Cambridge Assessment International Education

# Cambridge International AS & A Level

**ECONOMICS** **9708/41**

Paper 4 A Level Data Response and Essays **May/June 2024**

**2 hours**

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 **one** question.
  - Section C: answer **one** question.
- 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 60.
- The number of marks for each question or part question is shown in brackets [ ].

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## Section A

Answer all parts of Question 1.

**1** **Income inequality**

According to a report by the World Bank, income inequality has declined in some low-income countries in recent years. For example, between 2008 and 2018, the Gini coefficient decreased by more than 5 percentage points in Chile, Colombia and Mexico. In some other countries, such as Ethiopia, India and Indonesia income inequality has remained relatively stable over the past decade while it has increased in China and South Africa.

In low-income countries inequalities of opportunity, in particular the differences in access to education between females and males, appear to pose obstacles to a more equal income distribution. Equality of opportunity becomes an issue of macroeconomic relevance.

Table 1.1 shows Gini coefficients, female/male literacy ratios and the percentages of population in absolute poverty for five countries.

**Table 1.1**

| Country | Gini coefficient | Literacy ratio[1] | % of population below the poverty line |
|---|---|---|---|
| Brazil | 0.53 | 1.01 | 4.2 |
| Mauritius | 0.36 | 0.95 | 10.3 |
| India | 0.35 | 0.90 | 21.9 |
| Egypt | 0.31 | 0.80 | 32.5 |
| Pakistan | 0.30 | 0.67 | 24.3 |

[1]Literacy ratio = female literacy rate ÷ male literacy rate

*Source: CIA World Factbook*

It is important to note that income inequality is a complex issue that can be influenced by a wide range of factors, including economic growth, government policies and global economic trends. The government can use fiscal and supply-side policies to influence and change income distribution. These could lead to higher Gross Domestic Product (GDP) and increased economic growth.

While the Gini coefficient is the most widely used measure of income inequality, it is important to note that it has limitations. It does not take into account other factors that contribute to inequality such as wealth inequality, and it may not take into account the full extent of inequality in societies with large informal economies.

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**(a)** Describe what is meant by the Gini coefficient and its possible range of values. [3]

**(b)** Distinguish between absolute poverty and relative poverty. [3]

**(c)** Consider whether Table 1.1 supports the conclusion that greater inequality of incomes is linked to poor literacy ratios of females to males **and** leads to greater poverty. [6]

**(d)** Use **one** example of a supply-side policy and **one** example of a fiscal policy to assess how a government might be able to achieve greater equality in the distribution of income. [8]

## Section B

Answer **one** question.

**EITHER**

**2** The long-term equilibrium position in perfect competition is frequently used to illustrate efficient resource allocation in a free market economy.

Explain why this is so and consider what prevents efficiency from being achieved. [20]

**OR**

**3** With the help of an indifference curve diagram, assess the extent to which a rise in price would affect the demand for a normal good differently from the demand for a Giffen good. [20]

## Section C

Answer **one** question.

**EITHER**

**4** In many countries increased government spending is regarded as a cause of economic growth. It is sensible, therefore, for a government to spend more to increase economic growth as it is good for its country.

To what extent do you agree with this argument? [20]

**OR**

**5** National income statistics are often used as a measure of the standard of living.

Consider to what extent national income statistics can be used to compare the standard of living between low-income countries and high-income countries. [20]

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| 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) The Gini coefficient is a measure of how unequally income (or wealth) is distributed across a population. It is calculated from the Lorenz curve: the area between the line of perfect equality and the Lorenz curve, divided by the whole area under the line of perfect equality.

It can take any value from 0 to 1 (0% to 100%). A value of 0 means perfect equality, with every household receiving the same income, and a value of 1 means perfect inequality, with one household receiving all of the income. So Brazil (0.53) is more unequal than Pakistan (0.30).

1(b) Absolute poverty is when a person's income is too low to buy the basic necessities needed to sustain life, such as food, clean water, shelter and clothing. It is measured against a fixed poverty line of income per day, for example the World Bank international poverty line of $2.15 a day.

Relative poverty is when a person's income is low compared with the income of others in the same society, usually defined as below a set percentage (for example 50% or 60%) of median income. So the relative poverty line rises as average incomes rise, and relative poverty can still exist when nobody is in absolute poverty.

1(c) The table does not support the conclusion. The most unequal country, Brazil (Gini 0.53), has the best literacy ratio (1.01, so females are slightly more literate than males) and the lowest poverty (4.2%). The least unequal country, Pakistan (0.30), has the worst literacy ratio (0.67), and Egypt (0.31) has the highest

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poverty (32.5%). Across all five countries the Gini coefficient and the literacy ratio fall together, so greater inequality is linked with better, not poorer, literacy ratios.

There is also no clear link between inequality and absolute poverty: the countries with the higher Gini coefficients, Brazil (0.53, 4.2%) and Mauritius (0.36, 10.3%), have the lower percentages below the poverty line. The pattern is not perfect either, since Pakistan has a lower Gini than Egypt but also less poverty (24.3% against 32.5%).

However, the data cannot show cause and effect. There are only five countries for one point in time, and other factors such as GDP per head are not shown; Brazil and Mauritius are richer than Pakistan, which could explain both better literacy and less poverty. The poverty figures measure absolute poverty only, so the table says nothing about relative poverty, which is more closely linked to inequality. The Gini coefficient may also be inaccurate where the informal economy is large. So the table does not support the conclusion, but it is too limited to reject it firmly.

1(d) Fiscal policy: a more progressive income tax combined with means-tested transfer payments, such as cash transfers to poor families (for example Brazil's Bolsa Família). A progressive tax takes a higher proportion of income from high earners, so the post-tax income of the rich falls, while the revenue raised is paid to low-income households, raising their disposable income. This moves the Lorenz curve towards the line of equality, so the Gini coefficient falls and income is more equally distributed.

However, high marginal tax rates may reduce the incentive to work and invest and may encourage tax avoidance, evasion or emigration of skilled workers. In low-income countries with a large informal economy the tax base is narrow and much income goes unrecorded, so the policy may raise little revenue. Benefits can also create a poverty trap.

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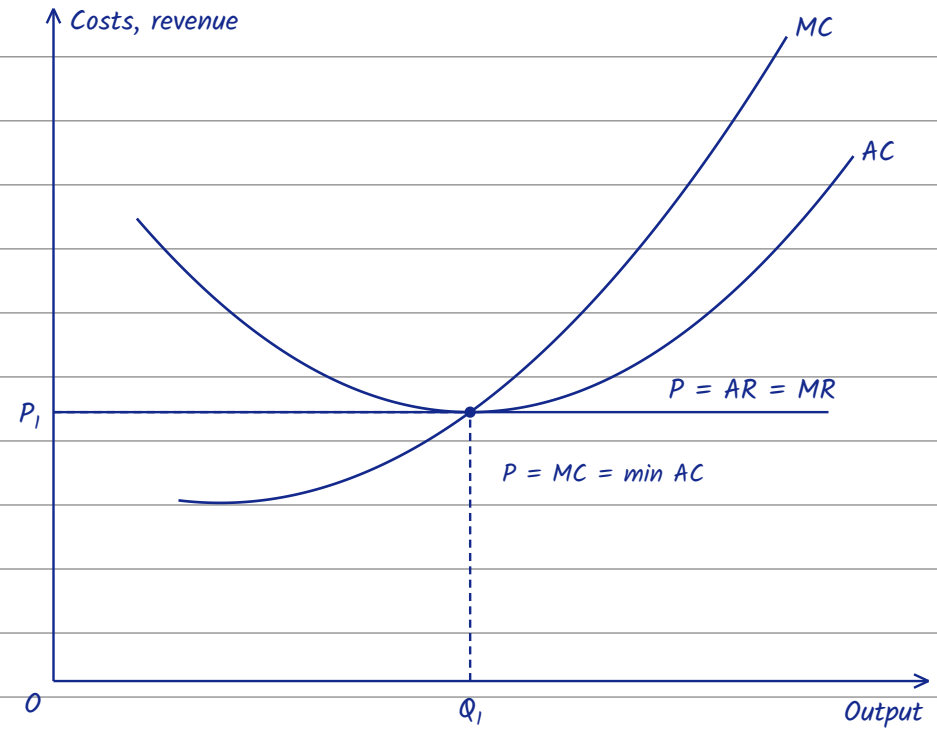
Supply-side policy: more government spending on education and training, for example free secondary schooling for girls and vocational training. This increases human capital, so the productivity and marginal revenue product of low-skilled workers rise and they can move into higher-paid jobs. Closing the gap in female literacy, which the extract says is an obstacle to equality, reduces inequality of opportunity, so incomes become more equal in the long run and GDP may rise too. However, this takes many years to have an effect, has a large opportunity cost, and only works if the quality of education is good and there are jobs for the newly skilled workers. Overall the fiscal policy works quickly but treats the symptoms, while the supply-side policy tackles the causes of inequality, so a combination is most effective.

2

Efficient resource allocation means producing the combination of goods that maximises society's welfare at the lowest cost. It has two parts. 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 make it. Productive efficiency is where output is produced at the lowest point of the average cost curve, so no resources are wasted.

Perfect competition assumes many buyers and sellers, a homogeneous product, perfect information and freedom of entry and exit, so each firm is a price taker facing a horizontal demand curve where P = AR = MR. Each firm maximises profit where MC = MR. If firms earn supernormal profit in the short run, new firms are attracted by the profit and enter freely, which increases market supply and lowers the price until only normal profit is made. If firms make losses, some leave until price rises back. So in long-run equilibrium P = AC as well.

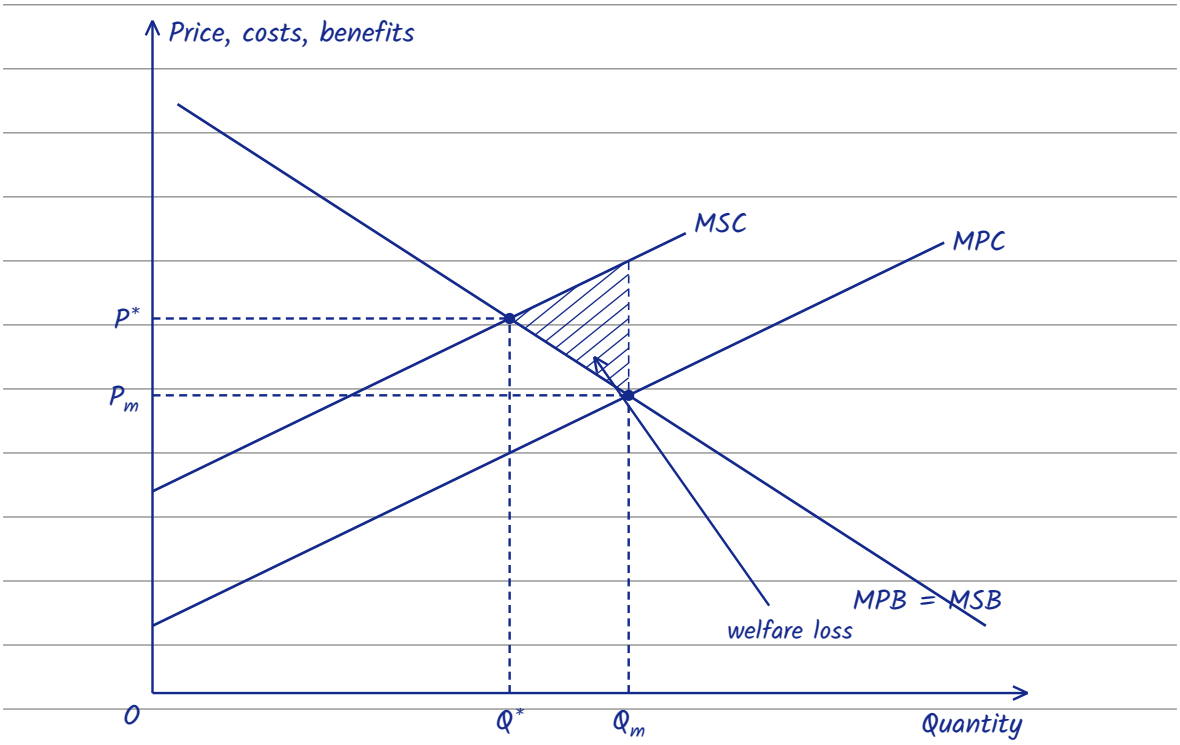
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The diagram shows the long-run equilibrium of the firm at output Q1 and price P1. Because P = MR = MC, the firm is allocatively efficient, and because P = AC at the minimum point of the AC curve, it is productively efficient. This is why the model is used to illustrate the efficiency of a free market: self-interest and competition alone lead firms to produce what consumers want at the lowest possible cost, without any planning. It is also Pareto optimal, as no one can be made better off without making someone else worse off.

However, several things prevent efficiency in real markets. First, externalities: when production creates external costs such as pollution, the market produces where MPB = MPC at Qm rather than where MSB = MSC at $Q^*$, so there is over-production and the welfare loss shown below.

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Second, public goods such as street lighting are non-excludable and non-rival, so the free rider problem means the market fails to provide them at all, and merit goods such as education are under-consumed because consumers lack information about their full benefits. Third, most real markets are imperfectly competitive. A monopoly protected by barriers to entry sets output where MC = MR and charges a price above MC, so it is allocatively inefficient, and it does not produce at minimum AC, so it is productively inefficient; its supernormal profits are not competed away. Where economies of scale are very large, as in a natural monopoly, many small firms could never reach the minimum of the LRAC curve. Information failure and immobility of factors of production also stop resources moving to where they are most valued.

Governments can try to correct these failures by taxing negative externalities, subsidising merit goods, providing public goods directly, regulating monopolies or taking key industries into public ownership.

Evaluation: the efficiency of perfect competition is mainly theoretical. Its assumptions, such as perfect information and identical products, are rarely met, so

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it is a benchmark rather than a description of real markets. It is also only static efficiency: firms earning normal profit have no funds for research and development, so a large firm with supernormal profit may achieve greater dynamic efficiency through innovation and lower costs over time. Allocative efficiency also needs every other market to be efficient; if one market fails, the theory of the second best suggests that moving one market to P = MC may not raise total welfare. Finally, intervention to correct market failure can cause government failure, for example when a tax is set at the wrong level because external costs are hard to measure, or when regulators lack information.

In conclusion, long-run equilibrium in perfect competition is a useful illustration because it is the one market structure in which both allocative and productive efficiency are achieved automatically. In practice, externalities, public and merit goods and market power mean efficiency is rarely reached, and the extent to which intervention can improve on the market depends on how well the government can measure and target the failure.

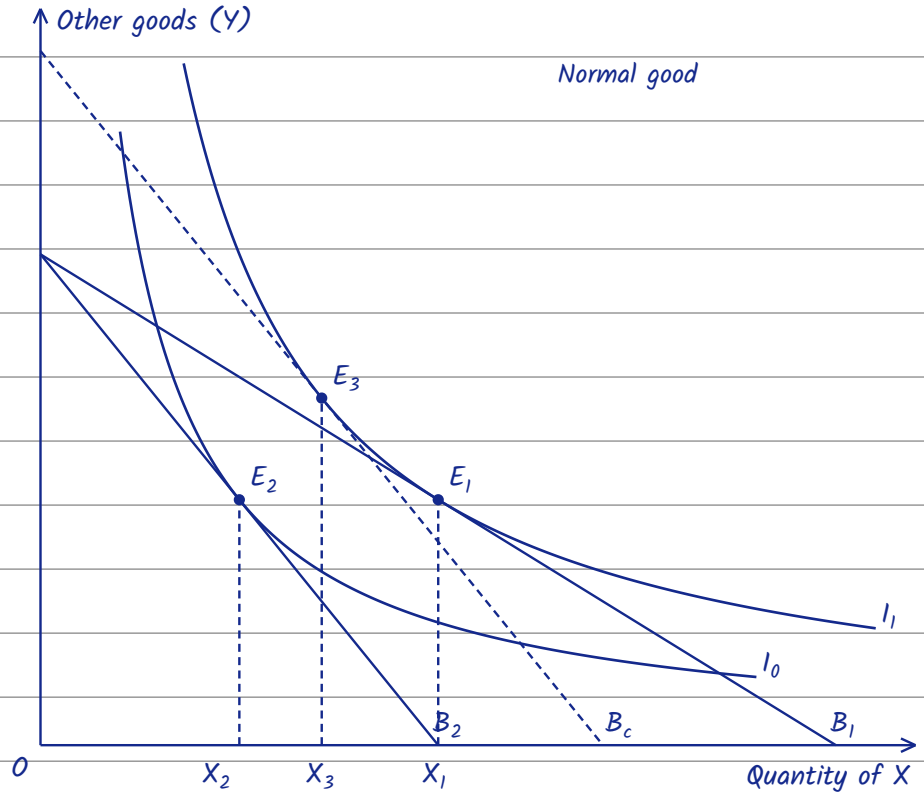
3

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 a diminishing marginal rate of substitution (MRS): the more of good X the consumer has, the less of good Y they will give up for one more unit of X. A budget line shows the combinations the consumer can afford with a given income and prices; its slope is the price ratio Px ÷ Py. The consumer maximises satisfaction where the budget line is tangent to the highest attainable indifference curve, where MRS = Px ÷ Py.

A rise in the price of X pivots the budget line inwards about the Y intercept, from B1 to B2, because income buys fewer units of X. The total effect on demand can be split into two parts. The substitution effect is the change in demand caused only by the change in relative prices, holding real income constant: X is now

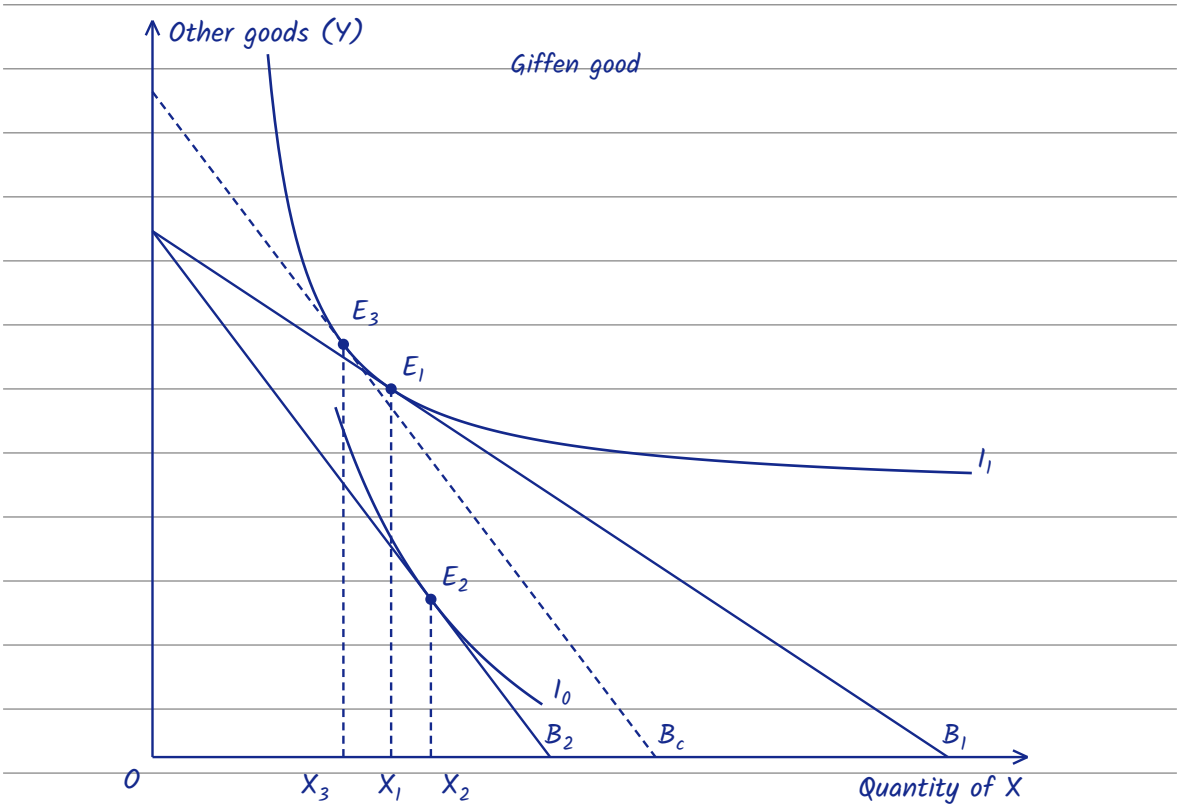
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relatively more expensive, so the consumer always buys less of it. This is shown by drawing the compensated budget line Bc, parallel to B2 but tangent to the original indifference curve I1. The income effect is the change caused by the fall in real income, shown by the movement from Bc to B2.




For a normal good (first diagram), the consumer moves from E1 to E2. The substitution effect, E1 to E3, reduces demand from X1 to X3. Because real income has fallen and demand for a normal good rises with income, the income effect, E3 to E2, reduces demand further from X3 to X2. Both effects work in the same direction, so demand falls from X1 to X2 and the demand curve slopes downwards, as the law of demand predicts.

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A Giffen good is a strongly inferior good, usually a staple food that takes a large share of a poor household's income. In the second diagram the substitution effect, E1 to E3, still reduces demand from X1 to X3. But the fall in real income now increases demand, because a poorer consumer can no longer afford better foods and buys more of the staple. This positive income effect, E3 to E2, is larger than the substitution effect, so demand rises from X1 to X2. A rise in price therefore increases the quantity demanded, so the demand curve for a Giffen good slopes upwards over this range of prices, which is the key difference from a normal good.

Evaluation: the extent of the difference depends on several factors. For a normal good the size of the fall in demand depends on the price elasticity of demand: if there are close substitutes the indifference curves are flatter, the MRS changes little, and the substitution effect is large, so demand falls a lot. If the good is a necessity with few substitutes, the indifference curves are sharply curved and demand falls only a little. Between the two cases is an ordinary inferior good, where the income effect is positive but smaller than the substitution effect, so

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demand still falls, but by less than for a normal good. So the difference is one of degree for most goods and of direction only in the Giffen case.

Giffen goods are also very rare. The good must be inferior, have no close substitutes and take a large share of income, so they are only found among very poor consumers; a study by Jensen and Miller found Giffen behaviour for rice among poor households in Hunan, China. For wealthier consumers the income effect of a price rise is small. The analysis also assumes rational consumers, only two goods, and that preferences stay the same, and indifference curves cannot be observed directly, so it is hard to measure the effects in practice.

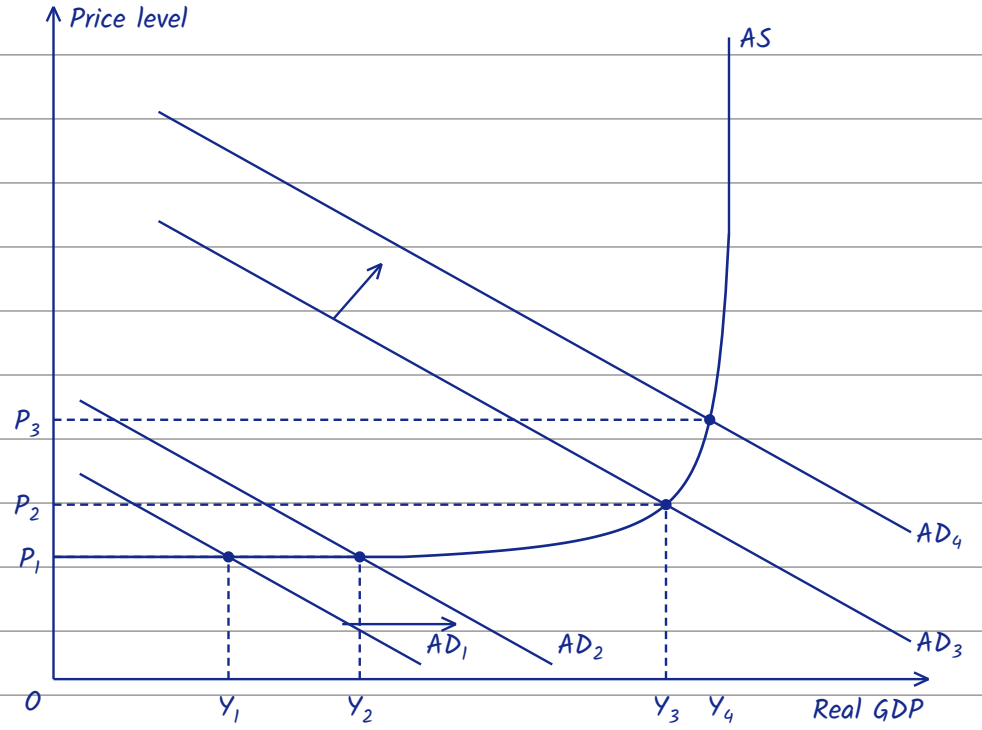
In conclusion, a rise in price always has a negative substitution effect, so for nearly all goods, including normal goods, demand falls. Demand for a Giffen good responds differently only because its income effect is positive and outweighs the substitution effect, and this happens only in the narrow case of a staple good for very poor consumers, so the difference is real but applies to very few goods.

4 Economic growth is an increase in real GDP over time. Actual growth is an increase in the output the economy produces, using spare capacity; potential growth is an increase in the productive capacity of the economy, shown by a rightward shift of the LRAS curve or an outward shift of the production possibility curve. Government spending is a component of aggregate demand (AD = C + I + G + X − M) and an injection into the circular flow of income.

An increase in government spending shifts AD to the right. When there is a large amount of spare capacity, as in a recession, firms can raise output without higher costs, so in the diagram the shift from AD1 to AD2 raises real GDP from Y1 to Y2 with the price level unchanged at P1. The rise in output is larger than the original spending because of the multiplier: the extra spending becomes income for workers and firms, who spend part of it, creating further rounds of income. The multiplier is 1 ÷ (1 − MPC), or 1 ÷ the marginal propensity to withdraw, so with an MPW of

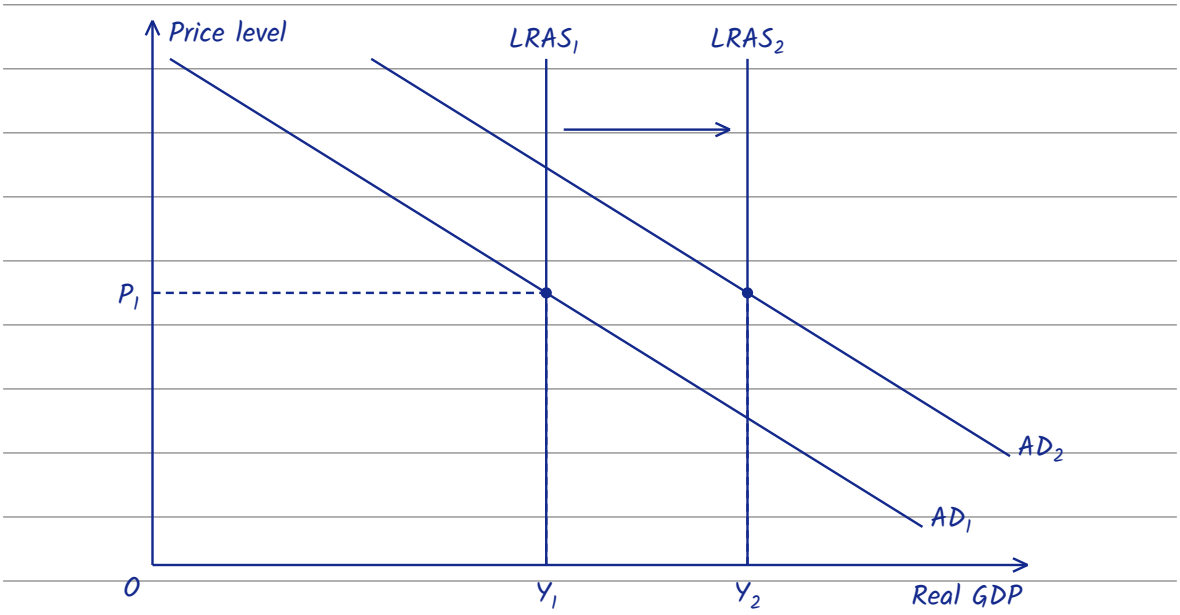
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0.4 an extra $10 billion of spending could raise national income by $25 billion. Higher demand and profits may also encourage firms to invest (the accelerator), and unemployment falls.




Government spending can also cause long-run growth. Spending on infrastructure, education, training, healthcare and research raises the quantity and quality of the factors of production, increasing productivity. This shifts LRAS from LRAS1 to LRAS2 in the second diagram, so real GDP can rise from Y1 to Y2 without inflation.

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However, the argument has important limits. If the economy is close to full capacity, as with the shift from AD3 to AD4, the extra spending mainly raises the price level from P2 to P3, with only a small rise in real GDP from Y3 to Y4, so it causes demand-pull inflation rather than growth. Some of the extra income is spent on imports, which reduces the multiplier and may worsen the current account of the balance of payments, and inflation reduces international competitiveness in the long run. Extra spending financed by borrowing increases the budget deficit and national debt; government borrowing may push up interest rates and crowd out private investment, so total demand may rise by little. Future taxes will be needed to repay the debt.

Growth also depends on much more than government spending: on the amount of capital, the size and skills of the labour force, the availability of natural resources, enterprise, access to finance and new technology, and foreign direct investment. Spending only helps if it is used well. Spending on current items such as public sector wages boosts demand only in the short run, while capital spending on infrastructure and education raises potential output, but with long time lags. Government failure, through poor project choice or corruption, can waste the money.

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Nor is growth always good for a country. It can bring environmental damage, such as pollution and climate change, the over-use of scarce resources, and greater income inequality if the gains go mainly to the rich. Growth does not guarantee a higher standard of living for everyone.

In conclusion, I agree only partly. Increased government spending can cause growth when there is spare capacity, because of the multiplier, and when it is spent on capital, education and research that shift LRAS to the right. But it is not always sensible: near full employment it mainly causes inflation and debt, and the benefit depends on how the money is spent and financed. Growth itself is good only if it is sustainable and widely shared, so the government should target spending on supply-side improvements rather than simply spend more.

5 The standard of living is the level of material and non-material well-being enjoyed by people in a country. Material living standards depend on the goods and services people can consume; non-material ones include health, education, working hours, freedom and the quality of the environment. National income statistics, such as GDP and GNI, measure the total value of output or income of a country in a year. Low-income and high-income countries are usually classified by GNI per head; the World Bank uses GNI per capita thresholds for its income groups.

National income statistics can be used for comparison because higher real GNI per head means that on average each person has more goods and services, and countries with high national income can afford better healthcare, schools and infrastructure. To compare properly, the figures must be adjusted: real rather than nominal values to remove inflation, per head to allow for differences in population, and converted at purchasing power parity (PPP) exchange rates rather than market exchange rates, because prices of non-traded goods are much lower in low-income countries. Market exchange rates therefore understate living standards in low-income countries.

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However, there are major difficulties in comparing low-income and high-income countries. First, low-income countries have a large subsistence sector and informal economy: food grown for the family's own use and cash work that is not declared are not recorded, so their national income is understated compared with high-income countries, where most activity passes through markets. Data collection is also harder and less accurate in low-income countries. Second, GNI per head is an average and says nothing about the distribution of income; a country with a high Gini coefficient may have high average income while many people live in absolute poverty.

Third, the composition of output matters: high spending on defence or on repairing environmental damage raises GDP but not welfare, and national income ignores negative externalities such as pollution and the depletion of natural resources. Fourth, it ignores non-material factors such as leisure time, working conditions, life expectancy and political freedom. Differences in climate and culture also mean needs differ: people in a cold high-income country must spend more on heating and clothing, so the same income does not give the same welfare.

Evaluation: because of these weaknesses, broader measures are often used alongside national income. The Human Development Index combines GNI per head at PPP with life expectancy and education (mean and expected years of schooling), and the Multidimensional Poverty Index measures deprivation in health, education and living standards. Even so, these measures still rely on national income data, and HDI gives fixed weights to its components, which is a value judgement. National income remains closely correlated with health and education, so it is a reasonable first indicator.

The extent to which national income statistics are useful depends on the countries compared. Between two high-income countries with similar structures they are fairly reliable. Between low-income and high-income countries the gap is so large that the ranking is usually correct, but the size of the difference in living

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standards is exaggerated, because of the informal sector and exchange rates. In conclusion, real GNI per head at PPP is a useful starting point for comparing living standards, but on its own it is an unreliable measure for low-income countries and should be combined with indicators such as the HDI and data on income distribution.

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# Cambridge International AS & A Level

**ECONOMICS** **9708/42**

Paper 4 A Level Data Response and Essays **May/June 2024**

**2 hours**

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You must answer on the enclosed answer booklet.

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- You may use a calculator.
- You may answer with reference to any economy you have studied where relevant to the question.

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## Section A

Answer all parts of Question 1.

**1 Developments in the electric vehicle (EV) industry**

The advantage of the car is that it provides freedom for the consumer. However, the disadvantages of car use are that it creates congestion, carbon dioxide ($CO_2$) and air pollution. These disadvantages led many countries to agree to replace internal combustion engine (ICE) cars with electric vehicles (EV) from 2030.

The successful introduction of EV is dependent on the development of battery technology and production of batteries to enable EV to drive a similar distance to ICE cars before they need re-charging. Better electrode design, battery assembly and chemistry are all technical aspects of battery production that could reduce costs, resulting in economies of scale from more efficient use of capital and labour. In addition to technical economies, there may well be purchasing economies of scale in battery production when buying raw materials and capital equipment in bulk.

Table 1.1 shows the estimated average costs of battery production for EV using two different technologies.

**Table 1.1 Average costs of battery production**

| Annual production | US $ per kwh | |
|---|---|---|
| kwh (millions) | Technology A | Technology B |
| 0.5 | 115 | 120 |
| 2.0 | 105 | 90 |
| 4.0 | 98 | 80 |
| 10.0 | 97 | 80 |

The shift to EV will cause redundancies for highly skilled mechanical engineers who have developed and refined the ICE. Often these workers are concentrated in specific areas, such as southern Germany.

The change from ICE cars to EV may also cause difficulties for governments in two ways. First, many countries rely on oil exports for a large part of their income. For example, Saudi Arabia receives 45% of its gross national income (GNI) from oil exports. Secondly, other governments place an indirect tax on petrol (gasoline) and diesel as part of their general revenue. For example, Singapore charges S$0.41 per litre, approximately 17 % of the price.

*Sources: Applied Energy 286 (2021) Economies of scale in battery cell manufacturing, 25 April 2022, and* The Singapore Independent*, 28 March 2022*

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**(a)** Explain what is meant by internal economies of scale, using an example from the information. [3]

**(b)** Consider what is meant by minimum efficient scale and to what extent the data in Table 1.1 suggest this has been achieved. [3]

**(c)** Analyse, with the aid of a diagram, the likely impact of the change to EV on the labour market for workers producing ICE in southern Germany. [6]

**(d)** Evaluate the likely macroeconomic effects of the switch to EV for both Saudi Arabia and Singapore. [8]

## Section B

Answer **one** question.

**EITHER**

**2** Market failure exists in all economies.

Evaluate, with the aid of a diagram(s), the meaning of market failure and **two** policies a government may use to correct market failure. [20]

**OR**

**3** Evaluate, with the aid of a diagram(s), whether excess profit (supernormal profit) is always necessary for the continued existence of firms in perfect competition and monopoly. [20]

## Section C

Answer **one** question.

**EITHER**

**4** In 2022, many countries experienced a high rate of inflation caused by disruptions to the supply of goods and services arising from the Covid-19 pandemic and the conflict between Russia and Ukraine. In one country, the government cut taxes and the central bank raised interest rates.

Evaluate the likely impact of these policies on that government's ability to control inflation. [20]

**OR**

**5** Evaluate the likely impact of globalisation on a low-income country's standard of living. [20]

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Answers for paper 9708/42

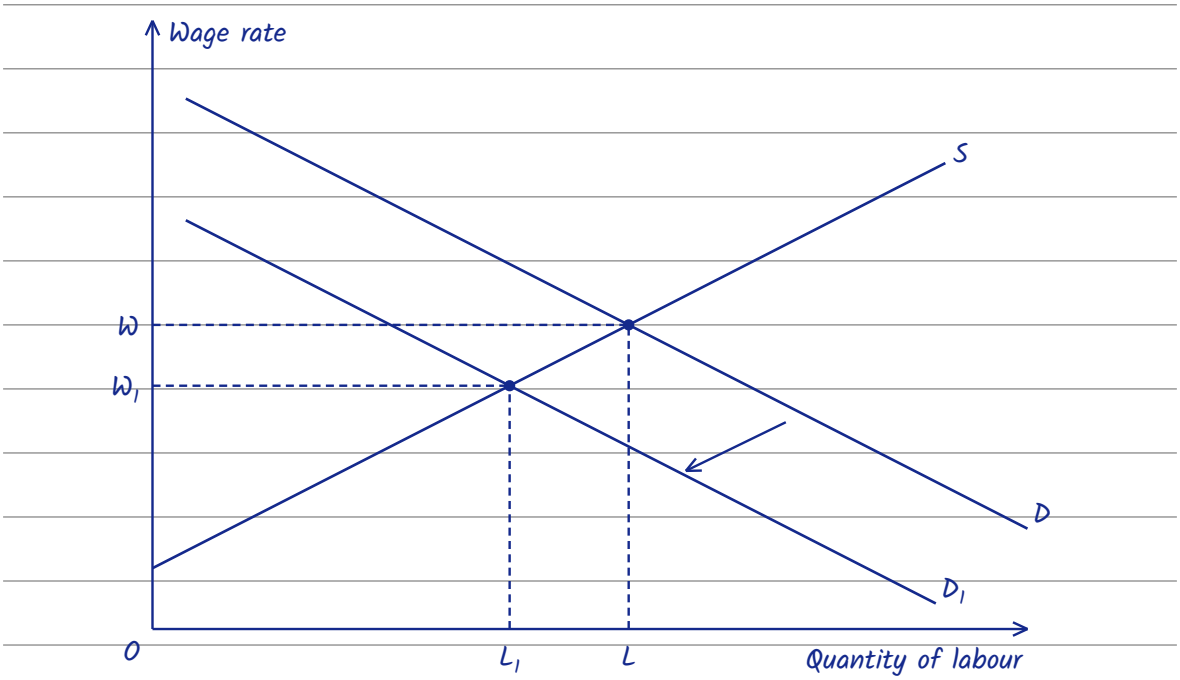
1(a) Internal economies of scale are reductions in long-run average cost that a firm gains as it increases its own scale of output. For example, technical economies: better electrode design and battery assembly allow more efficient use of capital and labour, or purchasing economies from buying raw materials and capital equipment in bulk.

1(b) Minimum efficient scale (MES) is the lowest level of output at which long-run average cost reaches its minimum, so beyond it there are no further falls in average cost.

Technology A: average cost is still falling between 4.0 and 10.0 million kwh (from $98 to $97), so MES has not been reached, although it is close. Technology B: average cost stays at $80 between 4.0 and 10.0 million kwh, so MES has been reached at an output of 4.0 million kwh or below.

1(c) The demand for labour is a derived demand. As demand for ICE cars falls, the marginal revenue product of mechanical engineers who make them falls, so the demand curve for their labour shifts left from D to D1. The wage falls from W to W1 and employment falls from L to L1.

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The fall in employment creates structural unemployment, concentrated regionally in southern Germany. The engineers' skills are specific to ICE technology, so there is occupational immobility, and family ties and housing costs cause geographical immobility, so they cannot easily move into EV jobs. Unemployment may be long term unless they are retrained, for example in battery and electrical technology. If the regional supply of labour is inelastic, the fall in wages will be larger.

1(d) Saudi Arabia: as the world switches to EV, demand for oil falls, reducing oil prices and the volume of oil exported. Since 45% of its GNI comes from oil exports, net exports (X–M) fall, AD shifts left and, through the negative multiplier, real output falls and unemployment rises. The current account worsens and government oil revenue falls, causing a budget deficit. The government may raise its own spending to offset the fall in exports, or diversify the economy. However, the effect depends on how quickly the switch happens, and oil is still needed for plastics, petrochemicals and aviation, while OPEC may restrict supply to keep prices up, so the fall in export revenue may be smaller and slower.

Singapore: the indirect tax on petrol and diesel (S$0.41 per litre, about 17% of the

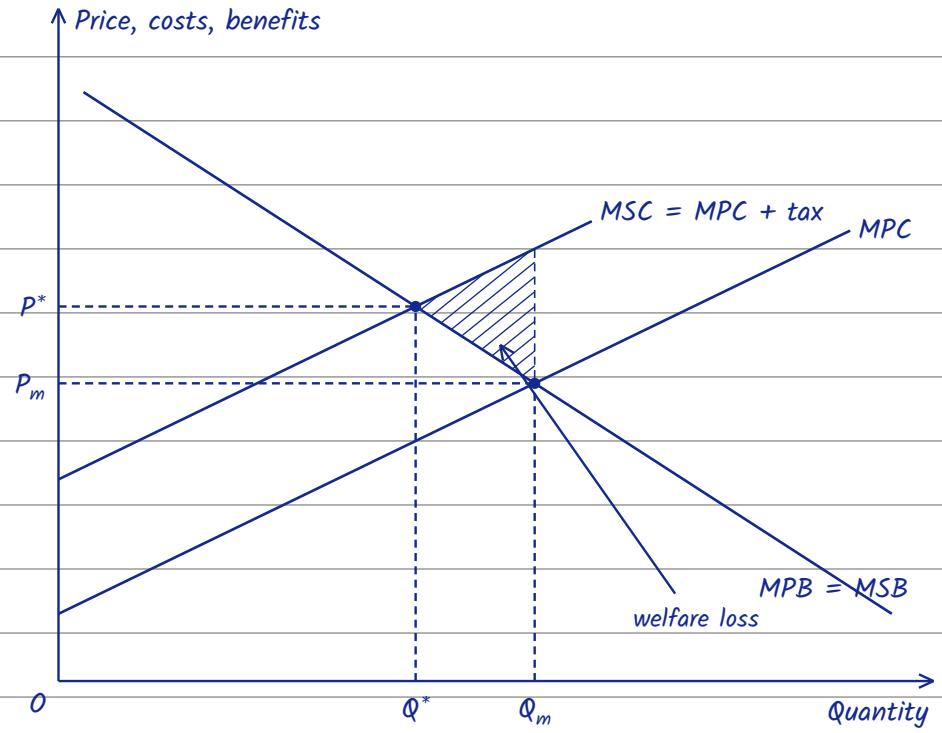
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price) raises less revenue as fewer people buy fuel, so the budget balance worsens. The government may cut spending, reducing AD, or raise other taxes, such as taxes on income or road charges on EV. Spending patterns change and imports of oil fall, improving the current account. However, the effect depends on how the electricity for EV is generated: if it comes from imported gas or oil, import spending may not fall much. The tax is only part of general revenue, so if an alternative tax source is found the macroeconomic effect on Singapore will be small, much smaller than for Saudi Arabia.

2 Market failure occurs when the free market, left to the price mechanism, fails to allocate resources efficiently, so society's welfare is not maximised. Allocative efficiency is achieved where price equals marginal cost, or for society where marginal social benefit equals marginal social cost (MSB = MSC). Market failure can involve allocative inefficiency, where the wrong quantity is produced, productive inefficiency, where goods are not produced at minimum average cost, as in monopoly, and information failure, where consumers do not know the true costs and benefits of a good.

One important cause is externalities: third-party effects not taken into account by buyers and sellers. A negative production externality, such as pollution from a factory, means marginal social cost (MSC) is above marginal private cost (MPC). The market produces where MPB = MPC at Qm, but the social optimum is where MSB = MSC at $Q^*$. So the good is over-produced and the shaded triangle is the welfare loss.

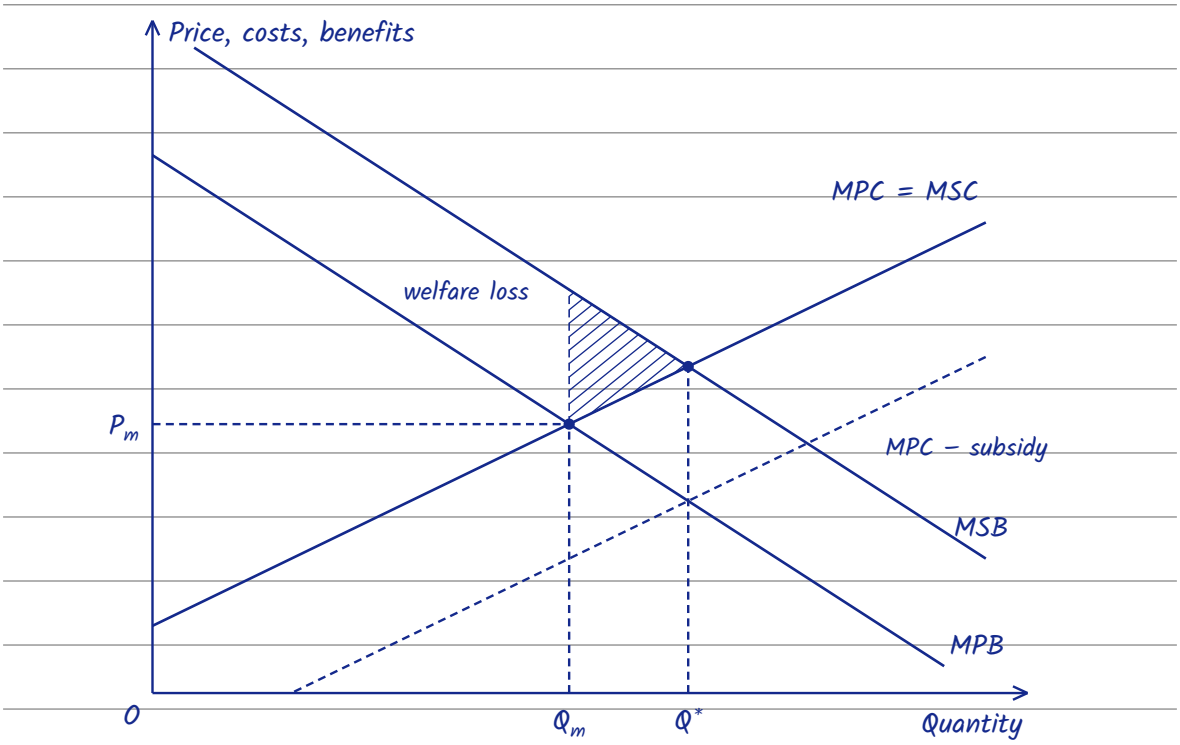
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Policy 1, an indirect tax: the government can place a tax on each unit equal to the marginal external cost. This raises the firm's costs so the MPC curve shifts up to MSC, the externality is internalised, and output falls from Qm to the optimum $Q^*$ at the higher price $P^*$, removing the welfare loss. This follows the polluter pays principle and also raises tax revenue.

A positive consumption externality, as with a merit good such as vaccinations or education, means marginal social benefit (MSB) is above marginal private benefit (MPB). Consumers ignore the benefits to others, and may underestimate their own benefit because of information failure, so the market consumes Qm, less than the optimum $Q^*$.

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Policy 2, a subsidy: a subsidy per unit equal to the marginal external benefit shifts the supply curve down to MPC – subsidy, lowering the price to consumers and increasing consumption from Qm to $Q^*$, where MSB = MSC, so the welfare loss is removed. Other policies include regulation, information campaigns, direct provision of public goods and price controls.

Evaluation: both policies are hard to set at the right level, because external costs and benefits are difficult to measure in money terms. If the tax is set too low, over-production continues; too high and output falls below $Q^*$, causing government failure. The effect of a tax also depends on price elasticity: if demand is inelastic, as for petrol, output falls by little and the tax mainly raises revenue, while the burden of indirect taxes falls more heavily on the poor. A subsidy has an opportunity cost, as the money could be spent on other services, so the government must make a value judgement, and firms may become inefficient if they rely on subsidies. Both policies can take a long time to change behaviour. Other policies may be more effective depending on the good. Regulation, such as banning a harmful chemical, is simpler to enforce where the damage is severe, and

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tradable pollution permits limit total pollution at lower cost. Information campaigns are cheap but their persuasive effect is uncertain. Direct provision of public goods is necessary because of the free rider problem, but may be less efficient than private provision.

In conclusion, market failure is found in all economies because externalities, merit goods and information failure are widespread. Taxes and subsidies can in theory restore the efficient output, as the diagrams show, but in practice they rarely hit $Q^*$ exactly. Government intervention can reduce the welfare loss, but whether its net effect is positive depends on the nature of the good, the accuracy of the information available and the risk of government failure.

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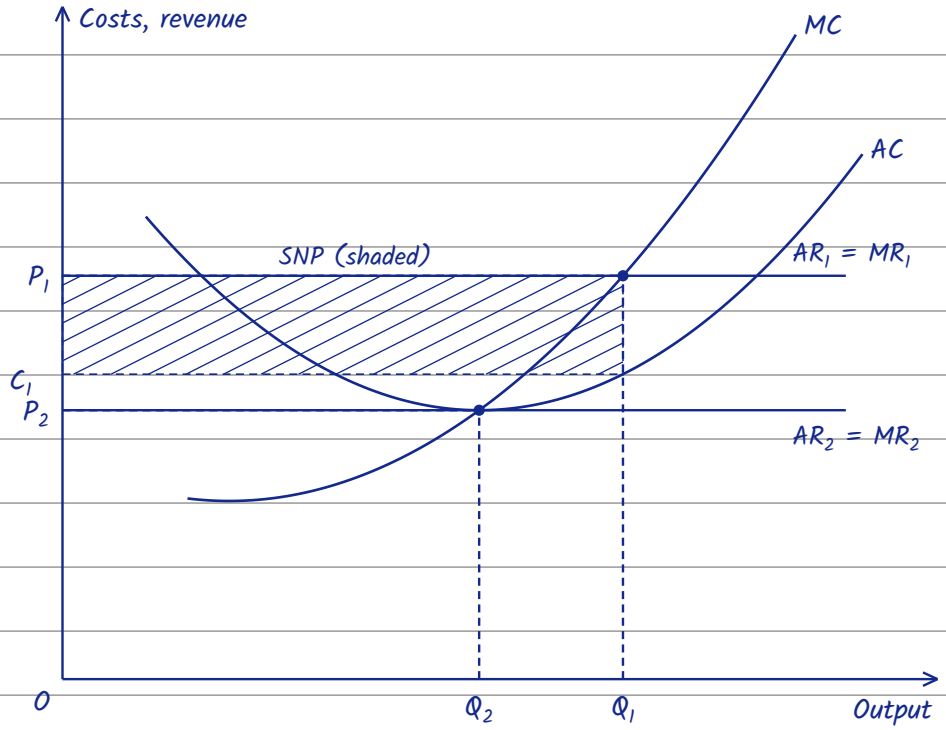
Normal profit is the minimum profit needed to keep a firm in its current industry in the long run; it is the opportunity cost of the entrepreneur and is included in average cost, so it is earned where AR = AC. Excess (supernormal) profit is any profit above this, where AR > AC. In the short run at least one factor is fixed; in the long run all factors are variable and firms can enter or leave the industry.

Perfect competition has many small firms selling an identical product, perfect information and no barriers to entry or exit, so each firm is a price taker with a horizontal demand curve, AR = MR. Monopoly is a single seller of a product with no close substitutes, protected by high barriers to entry, so it faces the downward-sloping market demand curve, with MR below AR. Both are assumed to maximise profit where MC = MR.

In perfect competition, if market demand rises the price rises to P1 in the diagram. The firm produces Q1 where MC = MR1, and since P1 is above average cost C1 it earns the shaded supernormal profit. Because there are no barriers and information is perfect, new firms are attracted and enter, increasing market supply until price falls back to P2, at the minimum of AC. In long-run equilibrium at Q2 the firm earns only normal profit. So in perfect competition supernormal profit is not

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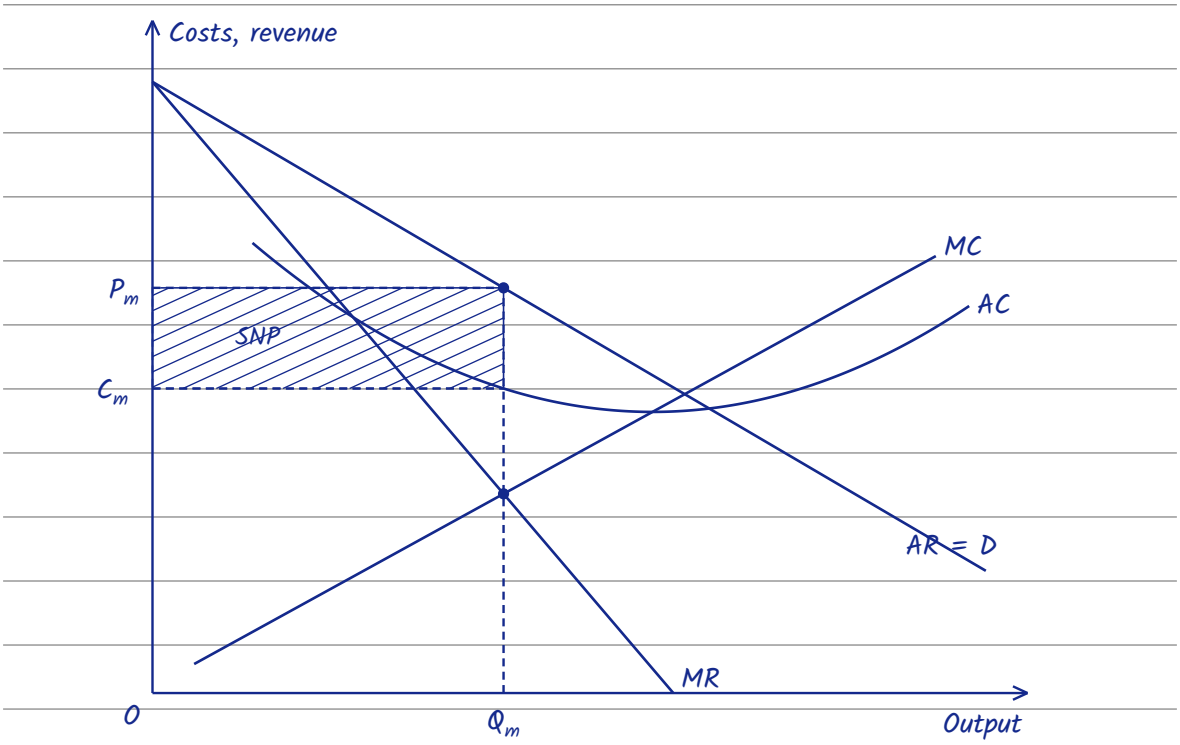
necessary: firms continue to exist in the long run with normal profit, and supernormal profit is only a short-run, temporary signal that attracts resources into the industry.




In the short run a perfectly competitive firm can even make a loss and stay in the industry, as long as price covers average variable cost, since it must pay its fixed costs whether or not it produces. If price falls below AVC it shuts down. In the long run, if losses continue, firms leave until the remaining firms earn normal profit.

In monopoly, the firm produces Qm where MC = MR and charges Pm from the demand curve. Since Pm is above average cost Cm, it earns the shaded supernormal profit. Because barriers to entry such as patents, economies of scale or control of resources stop new firms entering, this supernormal profit can be kept in the long run, unlike in perfect competition.

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However, a monopoly does not need supernormal profit to survive. If demand is low, the AR curve may only just touch the AC curve, so the monopolist earns normal profit and still stays in the industry. A natural monopoly may be regulated to charge a price equal to average cost, so it earns only normal profit, and if the market is contestable, the threat of entry may keep the monopolist's price close to average cost.

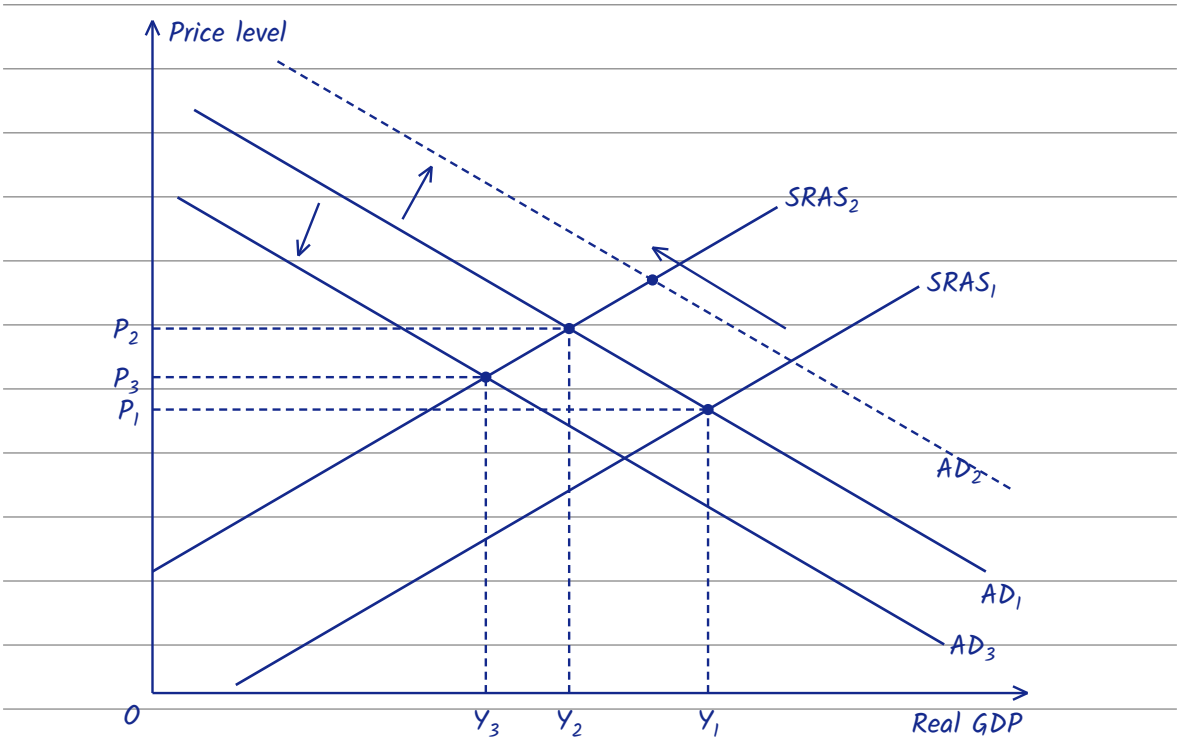
Evaluation: supernormal profit is not strictly necessary for the continued existence of either type of firm, since normal profit is by definition enough to keep the firm in the industry. In perfect competition supernormal profit is outside the firm's control, as it results from changes in market demand to which the firm reacts by setting MC = MR, and it is always transitory. In monopoly, supernormal profit is not necessary for survival, but it may be necessary for the firm to remain a monopoly in a dynamic sense. It can fund research and development, giving dynamic efficiency, new products and lower costs, which keeps out rivals. Shareholders may expect it, and a firm that fails to earn it may be taken over. Also, not all firms aim to maximise profit. A monopolist may choose sales revenue

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maximisation, where MR = 0, or limit pricing to deter entry, and so earn less than the maximum possible profit. Because of the divorce of ownership and control, managers may pursue growth rather than profit. In real markets with uncertainty, firms may need supernormal profit in good years to survive losses in bad years. In conclusion, excess profit is not always necessary. In perfect competition it cannot last in the long run, so firms survive on normal profit. A monopoly can earn it in the long run because of barriers to entry and usually does, but it only needs normal profit to continue; supernormal profit becomes important for a monopoly mainly to finance investment and maintain its market power over time.

4 Inflation is a sustained rise in the general price level. The inflation of 2022 was mainly cost-push and imported inflation: Covid-19 disrupted supply chains, and the Russia and Ukraine conflict raised the world prices of oil, gas and grain. Higher costs of production shift short-run aggregate supply to the left, from SRAS1 to SRAS2 in the diagram, so the price level rises from P1 to P2 while real output falls from Y1 to Y2. This is stagflation: rising prices together with falling output and rising unemployment.

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Higher interest rates (contractionary monetary policy): a rise in interest rates increases the cost of borrowing and the reward for saving. Consumers spend less on credit-financed goods such as cars and houses, mortgage repayments rise so households have less disposable income, and firms cut investment because fewer projects are profitable. Higher rates also attract hot money inflows, appreciating the exchange rate, which makes imports cheaper and directly reduces imported inflation. Through this monetary transmission mechanism AD shifts left to AD3, so the price level falls from P2 to P3, closer to the original level.

Tax cuts (expansionary fiscal policy): a cut in income tax raises disposable income, so consumption rises, and a cut in corporation tax raises retained profits and investment. This shifts AD to the right, towards AD2, which pushes the price level even higher. So the two policies work against each other: the tax cuts weaken the government's ability to control inflation and the central bank must raise interest rates further to offset them. A cut in indirect taxes, such as fuel duty, would however lower prices directly and reduce firms' costs.

Evaluation: the policies mainly act on aggregate demand, but the cause of the

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inflation was a fall in aggregate supply. Raising interest rates can bring inflation down only by reducing output further, from Y2 to Y3, which increases unemployment and the risk of recession. It cannot increase the supply of energy or food. The outcome also depends on expectations: if workers expect high inflation, they demand higher wages and a wage-price spiral develops, so a credible rise in rates helps to stop this second-round effect even if it does little to the first supply shock. Once the shock passes, inflation may fall anyway.

Time lags are important. Interest rate changes take a long time, often 18 months to 2 years, to have their full effect, and the effect depends on how many households have variable rate mortgages and how much debt firms hold. Tax cuts may have only a small effect if consumers save the extra income because confidence is low. It is also hard for the government and central bank to know exactly how much of a tax change or interest rate rise is needed.

However, if the tax cuts are supply-side in nature, such as lower corporation tax or lower income tax that improve incentives to work and invest, they may shift LRAS to the right in the long run, lowering cost pressures and helping to control inflation. But unfunded tax cuts raise the budget deficit and may reduce confidence in the government; in the United Kingdom in September 2022, large unfunded tax cuts announced while the Bank of England was raising interest rates led to a sharp fall in the pound and higher government borrowing costs, and most were reversed. Higher interest rates also raise the cost of servicing government debt, an opportunity cost for other spending.

In conclusion, the combination of policies is likely to reduce the government's ability to control inflation in the short run, since the expansionary tax cuts offset the contractionary interest rate rise. Higher interest rates can reduce demand-side and second-round inflation, but at the cost of lower growth, and neither policy deals directly with the supply-side cause. The overall effect depends on the relative size of the two changes, the time lags, and whether the tax cuts improve

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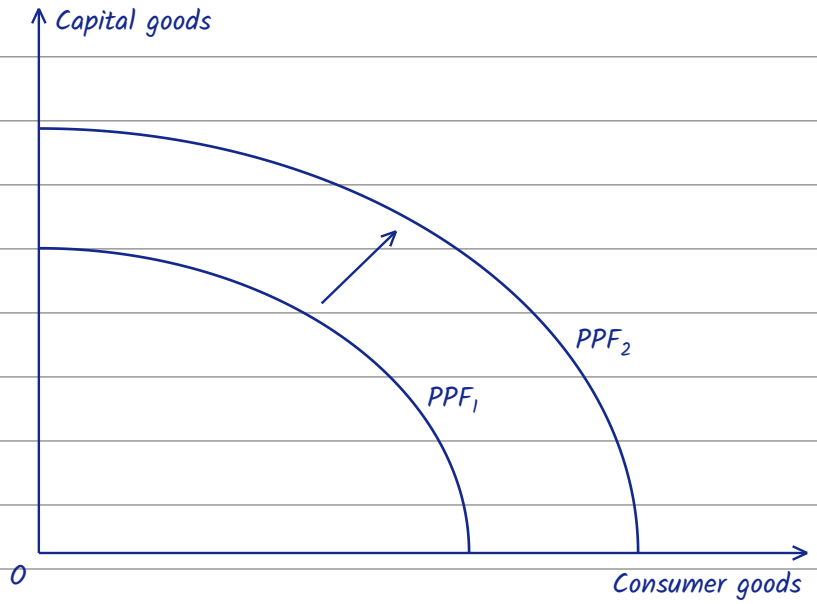
aggregate supply in the long run.

5 Globalisation is the increasing integration of the world's economies through the free movement of goods, services, capital, labour and technology between countries. It includes the growth of multinational corporations (MNCs), which split production processes across countries, for example assembling phones or clothing in low-wage economies. A low-income country is one with a low GNI per head. The standard of living includes material well-being, measured by real GNI per head and the goods it can buy, and non-material well-being such as health, education and working conditions.

Globalisation can raise the standard of living in a low-income country in several ways. Free trade allows it to specialise according to comparative advantage, often in labour-intensive manufacturing or primary products, and export to a much larger world market. Higher exports and foreign direct investment by MNCs are injections into the circular flow, so through the multiplier national income rises by more than the initial spending, creating jobs and reducing unemployment and poverty. Export revenue and capital inflows also improve the balance of payments and allow the country to import capital goods.

FDI, foreign aid and commercial loans also bring capital, technology and management skills, raising productivity. This increases the productive capacity of the economy, shown by an outward shift of the PPF from PPF1 to PPF2, so long-run growth is achieved and more consumer goods can be enjoyed. Consumers also benefit from cheaper imports and a wider choice of goods, and tax revenue from growth can fund health and education.

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Evaluation: the gains are often unequally shared. MNCs may use their size to drive local firms out of business, so the jobs lost in indigenous industry may outweigh the jobs created, and an MNC may become a local monopoly that charges higher prices and restricts output. The jobs created are often low-skilled and low-paid, with poor working conditions, while senior and skilled roles go to expatriate workers, so skills transfer is limited. Through transfer pricing, MNCs can move profits to low-tax countries, and profits sent home are an outflow on the current account, so the host government gains little tax revenue to spend on education and health.

Resource extraction can bring environmental damage and the exploitation of resources without regard for local communities, as when indigenous people have been moved to allow mining. Specialising in a few primary products makes the country vulnerable to falls in world commodity prices and to the long-run decline in the terms of trade. Commercial loans can create a debt burden: when a crisis hits, as in Sri Lanka, private lenders may be unwilling to forgive debt, and repayments take resources away from public services. Free movement of capital also exposes the country to sudden outflows of hot money.

The overall effect depends on several factors: the type of investment

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(manufacturing that trains workers brings more lasting benefits than resource extraction), the strength of the government in taxing MNCs and enforcing labour and environmental laws, the level of education of the workforce, and whether the gains are spread through infrastructure and public services. Countries such as China and Vietnam used globalisation to achieve rapid growth and large falls in absolute poverty, while some resource-rich low-income countries have gained little. In conclusion, globalisation is likely to raise the material standard of living of a low-income country in the long run, through trade, investment and higher real GNI per head. However, the benefits are not automatic: without good governance, investment in education and fair taxation of MNCs, the gains may go mainly to foreign firms and a small elite, and non-material living standards may even fall.

Cambridge Assessment International Education

# Cambridge International AS & A Level

**ECONOMICS** **9708/43**

Paper 4 A Level Data Response and Essays **May/June 2024**

**2 hours**

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 **one** question.
  - Section C: answer **one** question.
- 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 60.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **4** pages. Any blank pages are indicated.

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## Section A

Answer all parts of Question 1.

**1** **Income inequality**

According to a report by the World Bank, income inequality has declined in some low-income countries in recent years. For example, between 2008 and 2018, the Gini coefficient decreased by more than 5 percentage points in Chile, Colombia and Mexico. In some other countries, such as Ethiopia, India and Indonesia income inequality has remained relatively stable over the past decade while it has increased in China and South Africa.

In low-income countries inequalities of opportunity, in particular the differences in access to education between females and males, appear to pose obstacles to a more equal income distribution. Equality of opportunity becomes an issue of macroeconomic relevance.

Table 1.1 shows Gini coefficients, female/male literacy ratios and the percentages of population in absolute poverty for five countries.

**Table 1.1**

| Country | Gini coefficient | Literacy ratio[1] | % of population below the poverty line |
|---|---|---|---|
| Brazil | 0.53 | 1.01 | 4.2 |
| Mauritius | 0.36 | 0.95 | 10.3 |
| India | 0.35 | 0.90 | 21.9 |
| Egypt | 0.31 | 0.80 | 32.5 |
| Pakistan | 0.30 | 0.67 | 24.3 |

[1]Literacy ratio = female literacy rate ÷ male literacy rate

*Source: CIA World Factbook*

It is important to note that income inequality is a complex issue that can be influenced by a wide range of factors, including economic growth, government policies and global economic trends. The government can use fiscal and supply-side policies to influence and change income distribution. These could lead to higher Gross Domestic Product (GDP) and increased economic growth.

While the Gini coefficient is the most widely used measure of income inequality, it is important to note that it has limitations. It does not take into account other factors that contribute to inequality such as wealth inequality, and it may not take into account the full extent of inequality in societies with large informal economies.

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**(a)** Describe what is meant by the Gini coefficient and its possible range of values. [3]

**(b)** Distinguish between absolute poverty and relative poverty. [3]

**(c)** Consider whether Table 1.1 supports the conclusion that greater inequality of incomes is linked to poor literacy ratios of females to males **and** leads to greater poverty. [6]

**(d)** Use **one** example of a supply-side policy and **one** example of a fiscal policy to assess how a government might be able to achieve greater equality in the distribution of income. [8]

## Section B

Answer **one** question.

**EITHER**

**2** The long-term equilibrium position in perfect competition is frequently used to illustrate efficient resource allocation in a free market economy.

Explain why this is so and consider what prevents efficiency from being achieved. [20]

**OR**

**3** With the help of an indifference curve diagram, assess the extent to which a rise in price would affect the demand for a normal good differently from the demand for a Giffen good. [20]

## Section C

Answer **one** question.

**EITHER**

**4** In many countries increased government spending is regarded as a cause of economic growth. It is sensible, therefore, for a government to spend more to increase economic growth as it is good for its country.

To what extent do you agree with this argument? [20]

**OR**

**5** National income statistics are often used as a measure of the standard of living.

Consider to what extent national income statistics can be used to compare the standard of living between low-income countries and high-income countries. [20]

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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) The Gini coefficient is a measure of how unequally income (or wealth) is distributed across a population. It is calculated from the Lorenz curve: the area between the line of perfect equality and the Lorenz curve, divided by the whole area under the line of perfect equality.

It can take any value from 0 to 1 (0% to 100%). A value of 0 means perfect equality, with every household receiving the same income, and a value of 1 means perfect inequality, with one household receiving all of the income. So Brazil (0.53) is more unequal than Pakistan (0.30).

1(b) Absolute poverty is when a person's income is too low to buy the basic necessities needed to sustain life, such as food, clean water, shelter and clothing. It is measured against a fixed poverty line of income per day, for example the World Bank international poverty line of $2.15 a day.

Relative poverty is when a person's income is low compared with the income of others in the same society, usually defined as below a set percentage (for example 50% or 60%) of median income. So the relative poverty line rises as average incomes rise, and relative poverty can still exist when nobody is in absolute poverty.

1(c) The table does not support the conclusion. The most unequal country, Brazil (Gini 0.53), has the best literacy ratio (1.01, so females are slightly more literate than males) and the lowest poverty (4.2%). The least unequal country, Pakistan (0.30), has the worst literacy ratio (0.67), and Egypt (0.31) has the highest

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poverty (32.5%). Across all five countries the Gini coefficient and the literacy ratio fall together, so greater inequality is linked with better, not poorer, literacy ratios.

There is also no clear link between inequality and absolute poverty: the countries with the higher Gini coefficients, Brazil (0.53, 4.2%) and Mauritius (0.36, 10.3%), have the lower percentages below the poverty line. The pattern is not perfect either, since Pakistan has a lower Gini than Egypt but also less poverty (24.3% against 32.5%).

However, the data cannot show cause and effect. There are only five countries for one point in time, and other factors such as GDP per head are not shown; Brazil and Mauritius are richer than Pakistan, which could explain both better literacy and less poverty. The poverty figures measure absolute poverty only, so the table says nothing about relative poverty, which is more closely linked to inequality. The Gini coefficient may also be inaccurate where the informal economy is large. So the table does not support the conclusion, but it is too limited to reject it firmly.

1(d)

Fiscal policy: a more progressive income tax combined with means-tested transfer payments, such as cash transfers to poor families (for example Brazil's Bolsa Família). A progressive tax takes a higher proportion of income from high earners, so the post-tax income of the rich falls, while the revenue raised is paid to low-income households, raising their disposable income. This moves the Lorenz curve towards the line of equality, so the Gini coefficient falls and income is more equally distributed.

However, high marginal tax rates may reduce the incentive to work and invest and may encourage tax avoidance, evasion or emigration of skilled workers. In low-income countries with a large informal economy the tax base is narrow and much income goes unrecorded, so the policy may raise little revenue. Benefits can also create a poverty trap.

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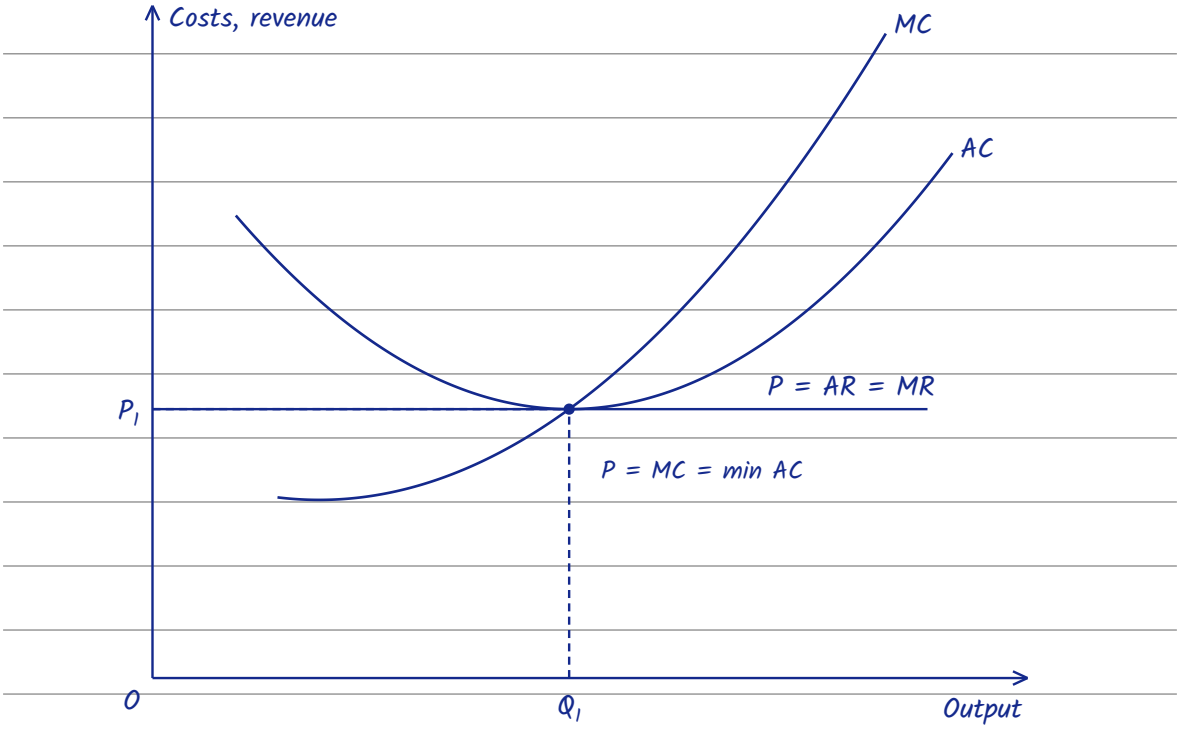
Supply-side policy: more government spending on education and training, for example free secondary schooling for girls and vocational training. This increases human capital, so the productivity and marginal revenue product of low-skilled workers rise and they can move into higher-paid jobs. Closing the gap in female literacy, which the extract says is an obstacle to equality, reduces inequality of opportunity, so incomes become more equal in the long run and GDP may rise too. However, this takes many years to have an effect, has a large opportunity cost, and only works if the quality of education is good and there are jobs for the newly skilled workers. Overall the fiscal policy works quickly but treats the symptoms, while the supply-side policy tackles the causes of inequality, so a combination is most effective.

2

Efficient resource allocation means producing the combination of goods that maximises society's welfare at the lowest cost. It has two parts. 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 make it. Productive efficiency is where output is produced at the lowest point of the average cost curve, so no resources are wasted.

Perfect competition assumes many buyers and sellers, a homogeneous product, perfect information and freedom of entry and exit, so each firm is a price taker facing a horizontal demand curve where P = AR = MR. Each firm maximises profit where MC = MR. If firms earn supernormal profit in the short run, new firms are attracted by the profit and enter freely, which increases market supply and lowers the price until only normal profit is made. If firms make losses, some leave until price rises back. So in long-run equilibrium P = AC as well.

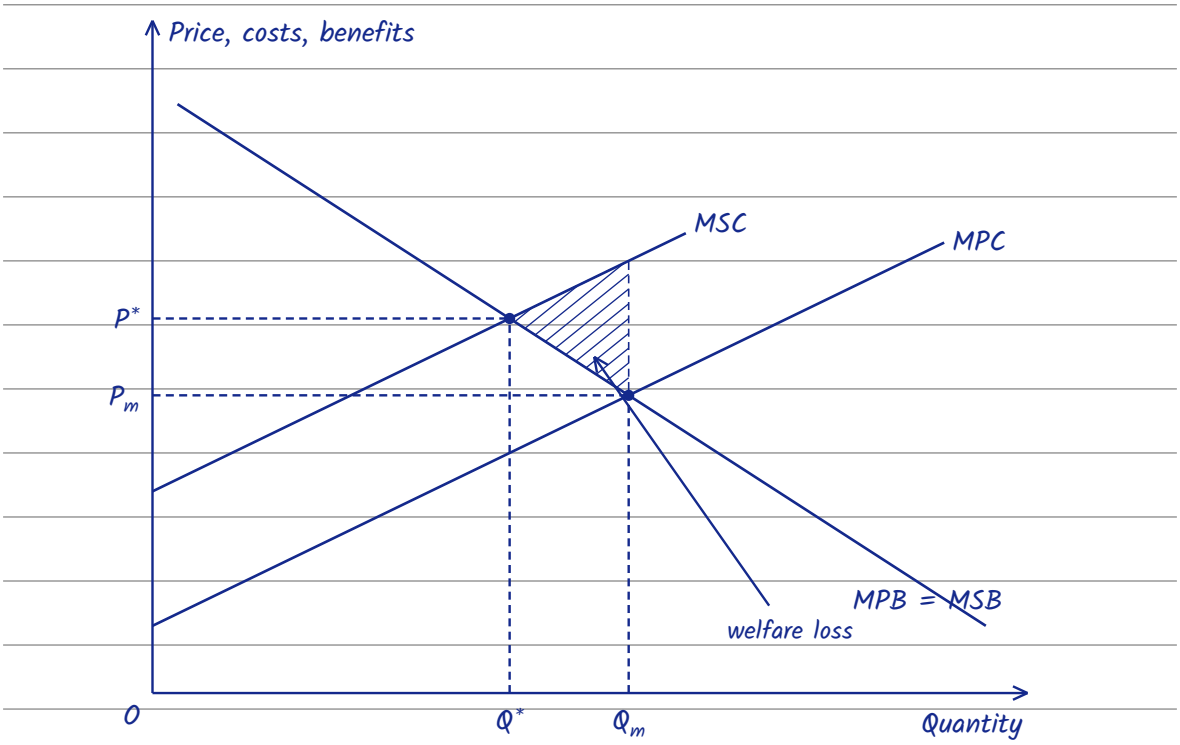
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The diagram shows the long-run equilibrium of the firm at output Q1 and price P1. Because P = MR = MC, the firm is allocatively efficient, and because P = AC at the minimum point of the AC curve, it is productively efficient. This is why the model is used to illustrate the efficiency of a free market: self-interest and competition alone lead firms to produce what consumers want at the lowest possible cost, without any planning. It is also Pareto optimal, as no one can be made better off without making someone else worse off.

However, several things prevent efficiency in real markets. First, externalities: when production creates external costs such as pollution, the market produces where MPB = MPC at Qm rather than where MSB = MSC at $Q^*$, so there is over-production and the welfare loss shown below.

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Second, public goods such as street lighting are non-excludable and non-rival, so the free rider problem means the market fails to provide them at all, and merit goods such as education are under-consumed because consumers lack information about their full benefits. Third, most real markets are imperfectly competitive. A monopoly protected by barriers to entry sets output where MC = MR and charges a price above MC, so it is allocatively inefficient, and it does not produce at minimum AC, so it is productively inefficient; its supernormal profits are not competed away. Where economies of scale are very large, as in a natural monopoly, many small firms could never reach the minimum of the LRAC curve. Information failure and immobility of factors of production also stop resources moving to where they are most valued.

Governments can try to correct these failures by taxing negative externalities, subsidising merit goods, providing public goods directly, regulating monopolies or taking key industries into public ownership.

Evaluation: the efficiency of perfect competition is mainly theoretical. Its assumptions, such as perfect information and identical products, are rarely met, so

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it is a benchmark rather than a description of real markets. It is also only static efficiency: firms earning normal profit have no funds for research and development, so a large firm with supernormal profit may achieve greater dynamic efficiency through innovation and lower costs over time. Allocative efficiency also needs every other market to be efficient; if one market fails, the theory of the second best suggests that moving one market to P = MC may not raise total welfare. Finally, intervention to correct market failure can cause government failure, for example when a tax is set at the wrong level because external costs are hard to measure, or when regulators lack information.

In conclusion, long-run equilibrium in perfect competition is a useful illustration because it is the one market structure in which both allocative and productive efficiency are achieved automatically. In practice, externalities, public and merit goods and market power mean efficiency is rarely reached, and the extent to which intervention can improve on the market depends on how well the government can measure and target the failure.

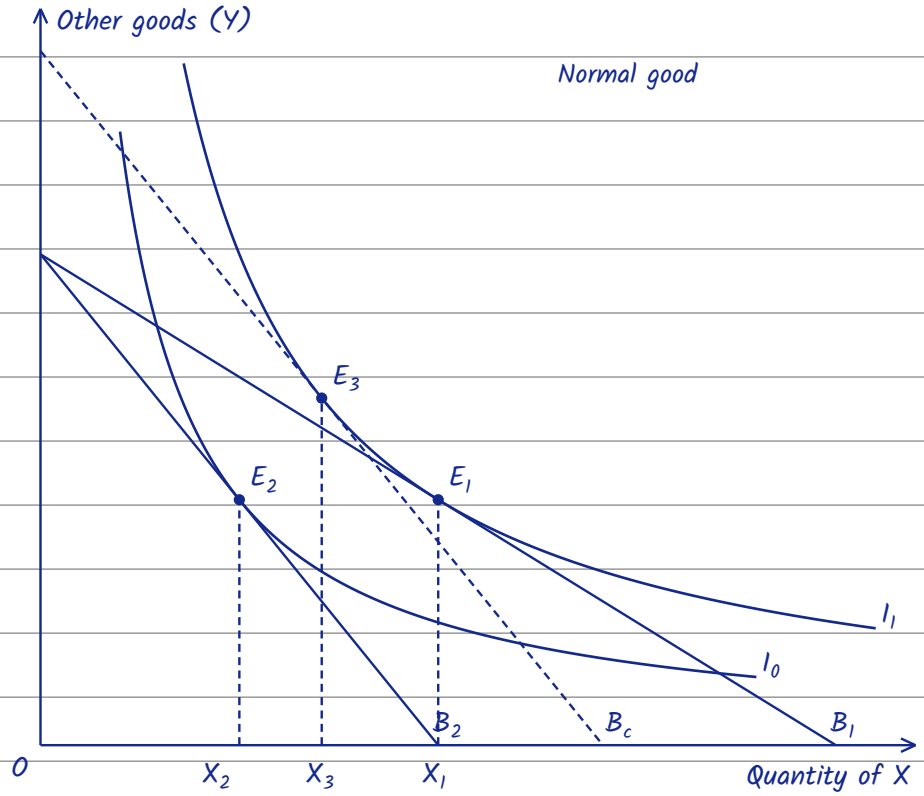
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An indifference curve shows all the combinations of two goods that give a consumer the same level of satisfaction. It slopes downwards and is convex to the origin because of a diminishing marginal rate of substitution (MRS): the more of good X the consumer has, the less of good Y they will give up for one more unit of X. A budget line shows the combinations the consumer can afford with a given income and prices; its slope is the price ratio Px ÷ Py. The consumer maximises satisfaction where the budget line is tangent to the highest attainable indifference curve, where MRS = Px ÷ Py.

A rise in the price of X pivots the budget line inwards about the Y intercept, from B1 to B2, because income buys fewer units of X. The total effect on demand can be split into two parts. The substitution effect is the change in demand caused only by the change in relative prices, holding real income constant: X is now

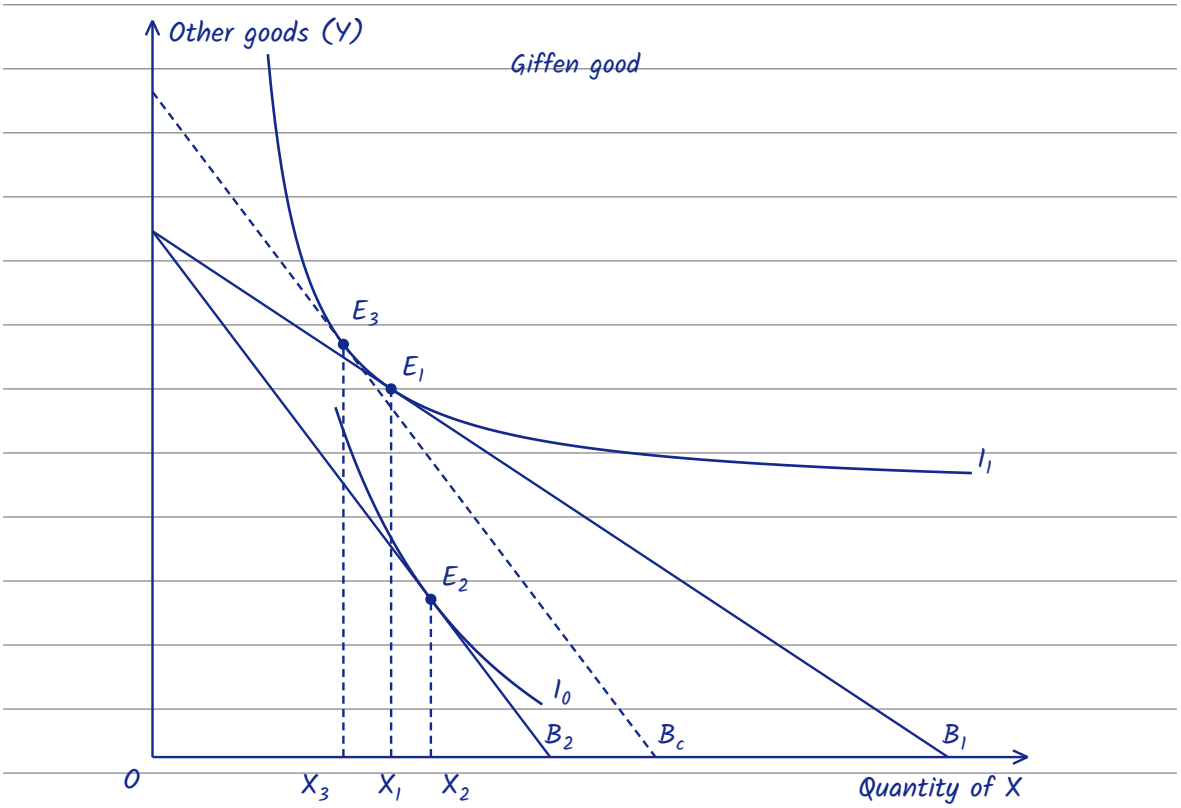
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relatively more expensive, so the consumer always buys less of it. This is shown by drawing the compensated budget line Bc, parallel to B2 but tangent to the original indifference curve I1. The income effect is the change caused by the fall in real income, shown by the movement from Bc to B2.




For a normal good (first diagram), the consumer moves from E1 to E2. The substitution effect, E1 to E3, reduces demand from X1 to X3. Because real income has fallen and demand for a normal good rises with income, the income effect, E3 to E2, reduces demand further from X3 to X2. Both effects work in the same direction, so demand falls from X1 to X2 and the demand curve slopes downwards, as the law of demand predicts.

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A Giffen good is a strongly inferior good, usually a staple food that takes a large share of a poor household's income. In the second diagram the substitution effect, E1 to E3, still reduces demand from X1 to X3. But the fall in real income now increases demand, because a poorer consumer can no longer afford better foods and buys more of the staple. This positive income effect, E3 to E2, is larger than the substitution effect, so demand rises from X1 to X2. A rise in price therefore increases the quantity demanded, so the demand curve for a Giffen good slopes upwards over this range of prices, which is the key difference from a normal good.

Evaluation: the extent of the difference depends on several factors. For a normal good the size of the fall in demand depends on the price elasticity of demand: if there are close substitutes the indifference curves are flatter, the MRS changes little, and the substitution effect is large, so demand falls a lot. If the good is a necessity with few substitutes, the indifference curves are sharply curved and demand falls only a little. Between the two cases is an ordinary inferior good, where the income effect is positive but smaller than the substitution effect, so

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demand still falls, but by less than for a normal good. So the difference is one of degree for most goods and of direction only in the Giffen case.

Giffen goods are also very rare. The good must be inferior, have no close substitutes and take a large share of income, so they are only found among very poor consumers; a study by Jensen and Miller found Giffen behaviour for rice among poor households in Hunan, China. For wealthier consumers the income effect of a price rise is small. The analysis also assumes rational consumers, only two goods, and that preferences stay the same, and indifference curves cannot be observed directly, so it is hard to measure the effects in practice.

In conclusion, a rise in price always has a negative substitution effect, so for nearly all goods, including normal goods, demand falls. Demand for a Giffen good responds differently only because its income effect is positive and outweighs the substitution effect, and this happens only in the narrow case of a staple good for very poor consumers, so the difference is real but applies to very few goods.

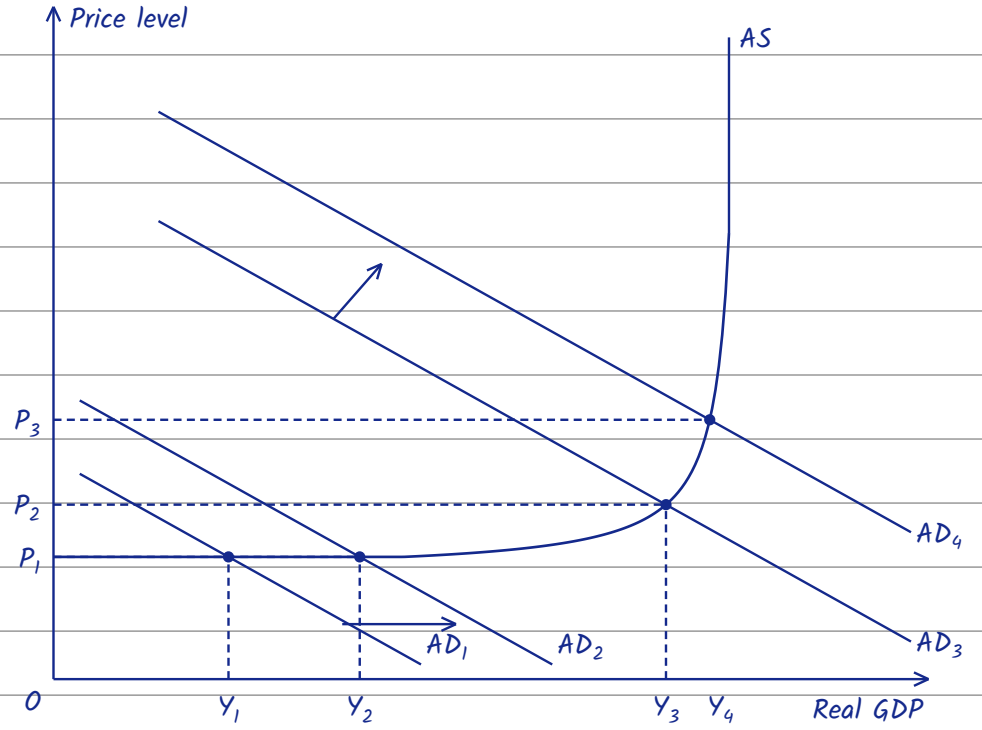
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Economic growth is an increase in real GDP over time. Actual growth is an increase in the output the economy produces, using spare capacity; potential growth is an increase in the productive capacity of the economy, shown by a rightward shift of the LRAS curve or an outward shift of the production possibility curve. Government spending is a component of aggregate demand (AD = C + I + G + X − M) and an injection into the circular flow of income.

An increase in government spending shifts AD to the right. When there is a large amount of spare capacity, as in a recession, firms can raise output without higher costs, so in the diagram the shift from AD1 to AD2 raises real GDP from Y1 to Y2 with the price level unchanged at P1. The rise in output is larger than the original spending because of the multiplier: the extra spending becomes income for workers and firms, who spend part of it, creating further rounds of income. The multiplier is 1 ÷ (1 − MPC), or 1 ÷ the marginal propensity to withdraw, so with an MPW of

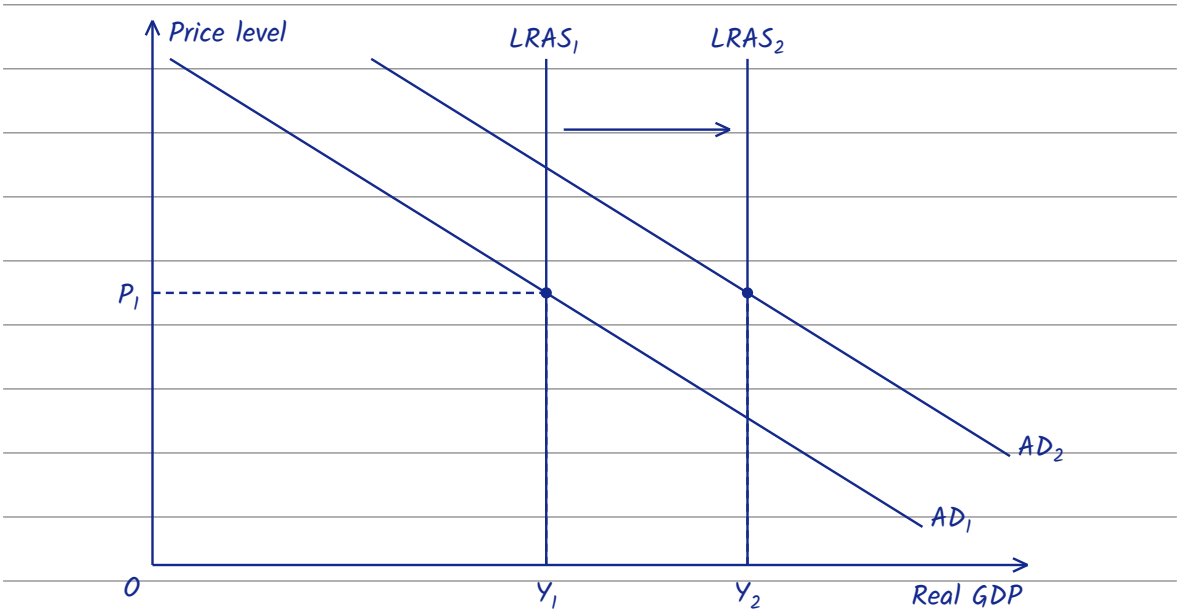
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0.4 an extra $10 billion of spending could raise national income by $25 billion. Higher demand and profits may also encourage firms to invest (the accelerator), and unemployment falls.




Government spending can also cause long-run growth. Spending on infrastructure, education, training, healthcare and research raises the quantity and quality of the factors of production, increasing productivity. This shifts LRAS from LRAS1 to LRAS2 in the second diagram, so real GDP can rise from Y1 to Y2 without inflation.

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However, the argument has important limits. If the economy is close to full capacity, as with the shift from AD3 to AD4, the extra spending mainly raises the price level from P2 to P3, with only a small rise in real GDP from Y3 to Y4, so it causes demand-pull inflation rather than growth. Some of the extra income is spent on imports, which reduces the multiplier and may worsen the current account of the balance of payments, and inflation reduces international competitiveness in the long run. Extra spending financed by borrowing increases the budget deficit and national debt; government borrowing may push up interest rates and crowd out private investment, so total demand may rise by little. Future taxes will be needed to repay the debt.

Growth also depends on much more than government spending: on the amount of capital, the size and skills of the labour force, the availability of natural resources, enterprise, access to finance and new technology, and foreign direct investment. Spending only helps if it is used well. Spending on current items such as public sector wages boosts demand only in the short run, while capital spending on infrastructure and education raises potential output, but with long time lags. Government failure, through poor project choice or corruption, can waste the money.

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Nor is growth always good for a country. It can bring environmental damage, such as pollution and climate change, the over-use of scarce resources, and greater income inequality if the gains go mainly to the rich. Growth does not guarantee a higher standard of living for everyone.

In conclusion, I agree only partly. Increased government spending can cause growth when there is spare capacity, because of the multiplier, and when it is spent on capital, education and research that shift LRAS to the right. But it is not always sensible: near full employment it mainly causes inflation and debt, and the benefit depends on how the money is spent and financed. Growth itself is good only if it is sustainable and widely shared, so the government should target spending on supply-side improvements rather than simply spend more.

5 The standard of living is the level of material and non-material well-being enjoyed by people in a country. Material living standards depend on the goods and services people can consume; non-material ones include health, education, working hours, freedom and the quality of the environment. National income statistics, such as GDP and GNI, measure the total value of output or income of a country in a year. Low-income and high-income countries are usually classified by GNI per head; the World Bank uses GNI per capita thresholds for its income groups.

National income statistics can be used for comparison because higher real GNI per head means that on average each person has more goods and services, and countries with high national income can afford better healthcare, schools and infrastructure. To compare properly, the figures must be adjusted: real rather than nominal values to remove inflation, per head to allow for differences in population, and converted at purchasing power parity (PPP) exchange rates rather than market exchange rates, because prices of non-traded goods are much lower in low-income countries. Market exchange rates therefore understate living standards in low-income countries.

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However, there are major difficulties in comparing low-income and high-income countries. First, low-income countries have a large subsistence sector and informal economy: food grown for the family's own use and cash work that is not declared are not recorded, so their national income is understated compared with high-income countries, where most activity passes through markets. Data collection is also harder and less accurate in low-income countries. Second, GNI per head is an average and says nothing about the distribution of income; a country with a high Gini coefficient may have high average income while many people live in absolute poverty.

Third, the composition of output matters: high spending on defence or on repairing environmental damage raises GDP but not welfare, and national income ignores negative externalities such as pollution and the depletion of natural resources. Fourth, it ignores non-material factors such as leisure time, working conditions, life expectancy and political freedom. Differences in climate and culture also mean needs differ: people in a cold high-income country must spend more on heating and clothing, so the same income does not give the same welfare.

Evaluation: because of these weaknesses, broader measures are often used alongside national income. The Human Development Index combines GNI per head at PPP with life expectancy and education (mean and expected years of schooling), and the Multidimensional Poverty Index measures deprivation in health, education and living standards. Even so, these measures still rely on national income data, and HDI gives fixed weights to its components, which is a value judgement. National income remains closely correlated with health and education, so it is a reasonable first indicator.

The extent to which national income statistics are useful depends on the countries compared. Between two high-income countries with similar structures they are fairly reliable. Between low-income and high-income countries the gap is so large that the ranking is usually correct, but the size of the difference in living

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standards is exaggerated, because of the informal sector and exchange rates. In conclusion, real GNI per head at PPP is a useful starting point for comparing living standards, but on its own it is an unreliable measure for low-income countries and should be combined with indicators such as the HDI and data on income distribution.