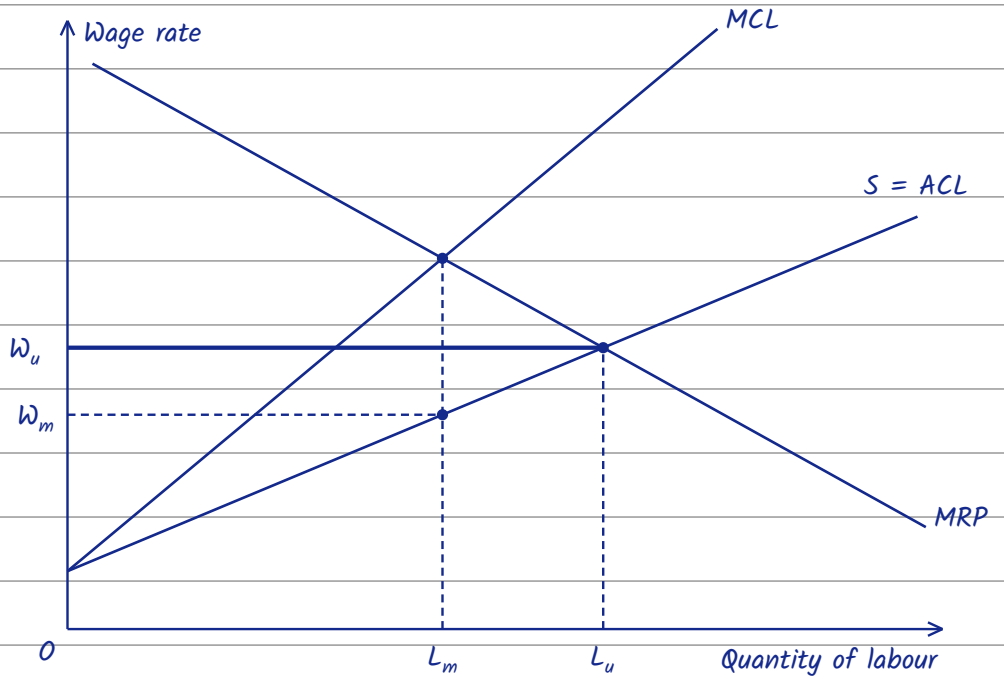
The employers' statement suggests two ways to meet the cost. First, improved productivity. If workers produce more per hour, for example through better training, new technology or changes in working practices agreed in the deal, the marginal physical product rises and the MRP curve shifts right from MRP1 to MRP2. At the higher wage Wu the firm can then employ L1 workers again, so there is no loss of jobs and unit labour costs do not rise. This is a productivity deal, and it means the higher wage is justified by higher MRP.

Second, reductions in other costs, such as raw materials, energy or overheads. These do not change the MRP of labour, so on its own the theory still predicts lower employment at the higher wage, but lower costs mean the firm's total costs and profits may be unchanged, so it may choose not to reduce its workforce. However, cutting other costs may involve replacing workers with machines, which would reduce employment further.

The theory can also be applied to imperfect labour markets. If the employer is a monopsonist (a single or dominant buyer of labour), it must raise the wage to attract more workers, so its marginal cost of labour (MCL) is above the average cost of labour (the supply curve). It employs Lm workers, where MCL = MRP, and

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pays only Wm, read from the supply curve, which is below the MRP of the last worker.



If the union negotiates a wage Wu above Wm, the MCL becomes horizontal at Wu up to the supply curve, because the firm can employ more workers without paying a higher wage. The firm now employs where Wu = MRP at Lu, so both wages and employment rise. In this case the deal increases employment, and the cost is met from the monopsony's supernormal profit. Employment is highest when Wu is set where MRP crosses the supply curve; a wage above this would reduce employment again, and only a wage above the MRP at Lm would make it fall below Lm.

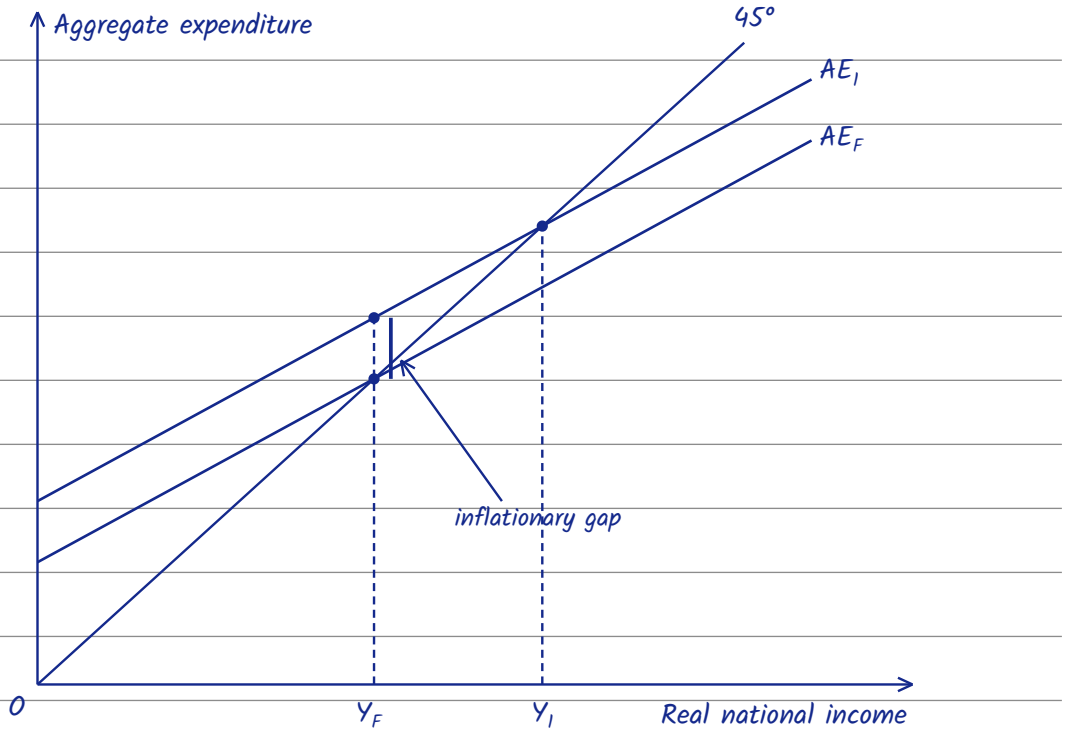
Evaluation: the theory assumes firms can measure the MRP of each worker, which is very difficult for many jobs, especially in services where output is hard to value. Wages are also affected by bargaining power, government minimum wages, discrimination and non-monetary factors, which the simple theory ignores. The outcome for employment depends on the time period: in the short run firms may keep workers because it is difficult to change production methods, but in the long run they may substitute capital for labour. It also depends on whether the productivity gains actually happen; if they do not, the firm may face higher costs,

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raise prices and lose sales.

In conclusion, the deal can be incorporated into the economic theory of wages. In a competitive labour market it is likely to reduce employment unless productivity rises enough to shift the MRP curve to the right. In a monopsony market, however, a negotiated wage can raise both wages and employment. The most likely outcome is little change in employment if the deal is genuinely linked to productivity improvements.

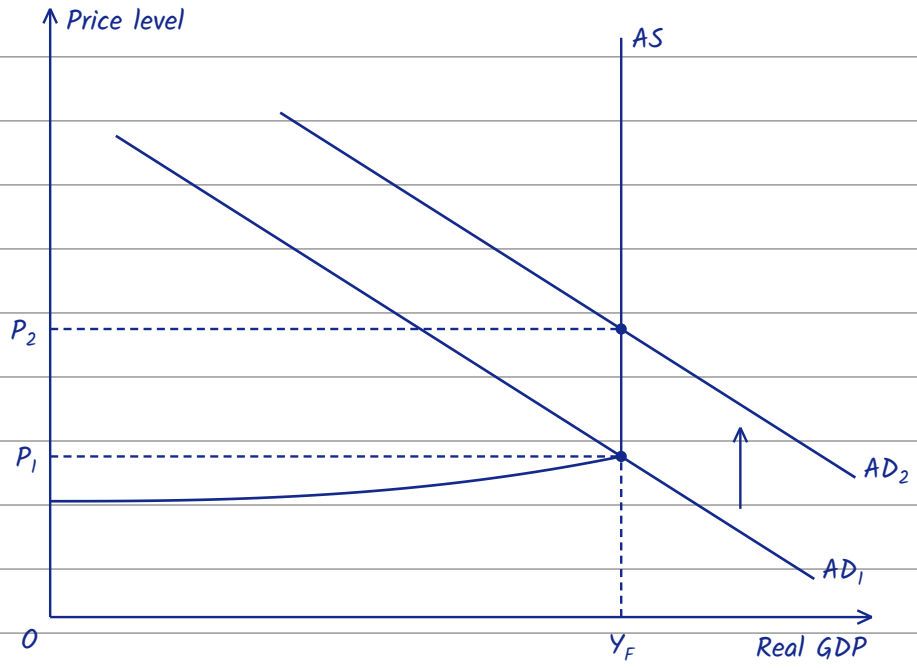
6(a) An inflationary gap exists when the level of aggregate expenditure (aggregate demand) at the full employment level of national income is greater than the full employment output. Since real output cannot rise much above full employment, the excess demand pulls up the price level rather than output. In the 45° line diagram the inflationary gap is the vertical distance between AE1 and the 45° line at YF, the full employment income. Equilibrium at Y1 is above YF in money terms only, as the extra spending causes inflation; to remove the gap AE must fall to AEF.



In the AD/AS diagram, AD rises from AD1 to AD2 when the economy is already at

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full employment YF, where AS is vertical, so the price level rises from P1 to P2 with no increase in real GDP. This is demand-pull inflation.



An inflationary gap is a problem for several reasons. First, it creates inflationary expectations: workers demand higher wages to protect their real incomes, raising firms' costs, so there may be a wage-price spiral that is hard to stop. Second, inflation creates uncertainty, which discourages private investment, reducing future growth. Third, if domestic inflation is higher than in other countries, exports become less price competitive and imports more attractive, worsening the current account and putting downward pressure on the exchange rate. Fourth, it redistributes income: savers lose if interest rates are below inflation, people on fixed incomes lose purchasing power, while debtors gain because the real value of their debts falls. There are also menu and shoe-leather costs.

The most important effect depends on the economy. For an open economy that relies on exports, the loss of international competitiveness is probably the most serious problem. Expectations matter most in the long run, because once inflation becomes built into wage bargaining it is costly to reduce. If inflation is mild and expected, its redistributive effects are small, since contracts and interest rates

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adjust.

6(b) Monetary policy is the use of interest rates, the money supply and the exchange rate by the central bank to influence aggregate demand. To close an inflationary gap, contractionary monetary policy is needed. The main tool is raising interest rates. This increases the cost of borrowing, so consumers buy fewer durable goods on credit and firms invest less; it rewards saving; it raises mortgage payments, reducing disposable income; and it may attract hot money inflows, causing the exchange rate to appreciate, which makes imports cheaper and exports dearer. All of these reduce aggregate demand, shifting AE down towards AEF, so the gap closes. A second tool is to reduce the money supply or the growth of credit, for example by selling government bonds (open market operations), raising banks' reserve requirements or reversing quantitative easing, which reduces bank lending.

Monetary policy has strengths. Interest rates can be changed quickly and in small steps by an independent central bank, which gives the policy credibility and helps control inflationary expectations; an inflation target anchors expectations. However, there are problems. There is a long time lag, often 18 months to two years, before the full effect is felt. If confidence is high, consumers and firms may keep borrowing despite higher rates, so demand is interest inelastic. A higher interest rate also hits investment, harming long-run growth, raises costs for mortgage holders, and an appreciation harms exporters. Controlling the money supply directly is difficult because banks create credit, and in an open economy capital flows limit control.

Fiscal policy is the main alternative. The government can raise direct taxes or cut government spending, reducing aggregate demand directly, and the effect is magnified by the multiplier. Higher income tax affects all households, not just borrowers. However, fiscal changes are slow to implement, are politically unpopular, and cuts to spending on public services such as health and education may reduce

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welfare and future productivity. Supply-side policies, such as training, deregulation and incentives to invest, increase productive capacity, shifting LRAS to the right so that the extra demand can be met without inflation. They tackle the cause of the gap in the long run, but they take many years to work and so cannot deal with an immediate inflationary gap.

In conclusion, I largely agree. Monetary policy, especially changes in interest rates, is usually the most effective way to close an inflationary gap in the short to medium term because it is flexible, quick to change and credible when set by an independent central bank. It works best when combined with tighter fiscal policy if the gap is caused by government spending, and with supply-side policies to raise capacity in the long run. Its effectiveness depends on how responsive spending is to interest rates and how openness to trade and capital affects the economy.

7(a) Productivity is output per unit of input over a period of time, usually labour productivity, output per worker per hour. Developing countries have low productivity because workers have little capital to work with, low levels of education, skills and health, and use old technology; many work in subsistence agriculture or the informal sector, where output per worker is very low. Poor infrastructure such as unreliable power and roads also reduces output.

The dependency ratio is the number of dependants (people aged under 15 and over 64) divided by the working-age population, usually expressed per 100 people of working age. Developing countries have a high dependency ratio mainly because of high birth rates, so there is a large proportion of young dependants, while life expectancy is lower so there are relatively few old people.

The two characteristics are linked in both directions. A high dependency ratio can cause low productivity. Income must be shared among more people, so households and the government have less to save, and with low savings there is little investment in capital. Government spending goes on supporting a large young

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population rather than on infrastructure. Children may be kept out of school to work, reducing future human capital. All of this keeps productivity low, creating a vicious circle of poverty.

In the other direction, low productivity means low incomes. Poor families have more children as a source of labour and security in old age, and with poor healthcare infant mortality is high, so birth rates stay high, keeping the dependency ratio high. If productivity rises, incomes and GDP rise; better health care and education, especially for women, reduce the death rate and then the birth rate, as in the demographic transition, so the dependency ratio falls. A falling ratio then gives a "demographic dividend", with a larger share of workers raising output per head.

However, the link is not automatic. Productivity depends on other factors such as technology, institutions and investment, and some developing countries with high dependency ratios have raised productivity through foreign investment. Developed countries such as Japan have rising dependency ratios because of ageing populations, yet high productivity. In conclusion, the two characteristics are linked and reinforce each other in many developing countries, but the relationship depends on the policies a country follows.

7(b) Economic growth is an increase in real GDP over a period of time; long-run growth is an increase in productive capacity. Foreign direct investment (FDI) is investment by a firm in one country in productive assets in another, usually by a multinational corporation (MNC) building factories, buying firms or setting up operations.

FDI can be key to growth. It is an injection that increases aggregate demand with a multiplier effect, and it adds to the capital stock, filling the savings gap that developing countries face because their low incomes mean low savings. MNCs bring new technology and management methods, train local workers so labour skills

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improve, and may fund research and development, so productivity rises and LRAS shifts right. They create jobs, pay taxes, and their exports earn foreign currency, improving the current account. Countries such as China and Vietnam grew rapidly with large inflows of FDI.

However, FDI has limits. Profits are often repatriated to the MNC's home country, so GNI rises less than GDP. MNCs may use capital-intensive methods creating few jobs, employ local people only in low-skilled roles, exploit cheap labour and natural resources, cause pollution, and use their bargaining power to win tax breaks. FDI is footloose and may leave if costs rise elsewhere, and it may crowd out local firms.

There are alternative routes to growth. Export-led growth, based on comparative advantage and access to world markets, allowed countries such as South Korea to grow. Direct government investment in infrastructure, education and health builds the human and physical capital needed for growth, and attracts FDI. Structural change from agriculture to manufacturing and services raises productivity. Domestic saving and investment, microfinance, aid and good institutions with low corruption also matter.

In conclusion, FDI is an important contributor to growth, especially where domestic savings are low and technology is lacking, but it is not "the key". Its benefits depend on government policy, such as requirements to train local workers and taxing profits fairly, and on the country already having infrastructure and skills. Sustained growth usually needs a combination of FDI, domestic investment in human capital and export growth.