Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/41**

Paper 4 A Level Data Response and Essays **October/November 2024**

2 hours

9284221820

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 The economic impact of extracting natural resources

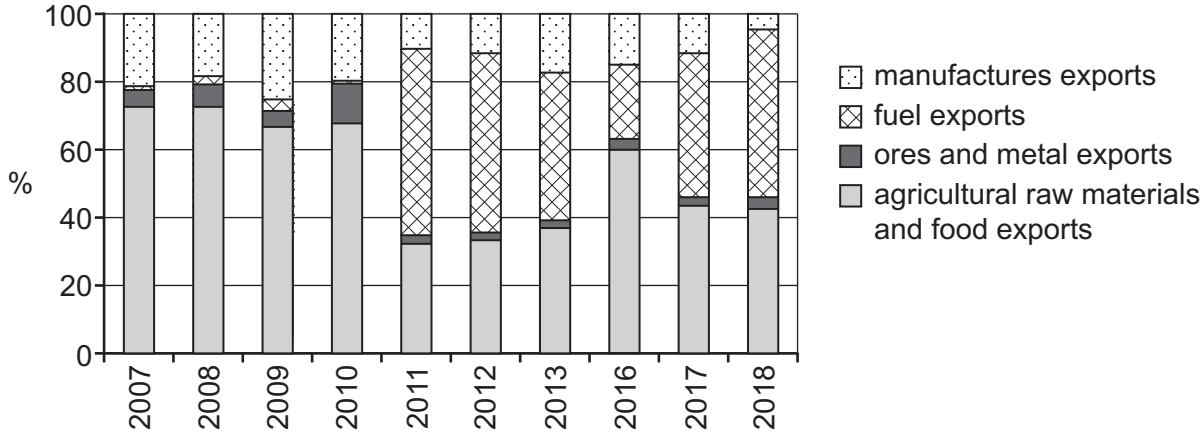
Many low-income countries have high unemployment and large deposits of unused natural resources. In 2007, Ghana discovered a new offshore oil field and extraction started in 2010. The discovery and extraction of such natural resources can create new jobs, that increase incomes and consequently gross national income (GNI). The additional income will lead to an increase in spending on both domestic and imported goods and services, creating further employment in other sectors through the multiplier effect.

However, the extraction of oil may 'crowd out' other sectors of the economy. Workers might move, for example from agriculture and manufacturing to the mining sector due to higher wages. Also, the prices of houses, land and locally produced goods may increase. This could increase the cost of living and discourage businesses from operating in the affected region.

The export of oil from Ghana causes an inflow of United States dollars (US$), increasing the exchange rate of Ghana's currency, the cedi. This appreciation reduces the competitiveness of Ghana's agricultural and manufactured goods, leading to an increased demand for imports. This loss of competitiveness is referred to as the 'Dutch disease', reflecting the experience of the Netherlands following the exploitation of their natural gas reserves.

Oil provides the Ghanaian government with revenue from the tax on each barrel of oil produced. This revenue can be used to provide transfer payments and goods and services such as roads, health facilities, and public water supply. These can benefit both households and businesses. Alternatively, the presence of such revenues can create corruption and conflict as political groups compete for them.

Between 2011 and 2018 agricultural products and food as a share of Ghana's exports have decreased, as shown in Fig. 1.1.



Source: World Bank database, 2019

Fig. 1.1: Structure of exports of goods from Ghana 2007 to 2018

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The extraction of natural resources has also affected Ghana's economic performance, as shown in Table 1.1.

Table 1.1: Selected economic data for Ghana, 2007 and 2019

	2007	2019
Human Development Index (HDI)	0.55	0.61
GNI per capita (US$) ppp	2478	5484
exchange rate (cedi per US$)	1.06	0.17

(a) With the aid of a diagram, explain the effect of natural resource development on the potential growth of Ghana. [4]

(b) Explain how the extraction of natural resources in Ghana will 'create further employment in other sectors through the multiplier effect'. [4]

(c) Explain what the information means by the 'Dutch disease' and using Fig. 1.1, consider to what extent Ghana suffered from this problem. [4]

(d) Use the information to assess the impact of the extraction of oil on the standard of living in Ghana. [8]

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Section B

Answer **one** question.

EITHER

2 Governments in many countries are promoting policies that reduce the impact of the negative externalities.

Evaluate, using appropriate diagram(s), the extent to which **two** policies used to reduce negative externalities can also improve allocative efficiency. [20]

OR

3 Evaluate the consequences for the price and output of a firm if it changes its objective from profit maximisation to sales maximisation as a response to the principal-agent problem. [20]

Section C

Answer **one** question.

EITHER

4 In periods of rising and persistent inflation, consumers and workers change their expectations of the future rate of inflation.

Evaluate, with the help of a diagram(s), the consequences of these changes of expectations for fiscal policy. [20]

OR

5 In recent years many countries have joined or established a free trade area (FTA).

Evaluate, with the help of a diagram(s), whether membership of an FTA is always beneficial to a country. [20]

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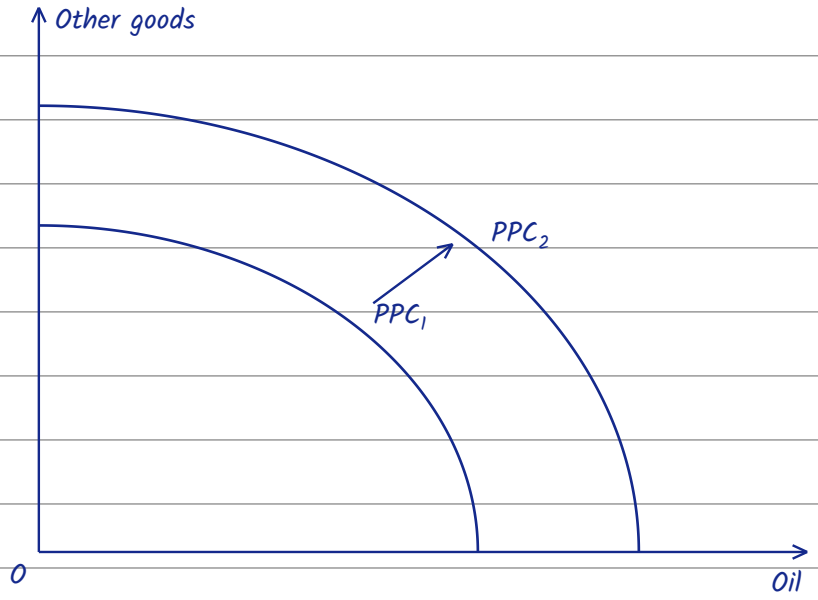
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Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9708/41

1(a) Potential growth is an increase in the productive capacity of the economy. Developing the new offshore oil field increases the quantity of natural resources (land) that Ghana can use, and the investment in rigs, pipelines and skills adds to its capital stock. So Ghana's potential output rises and the production possibility curve shifts outwards from PPC1 to PPC2: Ghana can now produce more oil and more other goods at the same time.



1(b) The multiplier is the process by which an initial increase in an injection into the circular flow of income, such as investment or exports, leads to a larger final increase in national income and output, $k = 1 \div (1 - MPC)$. In Ghana, investment in oil extraction and oil exports are injections. They create new jobs in the oil industry and pay incomes to these workers. The workers spend part of their extra income on domestic goods and services, such as food, housing, transport and retail,

Question number	
	so this spending becomes income for firms and workers in those other sectors. These firms hire more workers, who also spend, so there are further rounds of income and employment. Each round is smaller, because some income leaks out as saving, tax and, as the article says, spending on imported goods.
1(c)	The 'Dutch disease' is when the discovery and export of a natural resource causes a large inflow of foreign currency (here US$), which raises the exchange rate. The appreciation makes the country's other exports, such as manufactured and agricultural goods, more expensive abroad and imports cheaper, so these sectors lose competitiveness and their output and exports decline, as happened in the Netherlands after it exploited its natural gas. Fig. 1.1 suggests Ghana did suffer from it. After oil extraction began in 2010, fuel rose from almost 0% to about 50% of exports, while manufactures fell from about 25% of exports in 2009 to less than 10% in 2018, and agricultural raw materials and food fell from about 70% to about 42%. However, the figures are shares, not values, so part of the fall may simply be because oil exports grew so fast, not because other exports fell. So Ghana suffered to some extent, but the evidence is not conclusive.
1(d)	The standard of living is the material and non-material well-being of the population: real income and the goods and services people can consume, plus health, education, the environment and leisure. Much of the information suggests oil has raised living standards. Oil created new jobs and incomes, and through the multiplier, jobs in other sectors. Table 1.1 shows GNI per capita (US$ ppp) more than doubled, from 2478 in 2007 to 5484 in 2019, a 121% rise, so average real purchasing power rose. The HDI, which also covers life expectancy and education, rose from 0.55 to 0.61. Tax revenue from each barrel of oil can fund transfer payments, roads, health facilities and public

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water supply, and the stronger cedi makes imports cheaper, giving consumers a wider range of goods.

However, there are costs. Oil may crowd out agriculture and manufacturing, and the Dutch disease reduces their competitiveness, so workers in these sectors may lose their jobs. Higher prices of houses, land and local goods raise the cost of living in oil regions. The revenues may cause corruption and conflict rather than better services, and oil extraction often causes significant pollution, which lowers non-material well-being.

The data also has limits. GNI per capita is an average, and there is no data on the distribution of income, so the gains may go mainly to oil workers, foreign oil companies and the government. There is no information on working hours or leisure, and Fig. 1.1 shows shares of exports only, so we cannot tell whether employment in other sectors rose or fell. Some of the improvement may also be due to other factors, not oil.

Overall, a good deal of the information suggests the standard of living has improved on average, but the data is not definitive about how widely the benefits were shared.

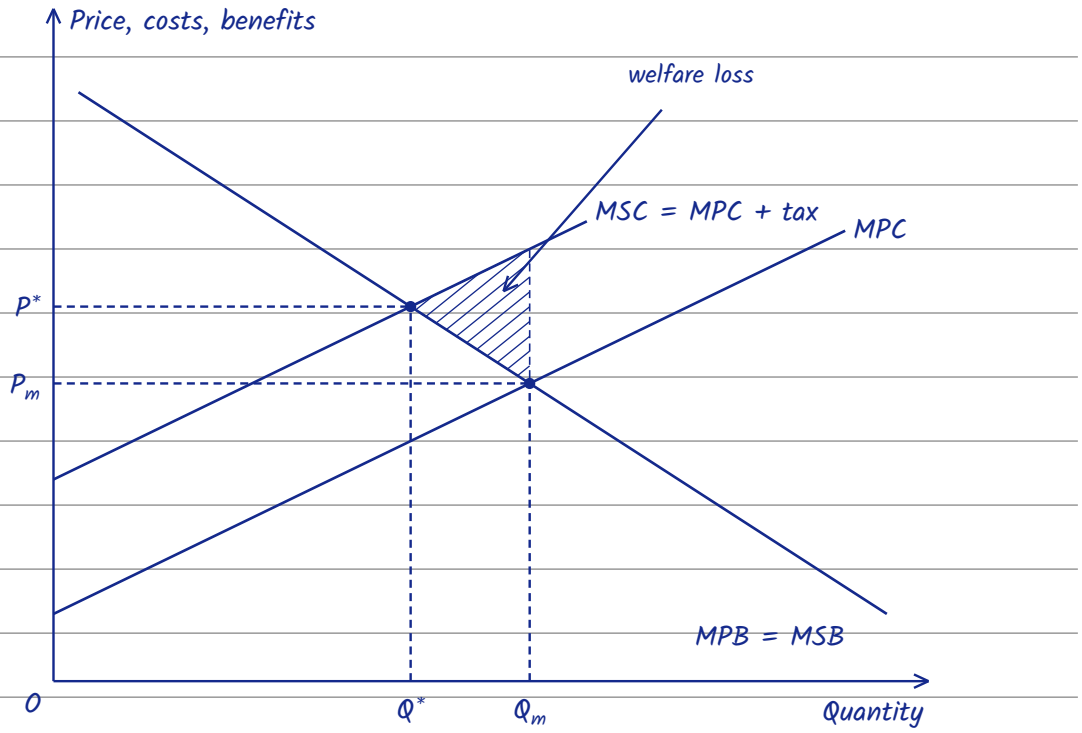
Section B

2 A negative externality is a cost imposed on a third party, who is not involved in the transaction and is not compensated, for example pollution from a factory or the noise and emissions from vehicles. Marginal social cost (MSC) is therefore greater than marginal private cost (MPC). Allocative efficiency is achieved when resources are allocated to maximise society's welfare, where price (marginal social benefit) equals marginal social cost.

In the diagram, a free market ignores the external cost, so it produces where MPB = MPC, at Qm and price Pm. The social optimum is at Q^*, where MSB = MSC.

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The good is over-produced and under-priced, because the price does not include the external cost. Between Q^* and Qm, each unit costs society more than it is worth, so the shaded triangle is a welfare (deadweight) loss: resources are misallocated, which is market failure.



The first policy is an indirect tax (a Pigouvian tax) equal to the marginal external cost. It raises the firm's cost of production, so the MPC curve shifts up to MSC = MPC + tax. The firm now pays the full social cost (it internalises the externality), so output falls from Qm to Q^* and price rises to P^*, removing the welfare loss. Allocative efficiency improves, and the polluter pays. The tax revenue can be used to clean up the damage or to subsidise cleaner alternatives, and the tax gives firms a long-run incentive to invest in cleaner technology.

The second policy is tradable pollution permits. The government sets a maximum level of pollution and issues permits up to this limit; firms that pollute less can sell spare permits. Pollution has a price, so it becomes a private cost, and the firms that can reduce pollution most cheaply do so and sell permits. The target is met at the lowest total cost, so output again moves towards Q^*. By reducing the

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number of permits over time, the government can cut pollution further.

However, whether these policies really improve allocative efficiency is limited. Both depend on information: the government must measure the marginal external cost in money terms, which is very difficult. If the tax is set too high, output falls below Q^* and a new welfare loss is created (government failure); too low, and over-production continues. Similarly, if too many permits are issued, their price is low and pollution falls little, as happened in the early EU Emissions Trading System.

The effect of a tax also depends on price elasticity of demand. For goods with inelastic demand, such as petrol, the tax mainly raises price and revenue, and output falls little. Taxes raise production costs, may cause local job losses, and are regressive, taking a larger share of the income of the poor. Firms may move production to countries with weaker rules. Permits have high administrative and monitoring costs, and big firms may simply buy permits and keep polluting in one area, harming local residents.

Other policies, such as regulation, bans or better information, may be simpler where the harm is serious, but they do not give firms an incentive to cut pollution below the legal limit.

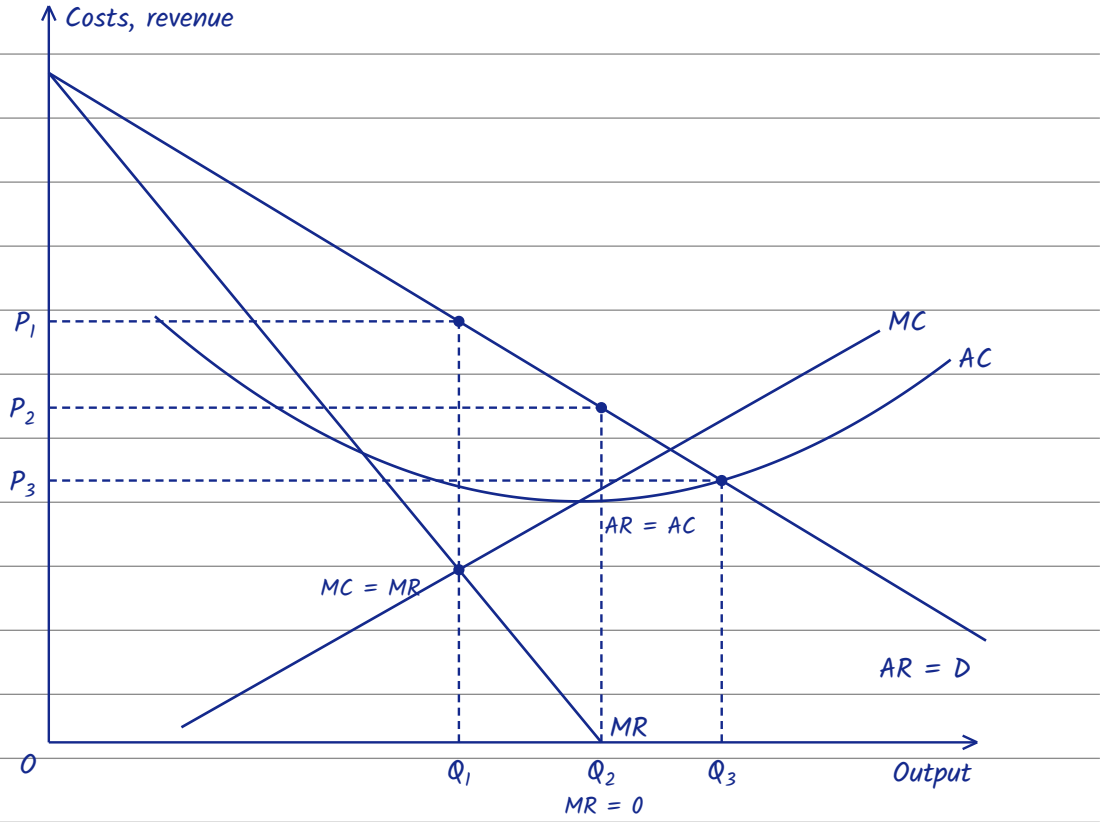
In conclusion, both an indirect tax and pollution permits can improve allocative efficiency, because they make polluters face the full social cost and move output towards Q^*. The extent depends on how accurately the external cost is measured, the elasticity of demand and the cost of enforcement. Permits are probably better where the aim is a precise limit on pollution, and taxes where demand is elastic, but neither will reach the exact optimum, so they reduce rather than eliminate the inefficiency.

3 Profit maximisation is the objective of making the largest possible difference between total revenue and total cost, which occurs where marginal revenue equals

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marginal cost (MR = MC). Sales maximisation is the aim of selling as many units as possible, usually subject to making at least normal profit, which occurs where average revenue equals average cost (AR = AC). A different objective, sales revenue maximisation, is where MR = 0.

The principal-agent problem arises when there is a divorce of ownership and control. The shareholders (principals) want maximum profit, but the managers (agents) who run the firm have different objectives and more information. Managers' pay, status and power are often linked to the size of the firm and its sales, so they may pursue sales maximisation, provided they make enough profit to keep shareholders satisfied.



The diagram shows the consequences for price and output. A profit maximising firm produces at Q1, where MC = MR, and charges P1, read from the AR curve. Supernormal profit is made because AR is above AC. If the firm maximises sales revenue it raises output to Q2, where MR = 0, and lowers price to P2. If it maximises sales subject to normal profit, it keeps expanding output until AR = AC,

Question number

at Q3, with the lowest price P3. So the change of objective leads to a lower price and a higher output, and the firm gives up supernormal profit.

There are benefits. Consumers pay a lower price and buy more, so consumer surplus rises, as part of the producer surplus is transferred to consumers, which may increase equality. Output is closer to the level where P = MC, so allocative efficiency may improve compared with the profit maximiser, which restricts output. A larger output can also bring economies of scale, lower average costs and more jobs.

However, the outcome is not certain. Beyond the point where P = MC, at Q3 price is below marginal cost, so too many resources are now used in this market and allocative efficiency falls, a misdirection of resources. Lower profits mean less retained profit for research and development, so dynamic efficiency may suffer, and lower dividends may cause the share price to fall, making the firm a takeover target.

The size of the change depends on several factors. It depends on how much freedom the managers have: if shareholders use profit-related pay, share options or the threat of dismissal, managers will stay close to profit maximisation. It depends on market structure: in perfect competition there is no supernormal profit to give up, so price and output cannot change in the long run, while in monopoly or oligopoly the difference can be large. In practice, firms lack the information to find exactly where MR = MC, so many use cost-plus pricing, and the difference may be smaller than the theory suggests. In oligopoly, lower prices may also start a price war.

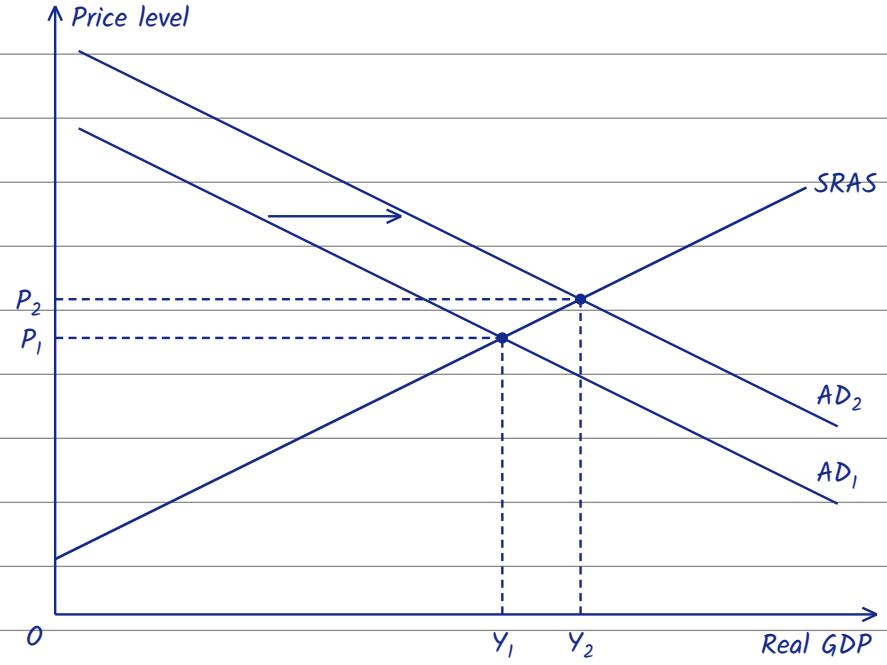
In conclusion, a move from profit maximisation to sales maximisation is likely to lower the price and raise output, which benefits consumers in the short run. The size of the change depends on the market structure and on how well shareholders can control managers, and if output rises beyond P = MC it may reduce rather than improve allocative efficiency.

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Section C

4 Inflation is a sustained increase in the general price level. Expectations of inflation are the rate of inflation that consumers and workers believe will occur in the future, usually based on their experience of recent inflation. When inflation is rising and persistent, people expect it to continue, so workers demand higher money wages to protect their real wages, and consumers buy goods earlier before prices rise.

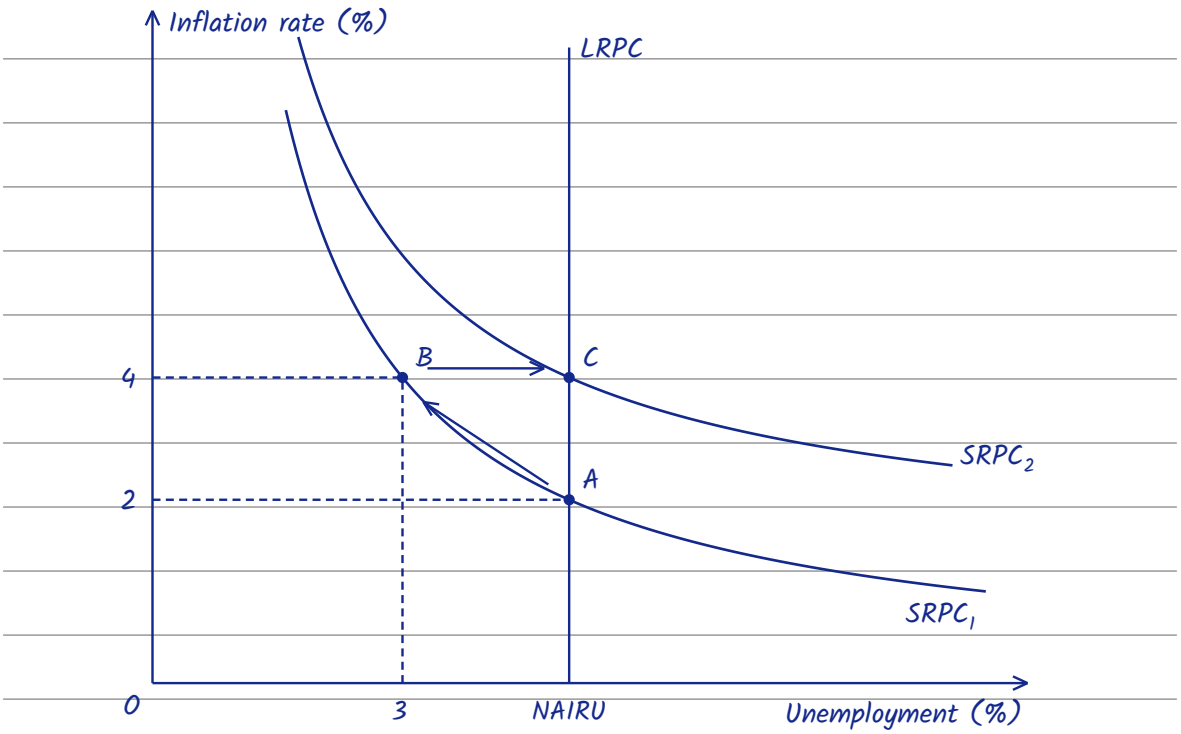
Fiscal policy is the use of government spending and taxation to influence aggregate demand. Expansionary fiscal policy, such as higher spending or lower taxes, shifts AD to the right from AD1 to AD2, raising real output from Y1 to Y2 and lowering unemployment, but also raising the price level from P1 to P2 (demand-pull inflation).



The original Phillips curve showed a stable trade-off between unemployment and the rate of wage (price) inflation. The government could use fiscal policy to choose a point on the curve, accepting more inflation for lower unemployment.

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Changing expectations destroy this trade-off, as the expectations-augmented Phillips curve shows.



The economy starts at A, with unemployment at the natural rate (NAIRU), 5%, and 2% inflation. Expansionary fiscal policy raises AD, so firms hire more workers and unemployment falls to 3%, with inflation rising to 4% (point B on SRPC1). Workers were expecting 2%, so at first they accept the money wage rises. When they realise that inflation is 4%, real wages have not risen, so they demand higher money wages. This raises firms' costs, SRAS shifts left (cost-push inflation, a wage-price spiral), and the extra workers are no longer profitable. Unemployment returns to the NAIRU at C, but inflation stays at 4% because expected inflation has risen, so the short-run Phillips curve shifts up to SRPC2. The long-run Phillips curve (LRPC) is vertical at the NAIRU.

The consequences for fiscal policy are serious. Expansionary fiscal policy can only reduce unemployment below the NAIRU temporarily; in the long run it only creates higher inflation. If the government keeps trying, inflation accelerates. Expectations may even adjust immediately (rational expectations), so the policy has no effect

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on unemployment even in the short run. Fiscal policy must instead be used to bring inflation down, through lower spending or higher taxes, which raises unemployment temporarily, and the government may need supply-side policies to lower the NAIRU.

However, this view can be challenged. Keynesians argue that when there is a large negative output gap the AS curve is very elastic (horizontal), so higher AD raises output with little inflation, and fiscal policy can still reduce cyclical unemployment. The strength of the wage-price spiral depends on the bargaining power of workers: in the 1960s and 1970s more workers were in trade unions, but today, with globalisation and multinational companies, the supply of labour is not limited by national borders and wage demands are weaker. The Phillips curve relationship has also changed over time: the 1970s had high inflation and high unemployment, while the 2000s had both low. If the central bank is credible and expectations are anchored at the target, expectations change little and fiscal policy is more effective.

In conclusion, when inflation is rising and persistent, changing expectations mean expansionary fiscal policy cannot permanently reduce unemployment and mainly leads to higher inflation. Fiscal policy can still help in a deep recession when expectations are stable, but to achieve low inflation and low unemployment together the government needs supply-side policies that raise productive capacity.

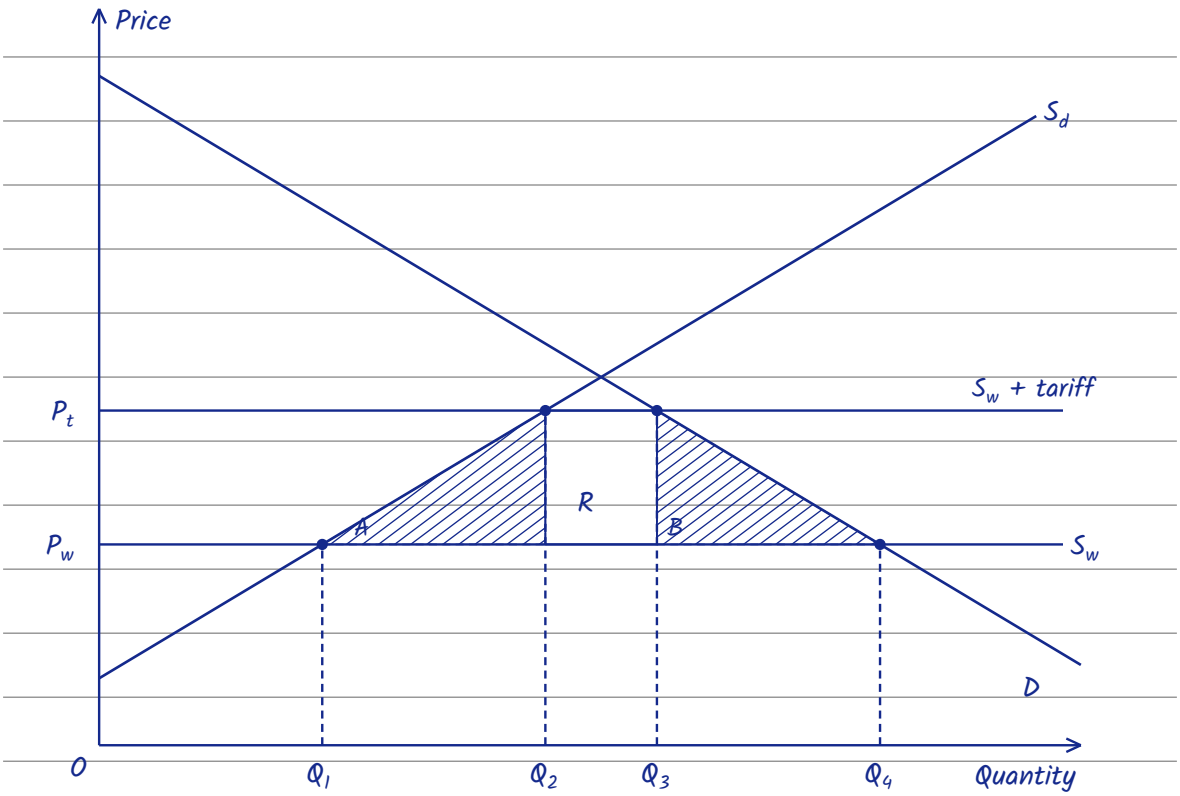
5

A free trade area (FTA) is a group of countries that remove tariffs, quotas and other trade barriers on goods traded between members, while each member keeps its own barriers against non-members, for example the USMCA (United States, Mexico and Canada) or ASEAN. A tariff is a tax on imports, and non-tariff barriers include quotas, regulations and administrative barriers.

Joining an FTA brings trade creation. In the diagram, before joining, imports from the partner are subject to a tariff, so the domestic price is P_t. Domestic producers

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supply Q2, consumers buy Q3 and imports are Q3 – Q2. After joining, the tariff is removed and the price falls to the partner's price Pw. Consumption rises to Q4, domestic production falls to Q1 and imports rise to Q4 – Q1. Consumer surplus rises by the whole area between Pt and Pw to the left of the demand curve. Part of this was producer surplus and part (R) was tariff revenue, but triangles A and B are a net welfare gain, as the deadweight losses of the tariff are removed.



There are further benefits. Lower prices mean more consumer surplus and greater allocative efficiency, and consumers get more choice. Each country can specialise according to comparative advantage. Firms gain access to a larger market, so they can gain economies of scale and become more productively efficient, and more competition reduces X-inefficiency. Cheaper raw materials and components lower costs and raise export competitiveness. If exports rise more than imports, (X – M) rises, AD increases and there is a multiplier effect on output and employment. However, membership is not always beneficial. There may be trade diversion: if the member country is not the lowest cost producer in the world, imports switch from

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a cheaper non-member, still facing the tariff, to a higher cost member. Resources are then used less efficiently, and if trade diversion is larger than trade creation the country loses. The government also loses tariff revenue (area R).

Domestic firms that cannot compete with cheaper imports may close, causing structural unemployment in those industries and regions, which may be long-lasting if workers are occupationally immobile. If the marginal propensity to import is high, the rise in imports is greater than the rise in exports, so (X – M) falls, AD falls and the current account worsens. Firms may also move highly polluting production to members with weaker environmental rules, which is not beneficial for those countries.

The size of the effects depends on price elasticity of demand and supply. If demand and supply are inelastic, or consumers have a strong preference for domestic goods, the quantity effects and the benefits of removing the tariff are small. It also depends on whether the partners are similar or are the world's lowest-cost producers, and on rules of origin, which add administrative costs. Smaller countries may also lose some control over trade policy.

In conclusion, membership of an FTA is usually beneficial overall, especially when the partners are efficient producers and trade creation outweighs trade diversion, because of lower prices, more choice and economies of scale. However, it is not always beneficial: some industries and workers lose, and a country with high cost partners or a high propensity to import may lose overall, so the gains depend on the members and on policies to help displaced workers.

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Section A

Answer all parts of Question 1.

1 Reduced Migration to the United States (US)

The factors of production land, labour, capital and enterprise form the basis for all economic output. Whilst land is geographically fixed, the other factors of production, for example labour, are mobile. Large numbers of migrants move from country to country every year. Many migrate to the US.

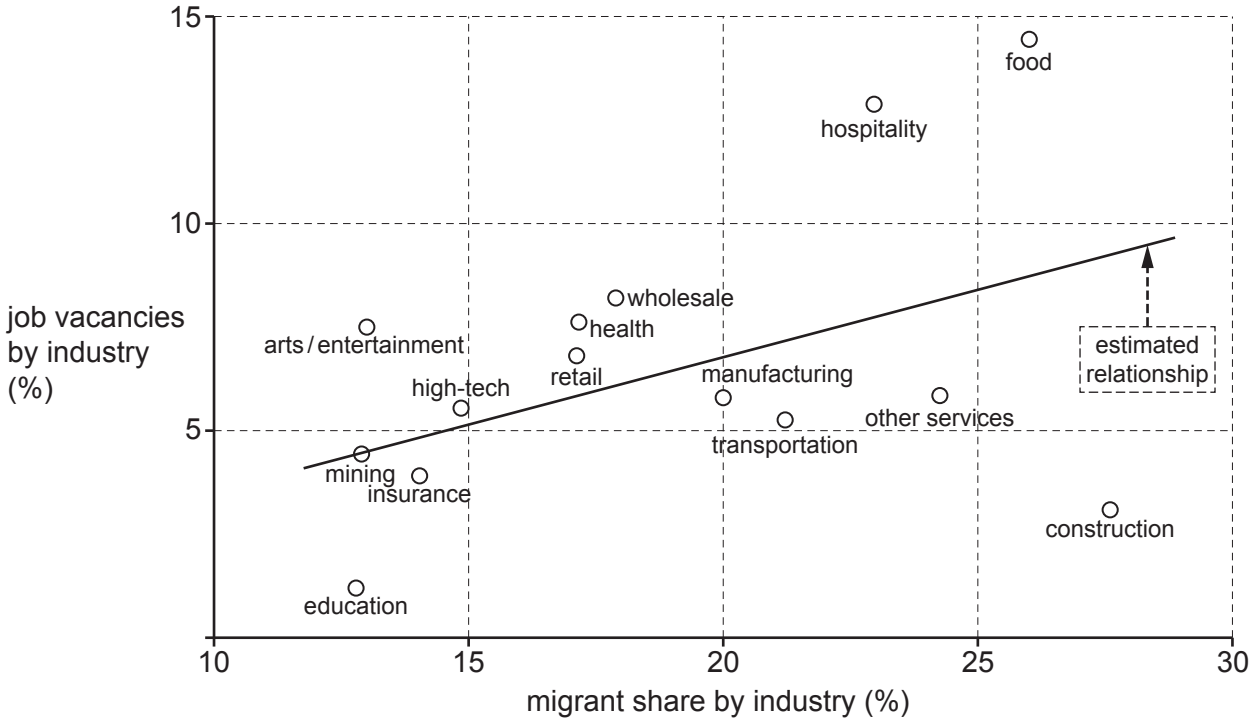
The average increase in the number of migrants working in the US was 0.6 million per year until 2018. However, the Covid-19 restrictions in place since 2019 prevented migration and by 2022 the total number of migrants working in the US was nearly 2 million lower than expected.

Half of migrants initially come as students, to be college educated, often in science-based subjects. Post-graduation, they often remain to work in the high-tech industries, before many return to their home countries with enhanced skills.

Well-educated immigrants are three times more likely to start businesses than inhabitants of the US. The reduction in the number of new migrants would reduce the number of new businesses and this, in turn, would reduce job creation by an estimated 200 000.

The remaining non-college educated migrants work mainly in lower-paid sectors such as retail and agriculture. They also play an important role in industries such as hospitality and food-related services. Many of the migrants send money to family members who remain in their home countries.

Fig. 1.1 shows the relationship between job vacancies in various industries and the share of migrant workers in the workforces of these industries in the US.



Source: US Bureau of Labor Statistics and Current Population Survey, US Census Bureau

Fig. 1.1: Unfilled job vacancies (%) and migrant workers in the workforce (%) for selected US industries, 2019

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The reduction in migrants took place at the same time as more older US workers retired.

Mexicans and Central Americans form the largest share of migrants, at over 35% of the total. Average incomes in their home countries are between 10% and 20% of the US average. There is also significant unemployment and under-employment in their home countries. In the US, migrants earn on average 12% less than the average wage for all workers. This varies by ethnic origin: Hispanic workers earn 16% less than the average while white workers earn 15% more than average.

Sources: G Peri and R Zaiour, University of California, Davis. The EconoFact Network, Statista.com
N Ward and J Batalova, Migration Policy Institute, 14 March 2023

(a) Identify the relationship between the variables shown in Fig. 1.1 and suggest **one** possible reason for the relationship. [2]

(b) With the help of a production possibility curve (PPC) diagram, explain **both** the likely effect of the prevention of migration to the US from 2019 **and** the retirement of older US workers on the US's productive potential. [4]

(c) Using the information and labour market theory, analyse why the wages received by migrant workers in the high-tech industries are likely to be higher than the wages received by migrant workers in the hospitality industry. [6]

(d) Evaluate the likely impact of a return to the migration levels prior to 2019 on the macroeconomic performance of the US economy. [8]

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Section B

Answer **one** question.

EITHER

2 Evaluate whether marginal utility theory can fully explain the link between the changing price of a good and quantity demanded of that good. [20]

OR

3 Privatisation is often required by the International Monetary Fund (IMF) and the World Bank before they are prepared to offer support to countries requiring loans, grants, debt relief and debt cancellation programs.

Evaluate the view that privatisation will always improve the allocation of resources in a country. [20]

Section C

Answer **one** question.

EITHER

4 The table below contains some key economic data for Mexico in 2020.

Gross National Income (GNI)	18.5 billion pesos
nominal wages	+2.8%
disposable income	+1.2%
unemployment rate	4.2%
population growth rate	1.1%
inflation rate	3.4%

Source: knoema.com

Evaluate the use of these statistics in assessing the standard of living in Mexico in 2020. [20]

OR

5 Between 2010 and 2020, very low interest rates encouraged low-income countries to borrow money from foreign investors and governments to finance long-term economic growth.

Evaluate this approach to promoting long-term economic growth. [20]

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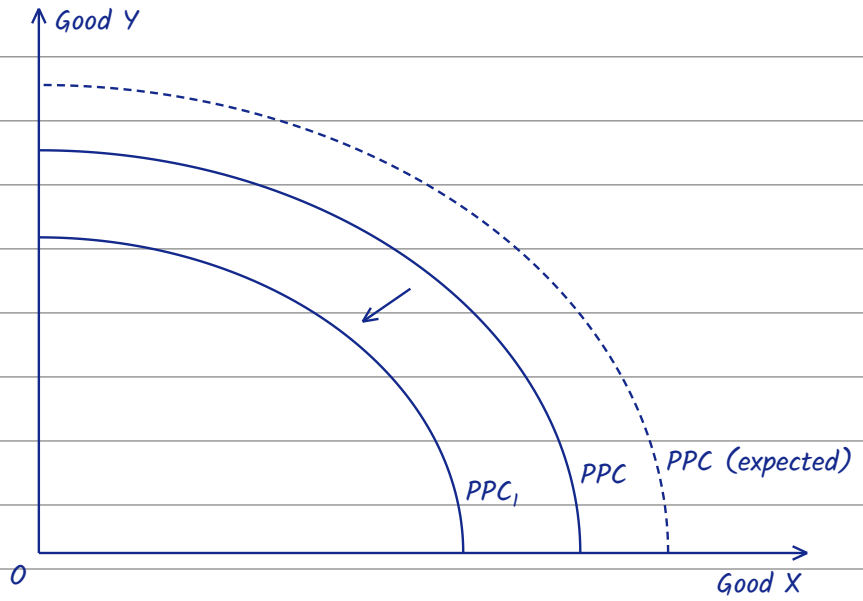
Question number

Answers for paper 9708/42

1(a) There is a positive relationship: industries with a higher migrant share of the workforce tend to have a higher rate of unfilled job vacancies, for example food (about 26%, 14%) compared with education (about 13%, 1%). One reason is that the US uses migrants to fill labour shortages: migrants are drawn to industries where there are most vacancies, often lower paid 'starter' jobs that domestic workers are unwilling to do.

1(b) Productive potential is the maximum output the economy can produce when all its resources are fully and efficiently employed, shown by the PPC. Until 2018, migration added about 0.6 million workers a year, which would have shifted the PPC outwards (dashed curve). Preventing migration means this increase in the labour force does not happen, so the PPC does not shift outwards and potential output is lower than expected, with nearly 2 million fewer migrant workers by 2022. The retirement of older US workers reduces the quantity (and the experience and skills) of labour, so the PPC shifts inwards from PPC to PPC1 and productive potential falls.

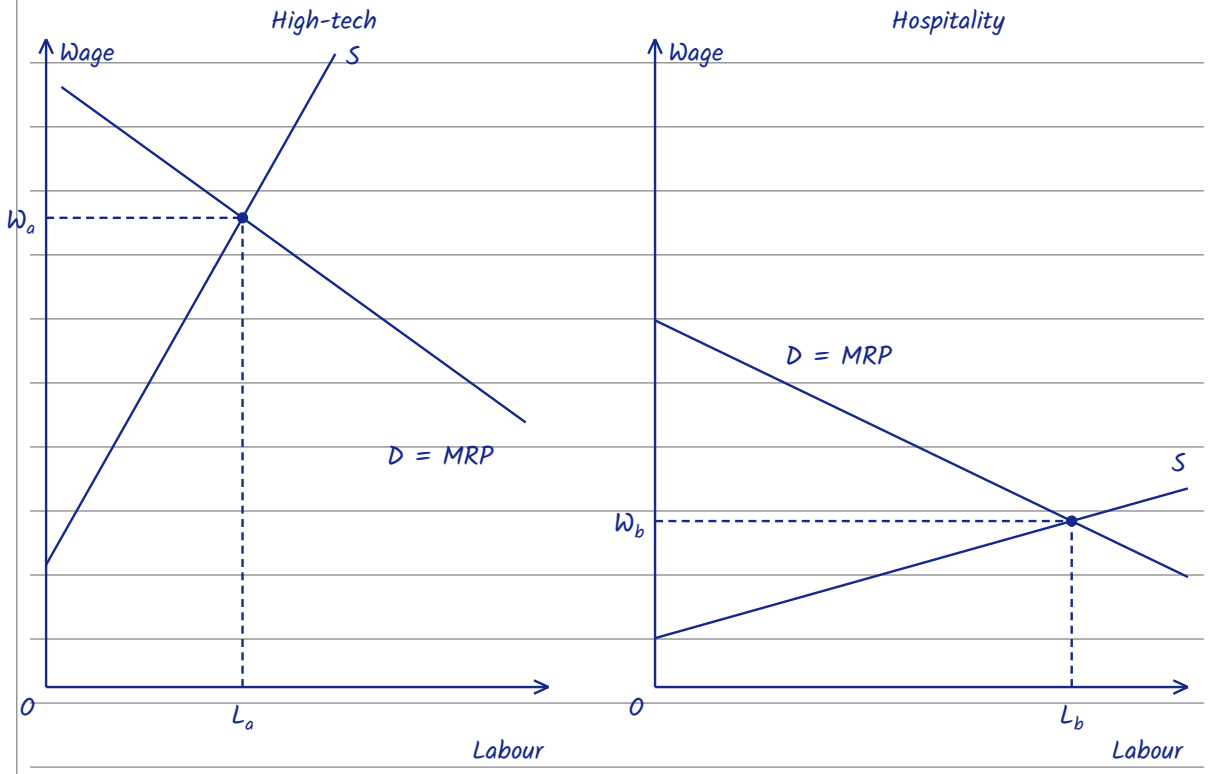
Question number



1(c) In labour market theory the wage is determined by the demand for and supply of labour. Demand is a derived demand, given by marginal revenue product: MRP = MPP × MR. Half of migrants are college educated, often in science subjects, and work in high-tech industries. Their marginal physical product is high and the value of what they produce is high, so their MRP and the demand for them are high. Some become entrepreneurs, since educated migrants are three times more likely to start businesses, and earn high profits.

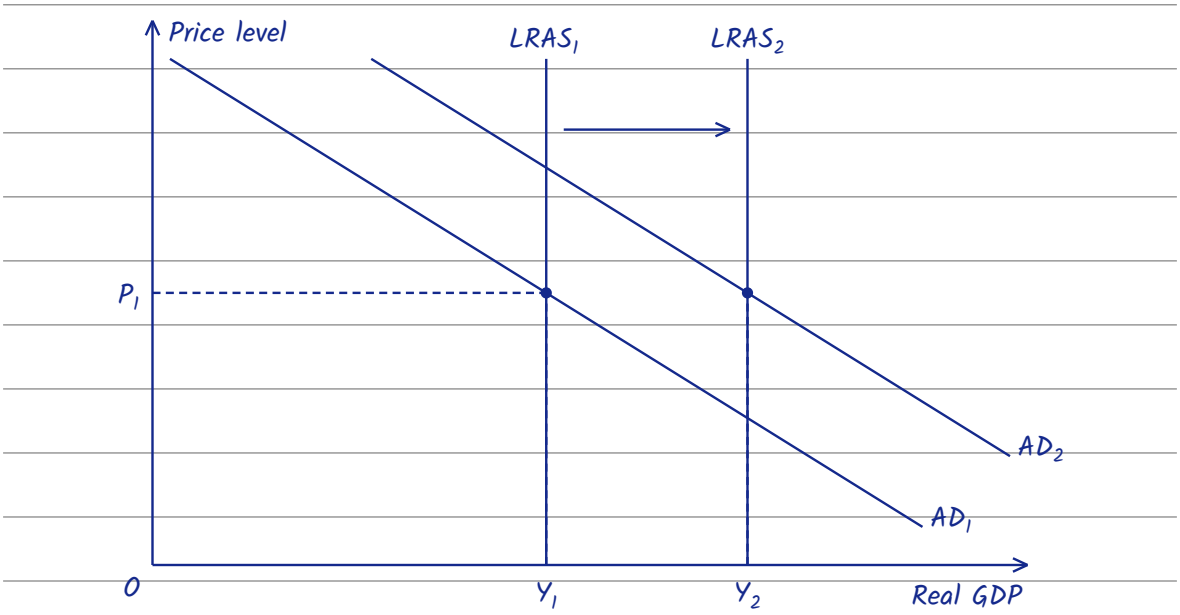
Supply of high-tech workers is limited and wage inelastic, because years of education and training are needed, and the fall in migration since 2019 reduces supply further, which widens the wage gap. In hospitality, migrants are mainly non-college educated, their MPP and the value of their output are low, so MRP and demand are lower. Supply is large and wage elastic, since few skills are needed and many migrants come from Mexico and Central America, where average incomes are only 10% to 20% of the US average, so they will accept low wages. If they are concentrated in particular areas this over-supply lowers wages further, and discrimination may also play a part: Hispanic workers earn 16% less than average. So, as the diagram shows, Wa in high-tech is higher than Wb in hospitality.

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1(d) A return to pre-2019 migration, about 0.6 million extra workers a year, would increase the supply of labour, so LRAS shifts right. This eases labour shortages in industries with many vacancies, such as food and hospitality, which reduces wage pressure and helps to stabilise prices. Migrants also spend their incomes, and with a high marginal propensity to consume there is a strong multiplier effect, so AD shifts right. With both AD and AS rising, real GDP rises from Y1 to Y2 with little inflation.

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Employment would also rise, because educated migrants are three times more likely to start businesses, restoring the estimated 200 000 jobs lost. A larger working population raises tax revenue, helping to pay for the pensions of the growing number of retired workers.

However, there are costs. Many migrants send remittances to their families abroad, which are an outflow on the current account, so the balance of payments worsens. Some argue that migrants crowd out domestic workers or lower the wages of low-skilled US workers, which would raise inequality. But since both AD and AS rise and the number of jobs increases, the crowding out argument is weak overall. The size of the effects depends on whether migrants have the skills employers need, and on whether there is spare capacity in housing and public services. Overall, a return to previous migration levels is likely to improve US macroeconomic performance, with higher growth and employment and lower inflationary pressure, although the current account would probably worsen.

Question number

Section B

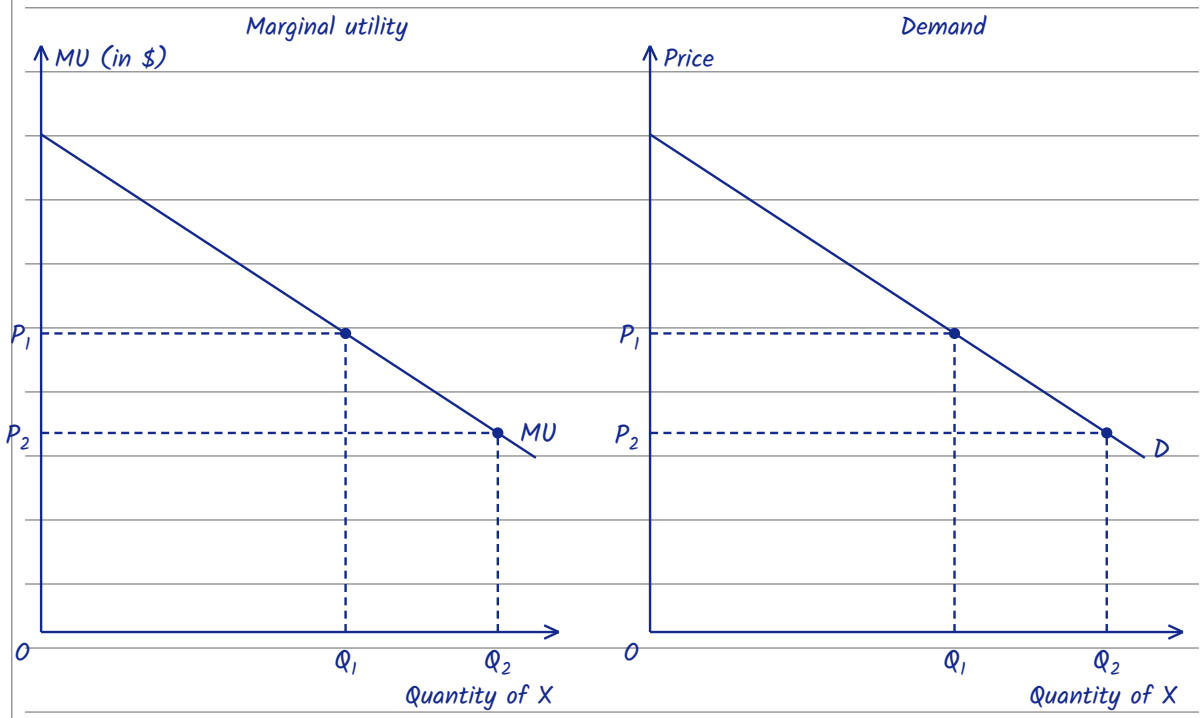
2

Utility is the satisfaction a consumer gains from consuming a good. Total utility is the total satisfaction from all the units consumed, and marginal utility (MU) is the extra satisfaction from consuming one more unit. The law of diminishing marginal utility states that as more units of a good are consumed, each extra unit gives less additional satisfaction, so MU falls (total utility rises at a decreasing rate).

Marginal utility theory assumes consumers are rational and aim to maximise their total utility from a limited income. A consumer buys a good up to the point where the MU of the last unit, measured in money, equals its price. With many goods, utility is maximised where the equi-marginal principle holds: MUa ÷ Pa = MUb ÷ Pb = ... = MUn ÷ Pn, so the last dollar spent on each good gives the same extra utility.

If the price of good A falls, MUa ÷ Pa becomes greater than the ratio for other goods, so the consumer gains more utility per dollar from A. To restore equality they buy more of A, which lowers MUa because of diminishing marginal utility, until MUa ÷ Pa again equals the ratio for other goods. So a fall in price leads to a rise in quantity demanded. In the diagram, at P1 the consumer buys Q1 where MU = P1, and when price falls to P2 they buy Q2. Plotting these points gives a downward sloping demand curve: the MU curve, in money terms, is the individual's demand curve.

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The theory therefore gives a clear explanation of the law of demand. However, it cannot fully explain the link between price and quantity demanded.

First, it assumes consumers are rational and have perfect information. In reality consumers have bounded rationality, use rules of thumb, buy out of habit, or are influenced by advertising, so they do not calculate the MU per dollar of every good, as behavioural economics shows.

Second, a price change has two effects: a substitution effect, as the good becomes relatively cheaper, and an income effect, as real income rises. MU theory cannot separate these. So it cannot explain the difference between normal and inferior goods, or explain Giffen goods, where a fall in price leads to a fall in quantity demanded because the negative income effect is larger than the substitution effect. Indifference curve analysis, using budget lines, can show these effects and is a better explanation.

Third, the theory assumes the marginal utility of money is constant. But a dollar is likely to be worth much more to someone earning $10 000 than to someone earning $100 000, so MU measured in money differs between people. Utility also cannot be measured in units, so the theory is hard to test.

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Fourth, the ceteris paribus assumption rarely holds: incomes, tastes and the prices of other goods change, so the demand schedule must be re-estimated after every change. The theory also struggles with goods bought only once, such as a house, where there is no series of marginal units, and with goods bought for status, such as Veblen goods, where a higher price can raise demand.

In conclusion, marginal utility theory explains the basic inverse relationship between price and quantity demanded for most goods, and the equi-marginal principle is a useful model. However, it cannot fully explain the link, because it relies on unrealistic assumptions about rationality and measurable utility and cannot separate income and substitution effects, so it fails for Giffen goods and some other cases.

3

Privatisation is the transfer of ownership of state-owned enterprises to the private sector, usually by selling shares, and can also include contracting out services to private firms. The allocation of resources is improved if the economy moves closer to allocative efficiency, where P = MC, and productive efficiency, where output is at the lowest point of the average cost curve.

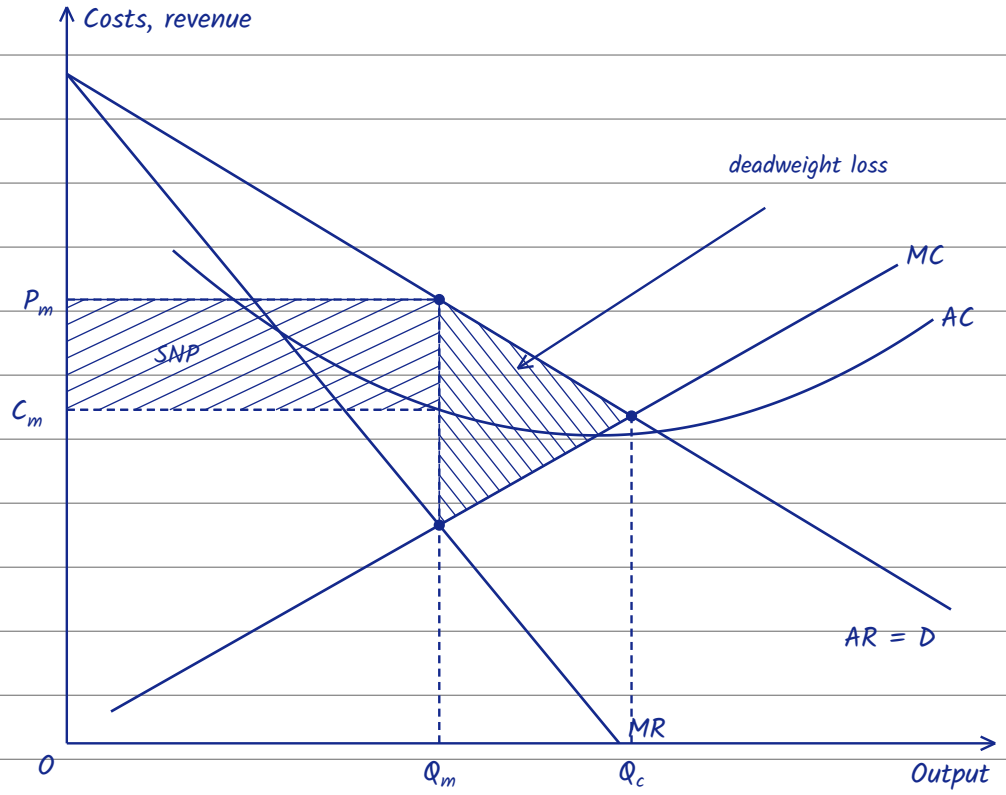
There are reasons why privatisation can improve the allocation of resources. State-owned firms often suffer from X-inefficiency: without the profit motive or competition, there is little incentive to minimise costs, and decisions may be political. Private owners and shareholders scrutinise managers and demand profits, so costs fall and productive efficiency rises. If the industry is broken up into competing firms, competition lowers prices towards marginal cost. Private firms can raise funds in capital markets for investment, rather than depending on the government's budget, so dynamic efficiency may improve.

There are fiscal benefits too. The sale raises revenue that can repay government debt, reducing the burden of interest payments, or be spent on education and health. Loss-making industries no longer need subsidies paid for by taxpayers, and

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the firms pay corporation tax. This is why the IMF and World Bank require privatisation.

However, privatisation will not always improve the allocation of resources. If a state monopoly is sold as a single firm, it simply becomes a private monopoly. In the diagram, a competitive industry (or a state firm pricing at marginal cost) produces at Qc, where P = MC. The private monopoly maximises profit where MR = MC, so it restricts output to Qm and raises the price to Pm. Because P > MC, there is allocative inefficiency and the shaded triangle is a deadweight welfare loss, while supernormal profit is protected by barriers to entry.



Many state industries, such as water, railways and electricity grids, are natural monopolies with very large economies of scale, so competition is unrealistic: duplicating pipelines or track would raise average costs. This is why privatised industries usually need a regulator to control prices and investment, which shows that privatisation alone does not guarantee efficiency, and regulators may suffer regulatory capture.

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Private firms consider only private costs and benefits. They ignore negative externalities such as pollution and may under-provide services with external benefits, or stop serving unprofitable rural areas, so allocative efficiency can fall. There are equity concerns: profitable assets are often sold cheaply, so future profits that would have gone to the state are lost, and prices for essential services may rise, hurting the poor. Job losses often follow, raising unemployment benefit payments and the fiscal deficit.

Whether privatisation improves the allocation of resources therefore depends on the market structure after privatisation, the level of barriers to entry and contestability, the quality of regulation and how efficient the state firm was in the first place.

In conclusion, privatisation can improve the allocation of resources when it creates real competition, for example in telecoms or airlines. It will not always do so, because a state monopoly may become a private monopoly, natural monopolies and externalities remain, and in low-income countries with weak regulators the risks are greater. So the view that privatisation will always improve allocation is too strong.

Section C

4 The standard of living is the level of well-being of the population. The material standard of living depends on real income per head and the goods and services people can consume, while the non-material standard of living includes health, education, working hours, the environment and freedom.

Gross National Income (GNI) is the total income earned by a country's residents, GDP plus net primary income from abroad. GNI of 18.5 billion pesos is a measure of total material output and income, and higher real GNI per head usually means a higher material standard of living. However, the figure is nominal, it is a total, not

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per head, and it is not compared with the previous year, so on its own it tells us little. To judge living standards we would need population size to calculate GNI per capita, a price index to calculate real GNI per capita, and purchasing power parity exchange rates to compare with other countries.

Nominal wages rose by 2.8%, but inflation was 3.4%, so real wages fell by about 2.8 − 3.4 = −0.6%. Workers can buy fewer goods and services, so the material standard of living of wage earners fell. Disposable income, income after direct taxes and including benefits, rose by only 1.2%, so real disposable income fell by about 1.2 − 3.4 = −2.2%. The population grew by 1.1%, so real disposable income per head fell by about −2.2 − 1.1 = −3.3%. This is the strongest evidence that the average material standard of living fell in 2020.

The unemployment rate of 4.2% is quite low, which suggests most people who want to work have an income, and low unemployment avoids the loss of income and the social costs of unemployment. However, 2020 was the year of the Covid-19 pandemic, and Mexico has a large informal sector, so many workers may be underemployed or in low-paid informal jobs that this figure does not show.

These statistics have important limitations. There is no information about the base year or the previous year, so we cannot tell whether GNI, unemployment or inflation have improved. They are averages and say nothing about the distribution of income: Mexico has high inequality, so the average may hide large differences. The inflation rate is an average and may not reflect the prices of the goods the poor buy, such as food. Nominal wages only cover employees, not the self-employed or the informal sector.

Most importantly, the statistics measure only the material standard of living. They give no information on health, life expectancy, education, crime, pollution, hours worked or leisure. Composite measures are better: the Human Development Index (HDI) combines GNI per capita (PPP) with life expectancy and years of schooling; the Measure of Economic Welfare (MEW) adjusts GDP for leisure and

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environmental damage; and the Multidimensional Poverty Index (MPI) shows deprivation in health, education and living standards.

In conclusion, these statistics are of limited use. The comparison of wages and disposable income with inflation and population growth is useful and suggests the material standard of living fell in 2020. However, the GNI figure is of little value without population, price and previous-year data, and none of the statistics measure the distribution of income or non-material well-being, so they must be combined with measures such as the HDI to assess the standard of living properly.

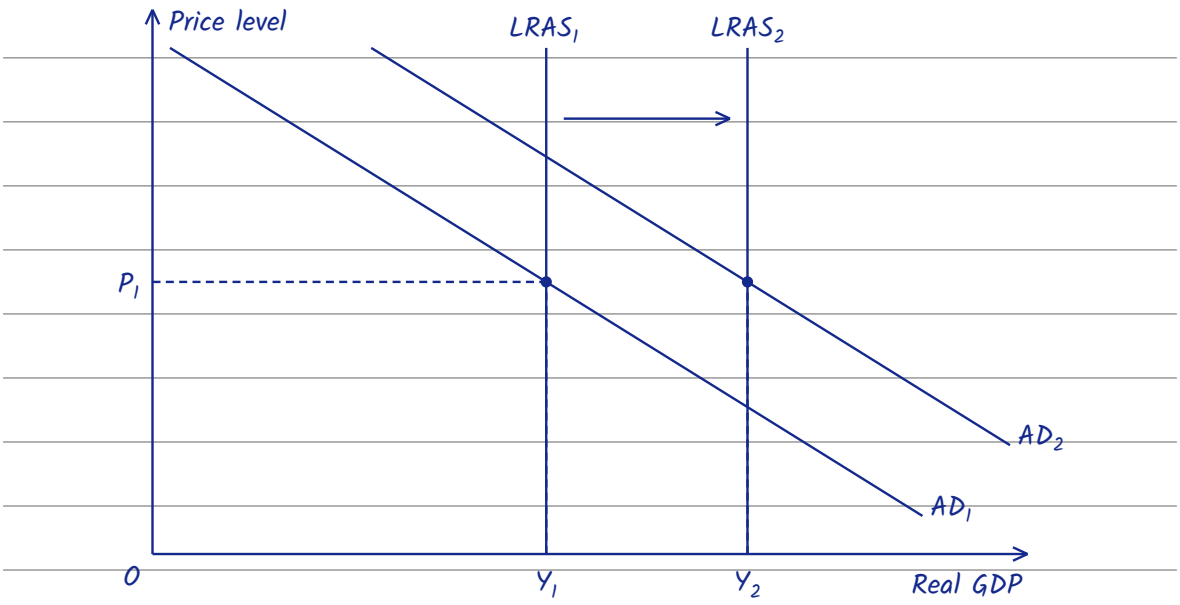
5 Long-term economic growth is an increase in the productive capacity of the economy, shown by an outward shift of the PPC or the LRAS curve, and measured by sustained increases in real GDP. It depends on increasing the quantity and quality of factors of production, especially capital, through investment in infrastructure, machinery, technology, education and health.

Low-income countries have low incomes, so saving is low and there are few domestic funds for investment: a savings gap and a vicious circle of poverty. Borrowing from abroad fills this gap. Between 2010 and 2020 interest rates in high-income countries were very low, so the cost of borrowing was low. A project is worth financing if its expected return, the marginal efficiency of capital (MEC), is greater than the rate of interest, so many more projects became profitable. Lenders included foreign governments, for example China's Belt and Road Initiative, international agencies such as the World Bank, and private investors; multinational companies also invested directly in factories.

The borrowed funds increase investment, a component of AD, so in the short run AD shifts right and through the multiplier output and employment rise. In the long run the new roads, ports, power stations and schools raise productivity and productive capacity, so LRAS shifts right from LRAS1 to LRAS2 and real GDP rises from Y1 to Y2 without inflation. Growth then raises incomes, saving and tax

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revenue, which can be used to repay the loans.



However, this approach has serious risks. The loans must be repaid with interest, usually in US dollars. When interest rates rose sharply after 2021, the cost of servicing variable-rate debt rose. Higher US interest rates also caused capital to flow out of low-income countries, so their currencies depreciated, which raised the cost of repaying dollar debts in local currency. Interest payments abroad are an outflow on the current account, so the balance of payments worsens, and debt servicing has an opportunity cost: the money cannot be spent on health and education. Some countries, such as Sri Lanka and Zambia, defaulted on their debts.

The outcome depends on the quality of the projects. If the funds are invested in productive projects with a return above the interest rate, growth can repay the debt. But some loans finance 'vanity projects' or roads to nowhere that raise the government's standing but give little economic return, and corruption may divert funds. If lenders require that construction workers and materials come from their own country, the short-run boost to AD in the borrowing country is small and imports rise, worsening the current account.

It also depends on export earnings. Many low-income countries depend on primary

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commodities, and a commodity price slump reduces their export revenue and depreciates their currency, making repayment harder. If domestic savings are very low, however, there may be no alternative source of funds, and growth would be slower without borrowing. Alternatives such as foreign direct investment, which does not have to be repaid, and grants or concessional loans from the World Bank, are less risky.

In conclusion, borrowing at low interest rates can promote long-term growth when it finances well-chosen, productive investment and the country has growing export earnings to repay it. However, it is a risky approach, because it creates a burden of foreign debt that becomes unsustainable when interest rates rise, currencies depreciate or commodity prices fall, so it should be limited and combined with FDI and higher domestic saving.

Cambridge Assessment International Education

Cambridge International AS & A Level

ECONOMICS **9708/43**

Paper 4 A Level Data Response and Essays **October/November 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 The threat from large firms

In 2021, one of the largest United States (US) technology companies averaged sales of US$1.2 billion a day. It took less than four seconds to earn US$52 000, the average American yearly salary. Three of the largest technology companies reported record breaking sales and profits. Five of the largest companies made combined profits of over US$68 billion.

They were helped by the Covid-19 pandemic that caused a huge increase in online working and shopping. The ability to work and shop online was greatly welcomed by many who were forced to stay at home.

Critics, however, worry that if this trend to large firms continues the future will be controlled by a handful of super-rich, super-powerful companies. They will dominate economic activity. This is not just bad for the economy; it is bad for consumers and bad for competition. Also, economic concentration causes unacceptable inequality. One powerful firm tried to prevent workers joining a trade union.

Their huge cash reserves mean that they could undercut possible new entrants and prevent competition. Investors will be wary of investing in possible competitors and new owners would be prepared to sell out to the dominant firms rather than try and compete.

The size of the firm gives it political power to fight any official or government intervention. Governments are beginning to be aware of this. The chair of the US body that deals with competition law said there was a range of potential risks created by the large companies. The government is aware of their ability to avoid paying taxes and their ability to dominate allows them to expand into markets for similar products.

Ten years ago, a co-founder of one of the large firms said ‘Joseph Schumpeter, the economist who used the term creative destruction would be proud’. But now that co-founder is not so sure. ‘We went from being pirates to being the navy. People may love pirates when they are young and small, but nobody likes a navy that acts like a pirate. Today’s technology giants are just like that’.

Source: The Guardian, *31 July 2021*

(a) **(i)** Distinguish between limit pricing and predatory pricing. [4]

(ii) Explain whether there is any evidence in the article of these two types of pricing policy. [2]

(b) Assess **three** possible positive effects on the macroeconomy of the huge increase in the size of the five largest technology companies. [6]

(c) The article says the growth of large firms is bad for consumers, bad for competition, and causes inequality.

Consider whether this statement can be supported by the article and by economic theory. [8]

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Section B

Answer **one** question.

EITHER

2 Negative externalities of production cause market failure.

With the help of a diagram, assess the extent to which the introduction of indirect taxation is likely to address this cause of market failure. [20]

OR

3 Wages in a perfectly competitive labour market will always be higher than wages in a monopsony labour market.

With the help of a diagram, evaluate this statement. [20]

Section C

Answer **one** question.

EITHER

4 Central banks can control the money supply. An increase in the money supply will cause inflation, therefore central banks can control inflation.

Evaluate this statement. [20]

OR

5 Some high-income countries have introduced a policy of high tariffs on some imports to reduce the negative effects of globalisation on their economies.

With the help of a diagram, evaluate this policy. [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)(i) Limit pricing is a strategy used by an existing firm to stop new firms entering the market. It sets a price low enough, possibly close to average cost so that only normal profit is made, that potential entrants do not think the market is worth entering. Predatory pricing is a strategy used to force a rival that is already in the market to leave. The firm sets a price below average (unit) cost in the short run, making a loss, to drive out the competition, and then raises prices later to recover the losses. Predatory pricing is anti-competitive and illegal under competition (anti-trust) laws.

1(a)(ii) Limit pricing: yes, the firms' huge cash reserves mean they could undercut possible new entrants, so investors are wary of investing in possible competitors. Predatory pricing: possibly, since new owners would rather sell out to the dominant firms than try to compete, which suggests existing rivals are being forced out. But the article only says they 'could' do this, so the evidence is limited.

1(b) First, employment. To meet the huge increase in online working and shopping the firms hire more workers, for example in warehouses, delivery and software, which reduces unemployment. However, much of their growth comes from automation, and jobs may be lost in high street shops, so the net effect may be small. Second, aggregate demand and economic growth. Their investment in data centres and new technology raises AD and, through the multiplier, real GDP. Their innovation raises productivity, shifting LRAS right, so there is long-term growth without inflation. Benefits are greater if profits are reinvested, not held as cash

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reserves.

Third, the balance of payments and government finances. They sell services worldwide, so export earnings and profits from abroad improve the US current account, and record profits of over US$68 billion could raise tax revenue for public services. But the article says they are able to avoid paying taxes, so this gain may be limited.

1(c) The article supports the statement. One firm earned US$52 000, the average American yearly salary, in less than four seconds, and five firms made combined profits of over US$68 billion, which suggests prices well above costs and a large transfer from consumers to shareholders, so inequality rises. One firm tried to stop workers joining a trade union, keeping wages down, and the firms avoid taxes and use their size to expand into markets for similar products and to fight government intervention.

Economic theory also supports it. As firms grow and gain monopoly power, they restrict output and raise prices where MR = MC, so there is less choice, allocative inefficiency (P > MC) and a deadweight loss, and supernormal profits are protected by barriers to entry. Small firms are forced out or bought up, so competition falls, and a dominant buyer of labour can act as a monopsonist, paying lower wages.

However, the article also shows benefits to consumers: online working and shopping were 'greatly welcomed' by people forced to stay at home during the pandemic. Economic theory, not mentioned in the article, shows that large firms can gain economies of scale, lowering average costs and prices, and many online services are free. Their supernormal profits can fund research and innovation, so there is dynamic efficiency, as Schumpeter's creative destruction suggests, and the market may be contestable, as these firms were once small 'pirates'.

So the statement is not always true: large firms can be bad for competition and

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increase inequality, but whether they are bad for consumers depends on whether cost savings and innovation are passed on, and on effective competition policy.

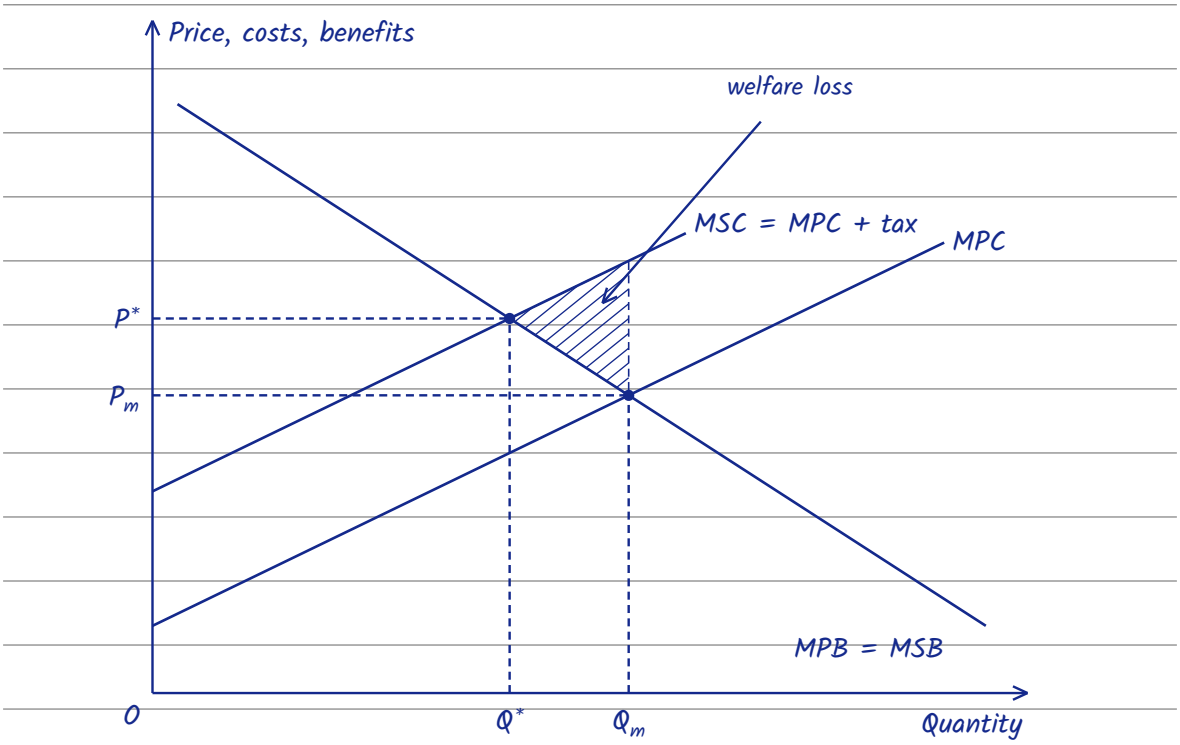
Section B

2 Market failure occurs when the free market fails to allocate resources efficiently. Allocative efficiency is achieved when resources are allocated to produce the combination of goods that maximises consumer satisfaction, where price equals marginal cost, or in social terms where marginal social benefit equals marginal social cost (MSB = MSC).

A negative externality of production is a cost imposed on third parties that is not paid for by the producer or the consumer, a negative spill-over effect, for example air pollution from a steel works or waste dumped into a river. The marginal social cost is greater than the marginal private cost by the amount of the external cost: MSC = MPC + MEC.

In the diagram, the firm considers only its private costs, so the market produces where MPB = MPC, at Qm and price Pm. The socially optimum output is Q^*, where MSB = MSC. Output is too high and the price too low, because the price does not reflect the full cost to society. For every unit between Q^* and Qm, MSC is greater than MSB, so the shaded triangle is a welfare loss: this is the market failure.

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An indirect tax is a tax on spending, paid by the producer to the government. If the government sets the tax per unit equal to the marginal external cost at the optimum, the firm's costs rise and the MPC curve shifts up to MSC = MPC + tax. The firm now pays the full social cost of its production, so the externality is internalised (the polluter pays principle). Output falls from Qm to Q^* and the price rises to P^*, so the welfare loss is removed and allocative efficiency is achieved. The higher costs give firms an incentive to use cleaner methods, and the tax revenue can be used to compensate third parties or clean up the damage.

However, the extent to which the tax addresses the market failure is limited. The main problem is information failure: it is very difficult to measure the external cost in money terms, so the government does not know the correct tax. If it is too low, over-production continues; if it is too high, output falls below Q^*, causing a new welfare loss and unnecessary job losses, which is government failure.

The effect depends on price elasticity of demand. Large firms often sell products with inelastic demand, so they pass most of the tax on to consumers as higher prices and output falls only a little, so pollution is hardly reduced. The tax may

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take a long time to work, as firms need time to change their production methods. It is also costly and bureaucratic to monitor each firm's pollution and enforce the tax, and firms may move production abroad. An indirect tax is regressive, taking a larger share of the income of the poor, and higher costs may make domestic firms less competitive.

Other policies may be more effective. Regulation, such as legal limits on emissions or bans, gives a certain result where the harm is serious. Tradable pollution permits set a fixed limit on total pollution and let the market find the cheapest way to meet it. However, these also require information and enforcement.

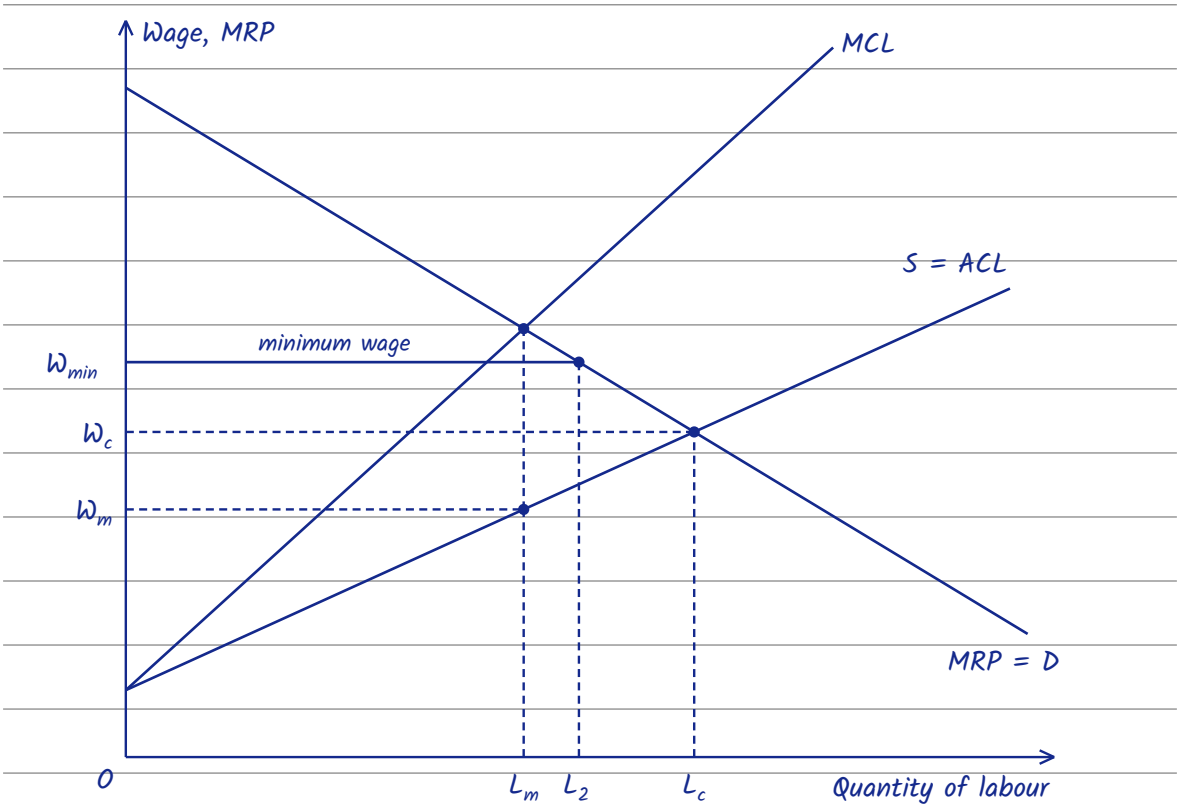
In conclusion, an indirect tax can, in theory, fully correct the market failure caused by a negative production externality by moving output to Q^*. In practice it is only partly effective, because the external cost is hard to measure and demand is often inelastic. It is likely to work best combined with regulation or pollution permits, and where demand is price elastic and cleaner technology is available.

3

In a perfectly competitive labour market there are many employers and many workers, workers are homogeneous and mobile, and there is perfect information, so no one can influence the wage. The wage is set where the market demand for labour (the sum of firms' MRP curves) equals the supply of labour, and each firm is a wage taker, hiring workers up to the point where MRP = wage.

A monopsony is a labour market with a single (or dominant) buyer of labour, such as a large employer in a small town. The monopsonist faces the upward sloping market supply of labour, which is its average cost of labour (ACL). To hire one more worker it must raise the wage for all its workers, so the marginal cost of labour (MCL) is above ACL. It maximises profit by employing where MCL = MRP, at Lm, but it pays only the wage needed to attract Lm workers, read from the supply curve, Wm.

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If the same market were perfectly competitive, employment would be where demand (MRP) equals supply, at Lc with wage Wc. So, with the same demand and supply conditions, the monopsony pays a lower wage (Wm < Wc), employs fewer workers (Lm < Lc), and pays workers less than their MRP, which is exploitation. This supports the statement.

However, wages also depend on demand and supply conditions in each market. The demand for labour depends on productivity and the price of the product, so a monopsonist with highly skilled, productive workers and a high MRP may pay more than a competitive market with low-skilled workers, for example a large technology firm compared with competitive cleaning firms. The supply of labour depends on skills, training and the number of workers: in a competitive market with a large supply of unskilled labour the wage may be very low.

Intervention can also change the result. The government can set a minimum wage in a monopsony. In the diagram, a minimum wage at Wmin makes the supply curve horizontal at Wmin up to the supply curve, so MCL = Wmin. The firm now

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employs L2, where Wmin = MRP. The minimum wage is above Wc, so the monopsony now pays more than the competitive wage, and employment also rises from Lm to L2. Trade unions can bargain collectively with a monopsonist, creating a bilateral monopoly, and push the wage up towards or above Wc. Unions may also improve training and productivity, which raises MRP and wages.

In the long run, high wages in a competitive market attract more workers, so supply increases and wages fall, so higher wages may not be sustained. Monopsony wages also depend on how easily the firm can substitute capital for labour and on the existing capital to labour ratio: if machines can easily replace workers, unions and minimum wages will raise wages less and cost jobs.

In conclusion, the statement is true when the two markets have the same demand and supply conditions and there is no intervention, because a monopsonist uses its buying power to pay below the competitive wage. However, it is not always true, because productivity and skills differ between markets, and minimum wages or strong trade unions can raise monopsony wages above the competitive level.

Section C

4 Inflation is a sustained increase in the general price level, which reduces the purchasing power of money. The money supply is the total amount of money in the economy: notes and coins plus bank deposits, including commercial bank balances held at the central bank and deposits held by the public in commercial banks.

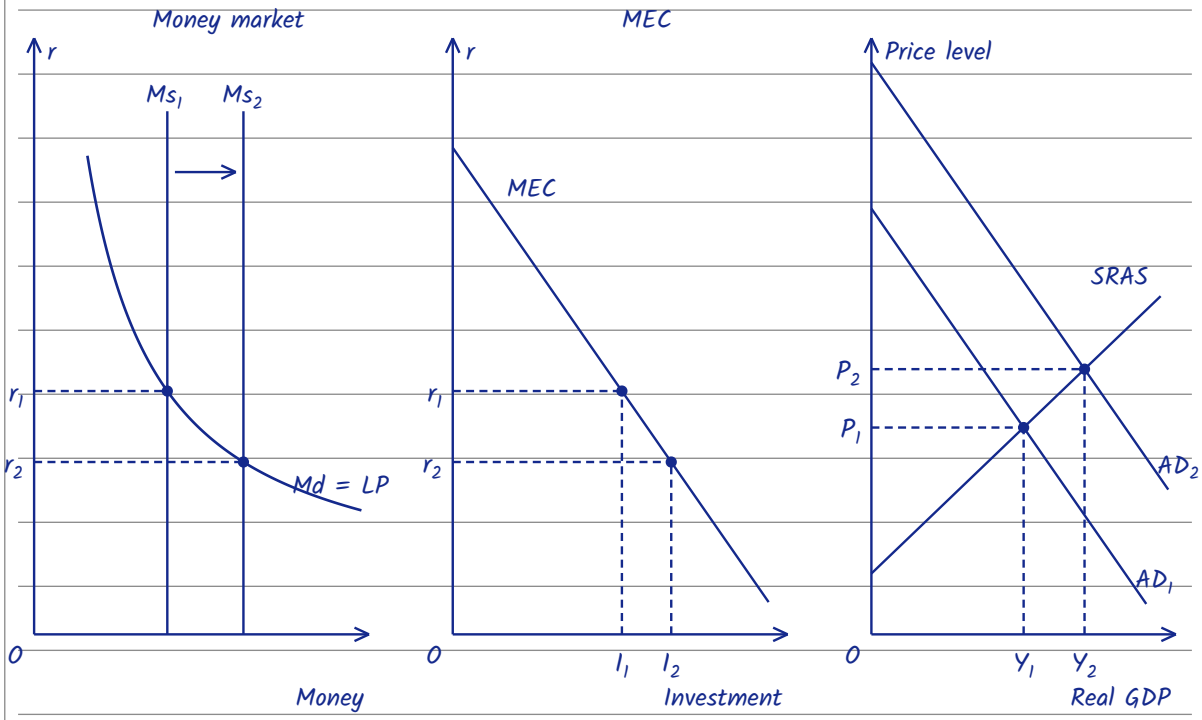
The central bank has several tools to control the money supply. Through open market operations it buys or sells government securities. Selling bonds takes money from the banking system, reducing banks' reserves and their ability to lend; buying bonds (quantitative easing) increases them. It can change the reserve ratio that banks must hold, which changes the credit multiplier, and it sets the base interest

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rate, which changes the demand for loans.

The link between money and inflation is shown by the quantity theory of money: MV = PT, where M is the money supply, V the velocity of circulation, P the price level and T the number of transactions. Monetarists assume that V and T are fixed in the short run, so an increase in M causes a proportional increase in P.

The diagram shows the transmission mechanism. An increase in the money supply from Ms1 to Ms2 lowers the rate of interest from r1 to r2. Lower interest rates raise investment from I1 to I2 along the MEC curve and encourage borrowing for consumption, so AD shifts right from AD1 to AD2 and the price level rises from P1 to P2. In reverse, by reducing the money supply or raising interest rates, the central bank can reduce AD and inflation, which supports the statement.



However, the statement can be challenged. First, the money supply is very difficult to measure and control. There are many definitions, from narrow money to broad money, and most money is created by commercial banks when they lend, so the central bank controls it only indirectly. Rising interest rates may even encourage saving, which raises bank deposits and so broad money.

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Second, the link between money and prices is not clear. Keynesians argue that V is not stable and that if there is spare capacity in the economy, extra money raises output (T) rather than prices. Between 2009 and 2020 quantitative easing greatly increased the money supply in the US, UK and Japan, but inflation stayed low. If interest rates are already near zero there is a liquidity trap, and extra money is held as idle balances.

Third, it depends on the cause of inflation. Monetary policy works on AD, so it can control demand-pull inflation, though contractionary fiscal policy may be more direct. But cost-push inflation, caused by higher oil and import prices or wage rises, is not caused by the money supply; using tight monetary policy then reduces output and raises unemployment. There are also time lags of up to two years, and global factors such as exchange rates affect inflation.

In conclusion, central banks can influence the money supply and, through interest rates, aggregate demand, so they can help control demand-pull inflation, especially if they are independent and credible so that inflation expectations stay low. However, the statement is too simple: they cannot fully control the money supply, more money does not always cause inflation, and they cannot control cost-push inflation, so control of inflation also needs fiscal and supply-side policies.

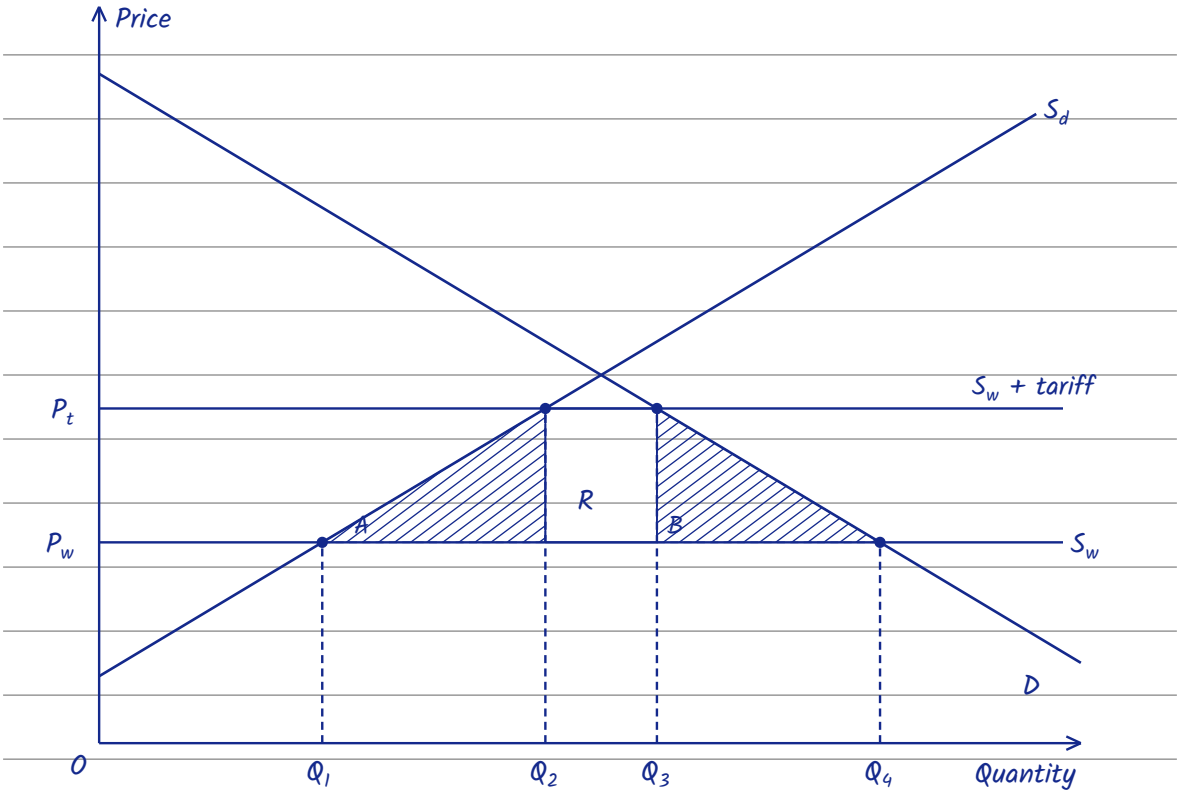
5

Globalisation is the increasing integration of economies through free trade, the free movement of capital and labour and the transfer of technology. High-income countries have high productivity, high GDP per capita, high dependency ratios and depend heavily on international trade. A negative effect of globalisation for them is the import of goods produced at low cost by other countries, for example steel or electronics from Asia, which can cause domestic firms to close and structural unemployment.

A tariff is a tax on imports. In the diagram, under free trade the price is the world price Pw: domestic firms supply Q1, consumers buy Q4 and imports are Q4 – Q1. A

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tariff raises the price of imports to Pt. Domestic production rises to Q2, consumption falls to Q3 and imports fall to Q3 – Q2. The government gains tax revenue, shown by rectangle R.



The policy has benefits for high-income countries. Domestic firms sell more at a higher price, so output and employment in protected industries rise and structural unemployment falls. The current account may improve as imports fall. The revenue R can be invested in training, infrastructure or research to promote long-term growth, and protection may give time for industries to restructure, or protect strategic industries such as steel and semiconductors, or protect against dumping. However, there are significant costs. Consumers pay a higher price and buy less, so consumer surplus falls by the area between Pt and Pw to the left of demand. Part becomes producer surplus and tariff revenue, but triangles A and B are a deadweight welfare loss: A is the production inefficiency of producing Q1 to Q2 at home at a higher cost than the world price, and B is the lost consumption. So there is allocative and productive inefficiency, as resources are diverted from more

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efficient foreign producers.

Other countries may retaliate with their own tariffs, leading to a trade war, as happened between the US and China after 2018. Exporting industries then lose sales and jobs, and world trade and growth fall. Many imports are components, so tariffs raise firms' costs, causing cost-push inflation, higher prices, lower demand and possibly more unemployment in other industries. Tariffs also remove some benefits of globalisation, such as consumer choice and access to cheap goods, which especially hurts low-income households.

Protecting inefficient domestic firms reduces the pressure of competition, so they have less incentive to innovate and cut costs, which harms long-term competitiveness. The effect also depends on price elasticity: if demand for imports is inelastic, the tariff mainly raises prices rather than reducing imports, and on whether the tariff is temporary and selective or permanent.

In conclusion, high tariffs may reduce some negative effects of globalisation in the short run by protecting jobs in certain industries and raising revenue. However, using cost-benefit analysis, the net effect is likely to be negative, because of higher prices, deadweight welfare loss, retaliation and less efficient industries. Better policies would be training and supply-side measures to help workers move to new industries.